Vol: 8, No. 1, July 2013

Recognized by PM&DC

ISSN No. 1815-4018
PM&DC No. IP/0059

THE JOURNAL OF ISLAMIC INTERNATIONAL MEDICAL COLLEGE

JIIMC

ISLAMIC INTERNATIONAL MEDICAL COLLEGE (IIMC)

JIIMC JOURNAL OF ISLAMIC INTERNATIONAL MEDICAL COLLEGE

ISSN No. 1815-4018 PM&DC No. IP/0059 Recognized by PM&DC

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EDITORIAL

The Role of Physical Therapy in Orthopedic Medicine

Asghar Khan

Physical therapy is integral part of the health care system today nationally and internationally but most part of the world it is not yet a developed profession but a cluster of some modalities and manual skills. Internationally physical therapy is now considered to be independent profession declared by the world confederation for physical therapy (WCPT) and WHO. [1] In most of the developed countries today patients have fully or partially direct access to physical therapy services. It is also very important to know the education level or entry level degree program in physical therapy, which is a 17 years of schooling approved by HE and the curriculum comprises of extensively basic science, medical and clinical sciences so the physical therapist today has the capabilities to assess and treat movement dysfunctions either due to diseases, injuries, ageing process or natural disaster.[2]

The efficacy of physical therapy interventions has been proved in many areas with limitations but in orthopedic Medicine the role of physical therapy is very crucial. In physical therapy the main focus is on biomechanics and ergonomics, e.g. how different movements can be initiated by skeletal muscles and bones around different axis and planes while the stability and coordination will be ensured because any loss of movement or deviation from its physiological axis will result in the loss of functional activities.

In orthopedic conditions; if it is related to joint mobility, fracture or muscular problems the role of physical therapy intervention is very important. If the problem is of a physical nature only physical intervention can be helpful'e.g. in total knee or hip orthoplasty the patient can only take advantage of the artificial joint when he/she get proper physical therapy intervention before and after surgery because the surgeon will replace the joint but it is the physical therapist job to make it functional, so the success of all orthopedic surgeries depends on the good physical therapy care.

A physical therapist has been trained to mobilize the joints without causing any inflammatory reaction.e.g in frozen shoulder(adhesive capsulitis) most of the time the patient has been advised to do some specific exercise to get range but those exercise could make the shoulder worst because breaking the adhesions by stretching can cause the inflammatory reaction again and again which result in new scar formation which further restrict the mobility of the joint but when it is mobilized by the physical therapist manually most of the time it does not cause any inflammatory reaction because he/she applies accurately determined and specifically directed force towords the joint in order to improve mobility. He/she is also aware of the concave & convex role of mobilization, biomechanics, and the resting position of the joint. So after few sessions the patient gains mobility in the joint and able to perform functional activities.[3]

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Skeletal muscle loses strength in traumatic injuries or surgeries, which is most of the times resulting in functional loss, so strengthening of weak muscle is not possible without physical therapy interventions. Physical therapists are trained to write exercise prescription for individual muscle endurance and strength and also able to implement the treatment plan.Muscoloskletel pain is another major problem in orthopedic medicine which can cause severely functional loss in the human body,e.g; back pain or any joint pain due to degenerative changes result in muscle weakness and decreased range of motion which could be the main reason for functional loss, again that can be restored with the help of physical therapy intervention by eliminating the pain with manual therapy. According to Lederman "Manual Therapy, in its many forms, is probably the major method, after medication, for the relief of musculoskeletal pain". (Lederman E. Second edition-2005)

Physical therapy intervention can also play a significant role in the correction of musculoskeletal deformities through stretching and strengthening and by the use of corrective devices of different kinds.e.g; scoliosis can be corrected through stretching of the muscles on the concavity and strengthening on the convexity, alsoThoraco-Lumbo-Sacral Orthosis (TLSO) can be helpful for the correction of the spine. Torticollis, also known as wry neck is any other condition can be treated successfully with physical therapy intervention. After fracture immobilization cause significant decrease in range of motion and also causes disuse muscle atrophy which ultimately cause severe loss of function. This problem can be treated to restore function only with physical therapy intervention.[4]

So there is a very close relationship between orthopedic Medicine and physical therapy. The physical therapist should be part of the orthopedic team. In most of orthopedic cases physical therapy intervention is necessary for the successful outcome and when the physical therapy intervention is ignored in many cases very serious complications result which cause serious problems to the patients. So it is suggested that in all orthopedic unit this protocol has to be in place that every patient in the orthopedic unit has to be evaluated by physical therapists to avoid complications of any procedure or surgeries and the maximum function and mobility of the patient has to be resorted. It is evident from the literature that early mobilization can decrease hospital stay and also decreases the chance of complications to occur after any procedure or surgery.[5]

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ORIGINAL ARTICLE

Early Nasogastric Enteral Nutrition in Acute Pancreatitis

Ahmed Nurus Sami, Naseer Khan, Hamid Rasheed Goreja

ABSTRACT

Objective: To evaluate the effectiveness and safety of early Nasogastric Enteral Nutrition in patients with Acute Pancreatitis

Study Design: Randomized controlled trial.

Place and Duration of Study: The study was conducted at IIMC Hospital Islamabad, and Railways Hospital Rawalpindi from June 2008 to April 2011.

Materials and Methods: A total of 26 patients were studied over the course of 34 months who were admitted with the diagnosis of acute pancreatitis. Patients were divided randomly in two equal groups by consecutive sampling method. One group was given enteral nutrition (EN) through nasogastric tube beginning within 24 hours of admission (group-I), and the other group was provided nutrition through parenteral route (PN) only (Group-II). Outcome in the two groups such as length of hospital and ICU stay, infective complications, nutrition related complications, metabolic and catheter related complications were compared.

Results: Baseline of the study regarding infective complications and mortality were comparable. Average hospital stay was shorter by 22.3% in enterally fed group. ICU stay was also shorter in group-I patients. Significant difference was seen in relief of abdominal pain amongst the two groups, enterally fed (group-I) patients had earlier relief of pain starting on the 3rd day, compared to 5th day in group-II. Majority of the patients in group-I (84.5%) had pain relief between 4th and 9th day, while in group-II, 76.8% had pain relief between 7th and 12th day. Mean pain relief in enterally fed patients was in 7.5 days and in parenteral nutrition group in 10.2 days. Nutrition related complication of diarrhoea was noted in 2 enterally fed patients. Metabolic complications (hyperglycaemia), and catheter related septic complications were seen only in parenterally fed patients. Acute pseudocyst formation occurred in one patient of enterally fed group as noted on follow up.

Conclusion: Early enteral nutrition is safe and effective in the management of acute pancreatitis. Enterally fed patients show advantage of shorter hospital and ICU stay, and earlier relief of symptoms compared to patients managed on parenteral nutrition. Our study considers early enteral nutrition feasible and desirable.

Key Words: *Acute pancreatitis, Early enteral nutrition, Total parental nutrition.*

Introduction

Acute pancreatitis (AP) ranges from a mild and self-limiting disease (80%) which usually resolves spontaneously within days, to a rapidly progressive fulminant illness with significant morbidity and mortality.[1,2] The clinical course of an attack of acute pancreatities varies from a short period of hospitalization with supportive care to prolonged hospitalization and admission to an Intensive Care Unit (ICU) due to the development of systemic inflammatory response syndrome (SIRS), multi-organ failure (MOF), and septic complications. Acute malnutrition is expected to increase morbidity and mortality due to impaired immune function, increased risk of sepsis, poor wound healing, and multiple organ failure.[3] Nutritional management for acute pancreatities is an important issue and has always been regarded as a vital part of treatment.

Traditional teaching has been that the management of acute pancreatitis begins with "pancreatic rest," due to the assumption that stimulation of pancreas by food intake during acute phase would exacerbate the inflammatory process by releasing more enzymes. Avoidance of oral intake to prevent inappropriate stimulation of pancreas was therefore considered necessary. The validity of this concept of "pancreatic rest" is heavily debated.[4,5,6]

Pancreatic inflammation is followed by the

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absorption of endotoxins from the intestine due to bacterial translocation, which over stimulates the already primed immune system, excessive absorption of endotoxins occurs in acute pancreatitis.[7,8,9] These SamaH,UedaT,Take yaway et al found a significant positive correlation between intestinal mucosal permeability and changes in endotoxins and tumor necrosis factor-ƒ¿, also that the severity of disease and septic complications were positively associated with the severity of gut mucosal damage.[10] Intestinal permeability was seen to be increased in severe acute pancreatitis, intestinal permeability correlated with endotoxins absorption and bacterial translocation.[11] The current hypothesis is that the gut-derived bacteria translocate due to a combination of pathophysiological events which are disturbed gastrointestinal motility, bacterial overgrowth, reduction of arterial blood flow, increased permeability of the gastrointestinal mucosal barrier and bacterial translocation, leading to distant systemic infections, including infection of peripancreatic area and infectious pancreatic necrosis.[12,13]

Integrity of the mucosal barrier depends not only on a good blood supply, but also gastrointestinal hormones and presence of nutrients in the lumen. As the mucosal cells derive almost all their nutrients from the gut lumen wide spread mucosal atrophy occurs in patients on total parenteral nutrition due to lack of hormones and nutrients in the lumen.[14,15] These trials concluded that enterl nutrition was associated with fewer infectious complications and lower cost than parenteral nutrition.[16,17,18,19] TPN has its own problems although it is very effective in maintaining nutrition in almost any critically ill patient, it can cause serious complications in particular, catheter related sepsis and hyperglycemia.[20]

Initially it was suggested that to ensure full pancreatic rest, nutrition tubes should be placed in the jejunum.[21,22] In the past few years, it has been proposed that enternal nutrition through nasogastric tubes may be a simple, safe and equally valid alternative to nasojejunal tubes, with the potential advantage of earlier administration of nutrients.[23,24]

The purpose of our study was to evaluate the effectiveness and safety of early enteral nutrition within 24hrs of admission in patients of acute pancreatitis as compared to the current practice of total parenteral nutrition for 72 hrs. Nasogastric intubation was preferred to nasojejunal intubation because it was considered just as safe in earlier studies and simpler to place without the involvement of endoscopy or fluoroscopy.[23]

Materials and Methods

A total of 26 patients were studied over the course of 34 months from June 2008 to April 2011 at IIMC hospital Islamabad, and Railways Hospital Rawalpindi, admitted with a diagnosis of acute pancreatitis and who fulfilled the inclusion criteria of the study. The patients were divided randomly into two groups in equal numbers by consecutive sampling method. On admission detailed history taking and physical examination was done. Complete blood count, serum lipase, serum amylase, triglyceride, abdominal ultrasound and contrast enhanced spiral CT abdomen was done to detect pancreatic oedema, necrosis and possible abscess formation. Ranson score was calculated. Patients with score <3 were considered to have mild pancreatitis, score 3-5 moderate pancreatitis. While those with Ranson score >5 were classified as severe acute pancreatitis. Patents were

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monitored and reassessed every day thereafter by clinical examination and necessary blood tests.

Inclusion criteria were diagnosis of acute pancreatitis if at least 2 of the 3 following features were present: 1) Upper abdominal pain, 2) Serum lipase or Amylase levels three times above the upper level of normal and 3) Characteristic findings of acute pancreatitis on abdominal CT.

Exclusion criteria were 1) History of acute or chronic pancreatitis. 2) Diagnosis of pancreatitis > 24 hours after admission. 3) Onset of symptoms > 96 hours (4 days) before admission. 4) Acute pancreatitis due to malignancy 5) Post-ERCP pancreatitis. 6) Acute pancreatitis post surgery. 7) Pregnancy.

All patients received prophylactic antibiotics, fluid and electrolyte management, in addition to analgesics. ERCP was done where required for biliary pancreatitis. Blood sugar was monitored and adjusted by insulin on sliding scale.

Patients in group-I were given entral nutrition (EN) through nasogastric tube beginning within 24 hours after admission, with a target of approximately 1.5 gm protein/Kg/day, and 20 Kcal energy/Kg/day by hourly feeding. Feeding was commenced at 20ml/hr and increased progressively to goal rates. 'Ensure powder' from Abbot Laboratories was used as a supplement which provided 1Kcal energy/ml and proteins 15.9gms/100ml. In addition clear fluids such as water, tea, green tea and fruit juices were permitted orally if patient desired.

Patients in group-II were kept nil by mouth and on total parenteral nutrition (TPN) through central veuous line, and oral diet was started 72 hours after admission if tolerated, and no complication had occurred.

Time of pain relief was measured by visual analogue scoring system 1-10. Pain was considered severe for score 6-10, moderate 3-5, and mild for score less than 3. Pain was considered relieved if patient scored 0-1.

Outcome in the two groups were compared regarding mean time of hospital stay, mean time of ICU stay, infective complications such as intra abdominal sepsis and infective pancreatic necrosis. Catheter and nutrition related complications such as diarrhea, and metabolic complications such as hyperglycemia were noted. Pseudocyst formation if any was noted on follow up (Table I).

Table I: Characteristics of 26 patients included in the study

Demography	Group-I Entral feeding (n=13)	Group-II Parentral feeding (n=13)
Gender: Male/Female	12/8	14/6
Mean age (Years)	(23-62) 44.38	(25-66) 42.46
Mild-moderate pancreatitis	10 (76.9%)	9(69.23%)
Severe pancreatitis	3(23.01%)	4(30.7%)
Etiology:		
Alcoholic	0	1(7.6%)
Biliary	9(69.2%)	10(76.92%)
Hypertriglyceridemia	1(7.6%)	0
Idiopathic	3(23.01%)	2(15.38%)
Amylase on admission average (nv < 100 U/L- Roche)	410 U/L	382 U/L
Lipase on admission average (nv < 70U/L-Roche)	965 U/L	890 U/l

Results

A total of 26 patients were studied randomly divided into two groups as shown in Table I. Group-I receiving enteral nutrition (EN) through NG tube starting within 24 hours of admission, and Group-II received total parenteral nutrition (TPN) for at least 72 hours after admission

Baseline of each trial was comparable. There was no significant difference in mortality and morbidity between the group fed enterally by nasogastric tube soon after admission (group-I) and the group on TPN for 72 hours after admission (group-II) (Table II).

Average hospital stay was 9.8 days in group-I, and 12.6 days in group-II. In group-I, 9 patients were nursed in ICU, and the mean

Table II: Comparison of clinical features and complications of 26 patients included in the study

Clinical Features and Complications	Group-I (EN)	Group-II (TPN)
Hospital stay mean days	9.8	12.6
ICU stay mean days (number of patients admitted in ICU)	7 (9)	9 (8)
Relief of pain mean days	7.5	10.2
Intra abdominal sepsis	1	2
Infective pancreatic necrosis	0	0
Acute Pseudocyst formation	1	0
Hyperglycaemia >200 mg/dl	0	3
Diarrhoea	2	0
Catheter related sepsis	0	1

stay time was 7 days, while in group-II, 8 patients were admitted in ICU for a mean of 9 days.

There was no death in either group. Rate of infective complications was similar in the two groups; 2 patients from group-II and 1 patient from group-I developed intra abdominal sepsis in the peripancreatic area as found on CT examination. Infective pancreatic necrosis did not occur in any patient in either group.

Diet related complication (diarrhoea) occurred in 2 patients who were on enteral nutrition (group-I), this complication was not seen in group-II. In two patients in enterally fed group who developed an ileus, temporary reduction in the volume of oral feed was done for two to three days because of fullness and nausea

In group-II, 3 patients developed hyperglycemia >200mg/dl, and 1 patient had catheter related sepsis, these complications were not seen in group-I. Acute pancreatic pseudocyst developed in 1 patient in group-I as found on the fifth week during follow up. (Table II)

Early relief of abdominal pain was noted in group-I (Table III). Pain relief began on the third day in enterally fed patients (7.6%), while in patients on PN pain relief began on the 5th day. In group-I, 11 patients (84.5%) had pain relief between 4th and 9th day, while in group-II relief was obtained by majority of patients i.e. 10 (76.8%) between 7th and 12th

Table III: Time required for pain relief in both study groups (n=26)

Time taken for pain relief (days)	Group-I (EN) n=13 No. (%)	Group-II (TPN) n=13 No. (%)
Up to 3	1 (7.6%)	0
4-6	7 (53.8%)	2 (15.3%)
7-9	4 (30.7%)	6 (46.1%)
10-12	1 (7.6%)	4 (30.7%)
12-14	0	1 (7.6%)

day. Mean pain relief in group-I was in 7.5 days, while in group-II it was in 10.2 days. .

Discussion

Acute pancreatitis is a life threatening catabolic condition secondary to marked inflammatory response. Over the years several strategies were found ineffective in improving the outcome for patients with severe pancreatitis.[25,26] In the absence of a known specific therapy that can counteract pancreatic inflammatory cascade, ICU management and nutritional support have emerged as the two vital measures in first few weeks of disease.

Optimal nutritional support can help improve the associated comorbities.[27] Nutritional support in sevare acute pancreatitis can be achieved by parenteral or enteral routes. Early enteral nutrition has been regarded in the past as an unsafe nutritional support route in view of the pancreatic-rest theory in the management of acute pancreatitis due to the simple belief that stimulation of pancreas by food intake during acute phase would exacerbate the inflammatory process by releasing more enzymes. Parenteral nutrition was therefore proposed as the modality of choice. PN however resulted in increased infectious and metabolic complications as confirmed by various randomized clinical trials comparing EN with PN.[28,29] These trials concluded that EN was associated with fewer complications.[30] EN was found to be the only strategy effective in preventing complications in acute pancreatitis.[31]

Windsor et al demonstrated that acute phase response and high serum antibody levels noted in PN managed patients were suppressed in enterally fed external nutrition patients.[32] Integrity of the mucosal barrier depends not only on a good blood supply, but also gastrointestinal hormones and presence of nutrients in the lumen. Since mucosal cells derive almost all its nutrients from the gut contents, wide spread atrophy of mucosal cells occurs in patients on TPN.[14,15] Interestingly, a study by Rahman et al found that severe acute pancreatitis was associated with decrease in both intestinal mucosal blood flow and the intestinal beneficial bacteria *Lactobacilli* and *Bifidobacteria*.[33] Whether the protective effects of enteral nutrition in patients with severe acute pancreatitis are related to its effects on intestinal mucosal blood flow and/or intestinal bacterial flora remains unknown. It is most likely due to the ability of enteral nutrition to maintain gut function that it prevents bacterial overgrowth as well as endotoxins production and absorption, resulting in reduction of parenteral nutrition associated complications.

Eatock et al first introduced early nasogastric feeding into nutritional management of severe acute pancreatitis.[34] Then Pandey et al experimented oral feeding in patients with severe acute pancreatitis, suggesting that nasogastric feeding is feasible in up to 80% cases.[35] Current literature suggests that enteral nutrition is superior to parenteral nutrition in decreasing infectious complications, length of hospital stay, and mortality.[36] Enteral nutrition is preferred to parenteral nutrition for improving patient outcomes,[37] and has largely replaced the parenteral route.[38]

This study was intended to find the feasibility and safety of early nasogastric enteral nutrition compared to total parenteral nutrition in the management of acute pancreatitis. We have found early enteral nutrition not only feasible and safe, but having favorable outcome in certain aspects compared to management on parenteral nutrition.

In our study hospital stay of patients on enteral nutrition (group-I) was significantly less (22.3%) than those on TPN (group-II) which also translates into reduced expenses incurred on treatment, although the cost figure was not calculated not being an objective of this study. This is consistent with the study of kalfarentzos et al who found that hospital stay of patients on enteral nutrition was shorter than those on TPN.[39] Mean ICU stay in group-I was shorter by 2 days (7 days) compared to group-II (9 days).

There was no significant difference in infective complications. Incidence of intra-abdominal sepsis was similar in either group (Table II). There was no mortality, and no case of infective pancreatic necrosis occurred in either group.

Acute pancreatic pseudocyst occurred in one patient of group-I and none in group-II. This is consistent with the findings of Eckerwall GE et al, who has concluded that incidence of some late complications may be higher in early nasogastric enteral nutrition group.[40]

In this study we found patients on enteral nutrition to have significant advantage on patients on TPN regarding earlier pain relief. Relief of abdominal pain as noted by visual analogue scale was in mean 7.5 days in group-I patients, while it occurred in mean 10.2 days in group-II.

Main adverse effect of enteral nutrition support was diarrhea, which was noted in 2

enterally fed patients (group-I). It was easily managed by reducing oral intake for two to three days; none of the patients in group-II had this complication.

Hyperglycemia >200 mg/dl was seen in 3 patients in group-II. Catheter related sepsis was also seen in one patient with centeral venous line in group-II. Metabolic and catheter related complications were not seen in any group-I patient.

Early nasogastric enteral nutrition was found to be safe and practical in our study. None of the patients had to be shifted to TPN from enteral nutrition, although in some cases the quantity of NG intake had to be reduced for a few days due to diarrhoea, ileus and nausea.

Conclusion

This study found early enteral nutrition effective and safe in patients of acute pancreatitis. Early initiation of enteral nutrition was found to be associated with earlier relief of abdominal pain, shorter length of hospital stay, and shorter ICU stay. We conclude that it is superior to PN for improving patient outcomes and is clinically beneficial.

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ORIGINAL ARTICLE

Role of Early Range of Motion Exercises in Reduction of Scar Formation and Prevention of Contracture in Sub-acute Stage of Burn Patients

Muhammad Asadullah, Asghar Khan, Syed Shakil-ur-Rehman, Khalid Farooq Danish, Fozia Sibtain

ABSTRACT

Objective: To determine the role of early passive range of motion exercises in the reduction in scar formation and prevention of Contracture in sub-acute Burn Patients.

Study Design: Randomized Control Trail (RCT).

Place and Duration of Study: Burn Centre Pakistan Institute of Medical Sciences Islamabad, from January to December, 2010.

Materials and Methods: Thirty patients were selected from the burn center at Pakistan Institute of Medical sciences (PIMS) Islamabad, age ranging from 12-60 years, and were randomly placed into two groups, 15 patients in each group. The anti-contracture positioning program was applied on group A with early passive range of motion (PROM) exercises of the involved areas and in group B only anticontracture positioning program was applied. The Vancouver Scar Scale (VSS) was used as an assessment tool and 4 variables were assessed including vascularity, height/thickness, pliability, and pigmentation. Data was analyzed on SPSS version-20 and independent t-test was applied at 90% level of significance to calculate the p-value for group A and B.

Results: The results show that the anti-contracture positioning with early passive range of motion (PROM) exercises reduced scar formation and prevent contractures more significantly in group A (P-value =0.002) with average VSS score 6, as compare to the anticontracture positioning alone in group B (P-value=0.435) with VSS score 10, as assessed at the completion of physical therapy management program in all the 30 patients of sub-acute stage of burn.

Conclusion: It was concluded that the early passive range of motion exercises with anti-contractures positing can reduce the amount of scar formation, prevent contractures and increase the quality of physical therapy management in sub-acute stage of burn patients.

Key Words: *Anti-contracture Positions, Scar formation, Passive Range of Motion Exercise (PROM)*

Introduction

Burn is very common injury, where necrosis of the human body's tissues occurs, superficially to the skin or deep to the vessels, muscles and vital organs. Burn is commonly caused by the heat electricity, chemical light, radiation or fraction.[1] The first priority of the health professionals is to save life, and secondly the rehabilitation of the patient.[2] The Complications such as shock, infection, multiple organ dysfunction syndrome, electrolyte imbalance and respiratory distress may occur. The commonly used treatment of burns may include the removal of dead tissue (debridement), applying dressings to the wound, fluid resuscitation, administering antibiotics, and skin grafting, and followed by rehabilitation including physical therapy. The physical therapy management includes anticontracture positioning, range of motion exercise, stretching, splinting and pressure garments to prevent contractures, minimize the scar formation and to maintain the soft tissue length.[3]

The physical therapy and rehabilitation is divided into two phases, the acute care at the early stage and advanced care later on. The acute care is very important regarding the prevention of contractures, minimization of scar formation and maintaining normal range of motion. The common physical therapy procedures in the acute or early stage are performing ROM, Splinting and

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antideformity or anticontracture positioning.[4]

In this study we compared two commonly used physical therapy procedures and techniques in the early sub-acute stage of burn patient's rehabilitation. The anticontracture positioning with passive early range of motion exercise was applied in group A; while the anticontracture positioning was applied alone in group B. The purpose was to determine the efficacy of anticontracture positioning with and without early passive range of motion exercises in rehabilitation of burn patients in early stage.

Materials and Methods

This randomized control trail was conducted on 30 patients of burn patients at their sub-acute stage of condition. The age of patients was 12 to 60, including 18 males and 12 females. (Table-I) All the patients were randomly selected from the burn center at Pakistan institute of Medical sciences Islamabad (PIMS), and were randomly placed into two groups, 15 patients each. The anti-contracture position program and early range of motion exercises were applied in group A, and anti contracture positioning alone in group B. The inclusion criteria was, age between 12 to 60 years, sub-acute stage with less than 40 % burn injury, and ability to follow the instructions for early range of motion exercises.

The treatment program was applied after one week of injury, including anti-contracture positioning with and without early range of motion exercises, and continued for 4 weeks twice a day. The anti-contracture positioning was applied and maintained for 4 weeks with the help of splints, and removed twice a day for range of motion exercises in group-A and to inspect the scar, wound, and dressing. (Table-II) The patients' and their families' motivation and cooperation, was always very important and to achieve this goal a regular patients' and their family education was continuously implemented during the treatment program. The bed mobility and position change were also encouraged as per indication, to prevent the overall deconditioning of the uninvolved segments.

The VSS was used as an assessment tool, which assessed 4 variables including vascularity, height/thickness, pliability, and pigmentation. The VSS has score 0-14, where zero means normal and 14 means thick scar and contracture. The VSS was calculated at the completion 4 weeks treatment program for all patients. The Data was analyzed on SPSS version-20, and independent t-test was applied at 95% level of significance to calculate the p-values for group A and B.

Results

The results show that the anti-contracture positioning with early passive range of motion (PROM) exercises reduced scar formation and prevent contractures more significantly in group A (P-value =0.002) with average VSS score=6, as compare to the anticontracture positioning alone in group B (P-value=0.435) with VSS score=10, as assessed at the completion of physical therapy management program in all the 30 patients of sub-acute stage of burn.

Discussion

Hoffman and colleagues conducted a clinical research trail on 12 burn patients and applied different techniques to reduce pain and prevent contractures in sub-acute stage of rehabilitation. They concluded that the early passive range of motion exercise has significant role in pain management and can manage pain better as compare to the other therapies. This research study shows the significant role and importance of physical therapy management, especially the early

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Table I: Base line characteristics of 30 patients

Characteristic		Group-A, anti-contracture positioning with early range of motion exercises (n=15)	Group-B, anti-contracture positioning without early range of motion exercises (n=15)	Total
Gender Distribution	Male patients	11(61%)	7 (38%)	18 (60%)
	Female patients	4 (33%)	8 (66%)	12 (40%)
Area of body involved	Upper extremity involvement	04 (44%)	05 (55%)	09 (30%)
	Lower extremity involvement	08 (57%)	06 (33%)	14 (46.6%)
	Neck, back, and abdominal involvement	03 (42%)	04 (57%)	07 (23.3%)
Occupation	House wife	06 (60%)	04 (40%)	10 (33.3%)
	Factory workers	05 (41.6%)	07 (58.3%)	12 (40%)
	others	04 (50%)	04 (50%)	08 (26.6%)
Cause of burn	Flame	8 (44.4%)	10 (55.5%)	18 (60%)
	hot fluids	2 (33.3%)	4 (66.6%)	6 (20%)
	Chemical	3 (75%)	1 (25%)	4 (13.3%)
	Electrical	2 (100%)	0 (0%)	2 (6.6%)
Extent of burn	Superficial	03 (42.8%)	04 (57.1%)	07 (23.3%)
	Partial thickness	06 (60%)	04 (40%)	10 (33.3%)
	Full thickness	06 (46.1%)	07 (53.8%)	13 (43.3%)

Table II: Anti-contracture positioning applied to all 30 patients

Area burnt	Contracture/ difficulty experienced	Anti- contracture position
Front of neck	Neck flexion. The chin is pulled towards The chest reducing neck movement. Contours of the neck are lost	Neck in extension. No pillow behind head, roll behind neck. Head tilted back in sitting
Posterior neck	Neck extension and other neck Movements	Sitting with head in flexion. Lying with pillows behind the head
Axillas or anterior and Posterior axillary fold	Limited abduction, protraction When Burns also of chest	Lying and sitting-arms abducted to 90 degrees supported by pillows or foam blocks between chest and arms
Front or elbows	Elbow flexion	Elbow extension
Back of hands	Metacarpo-phalangeal (MCP) Hyperextension, Interphalangeal(IP)Flexion, Adduction of thumb Wrist flexed	Wrist- 30 to 40 degrees extended, MCPs 60 to 70 degrees flexion, IP joints in extension, thumb mid-palmar radial abduction
Palm of hand	Fingers adducted and flexed, palm pulled inwards	Wrist extended, minimal MCP flexion, fingers extended and abducted.
Groin (hip)	Hip flexion Hip adduction	Lie in prone with legs extended. Limit sitting and side lying. Supine lying with legs extended, no pillow under knees
Back of knee	Knee flexion	Legs extended in lying and sitting
Feet	Feet are complex structures and can be pulled in different directions by healing tissues preventing normal mobility	Ankles at 90 degrees- use pillows to maintain position. Encourage sitting with feet flat on floor as no edema present
Face	The face can be effected in various different ways including inability to open or closer mouth fully and inability to close eyes fully	Regular change of facial expression and stretching regime required. A well –padded tube can be inserted into the mouth to combat mouth contracture

passive range of motion exercise.[5]

Xie and team published a review article on Evaluation of long term health-related quality of life in extensive burns: a 12-year experience in a burn center. They determined the role of different types of intervention and long term effectiveness. They listed physical therapy one of the effective therapies in the management of burn patients with long term effects. [6]

Casa B. and colleagues conducted a review study on the multidisciplinary approach towards the rehabilitation of burn patients. All the authors concluded that the physical therapy is very effective and important in the rehabilitation of burn patients. They also listed some interventions including early range of motion exercises, anticontracture positioning and aquatic physical therapy, and they also supported the short term and long term effects of physical therapy and rehabilitation in the management of burn patients, both in early and advanced stages of rehabilitation. [7]Cucuzzo and team conducted a research study on the effects of exercise programming vs. traditional outpatient therapy in the rehabilitation of severely burned children. The purpose of the research study was the efficacy of in-patient exercise program versus home program in burn children with less than 40% body surface area. Twenty one patients were enrolled in the study, 10 in group A and 11 in group B. They concluded that supervised in-patient exercise program is safer and significantly increase muscle strength and function as compare to the home exercise program. [8] Oscar E. Suman and colleagues conducted a research study on the Effects of a 12 weeks resistance exercise program on skeletal muscle strength in children with burn injuries. They found that the participation in a resistance exercise program results in a significant improvement in muscle strength, power, and lean body mass relative to a standard rehabilitation program without exercise.[9] Robert L. Sheridan, MD and team conducted a research study on long-term outcome of children surviving massive burns. The purpose of this research study was to investigate the long-term quality of life in children who have survived massive burns. They concluded that physical therapy and rehabilitation is very effective in long term management of burn patients.[10]

Conclusion

It was concluded that the early passive range of motion exercises with anti-contractures positioning can reduce the amount of scar formation, prevent contractures and increase the quality of physical therapy management in sub-acute stage of burn patients.

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ORIGINAL ARTICLE

Colposcopy: A Valuable Screening Tool for the Diagnosis of Premalignant and Malignant Cervical Pathologies

Attiqa Zaigham, Asma Shaheen, Azra Saeed Awan, Raazia Rauf

ABSTRACT

Objective:To correlate colposcopic findings with the results of cervical biopsy and to prove colposcopy as a valuable screening tool for the diagnosis of premalignant and malignant cervical pathologies.

Study Design: A quasi experimental study

Place and Duration of Study: Study was conducted from January 2008 to April 2010 in the Department of Obstetrics & Gynecology, Railway Hospital Rawalpindi.

Materials and Methods: The study population included three hundred women who attended the outpatient department of Railway hospital over a period of two years. All these symptomatic women between the ages of 30-60 years were recruited with one or more of the complaints of post coital bleeding, intermenstral bleeding, postmenopausal bleeding, recurrent vaginal discharge or abnormal Pap smear.

The recruited women were examined by speculum, followed by pap-smears. Out of 300 women Pap smear of 200 women was abnormal and showed inflammatory lesions at three consecutive times. These ladies were booked for colposcopy. However, any other women whose reports showed dyskaryotic changes were immediately booked for colposcopy. Biopsies from abnormal areas were taken and sent for histopathology. The reports of cervical biopsy were then analyzed.

Results: Out of 300 women recruited, 200 showed positive Pap smear. 108(54%) symptomatic women showed normal epithelium, while 92 women (46%) had abnormal transformation zone changes. Cervical biopsy reports of 92 women with abnormal colposcopic findings, showed up chronic cervicites in 60 cases, miscellaneous cervical pathologies in 10 cases, no dysplasia in 10 cases and cervical carcinoma was diagnosed in 12 cases.

Conclusion: The study concluded that colposcopy followed by cervical biopsy proved to be a valuable screening tool for the diagnosis of premalignant and malignant cervical pathologies.

Keywords: *Colposcopy, Dysplasia, Cervicitis, Cervical carcinoma.*

Introduction

Benign diseases of the cervix are common, usually asymptomatic or cause minor symptoms. However they must be differentiated from malignancy. Cervical cancer is the second commonest cancer among women in developing countries; with an estimated lifetime risk of 0.1865 %.[1] It is preceded by a premalignant form years before its invasion. Therefore, screening for premalignant disease of the cervix can markedly reduce the morbidity and mortality from cervical cancer.[1] Screening with Papanicolaou (Pap) smears, followed by colposcopy with biopsy for diagnosis and LETZ excision for treatment has become the standard of care for developed countries due to its effectiveness in reducing the population-wide incidence of invasive cervical cancer and its overall cost-effectiveness.[2]

Pakistan is among the poorest country in the Southeast Asia; two-thirds of the Population lives below the poverty line and half of them lack basic sanitation and portable water. The cervical cancer incidence in Pakistan is 39.1/100,000 (.0391%).[3] These rates are over four times higher than in the United States[4] The healthcare resources are scarce in our country and there are limited screening programs available. Moreover lack of awareness among women, social taboos, social limitations and immobility, all

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provide barriers to early detection of cancer.
Pakistan has no nationwide cervical cancer screening program, but Pap smears are widely available through local health centers, at private clinics, or at special screening days organized by a variety of private organizations. Even doing Pap smear has many limitations as many clinics lack spatulas, cytobrushes, and fixative and instead used tongue depressors, Q-tips, and hair spray. In few settings specimen are often stored in warm, humid conditions for one or more weeks prior to transport to the central processing facility, resulting in fungal contamination. Most of our central laboratories lack the resources to purchase new supplies on a regular basis, so dyes and stains were re-used and recycled to extend their use, resulting in poor quality staining. Therefore in such settings relying only on Pap-smear can be questionable.
Colposcopy, a clinical method of proved accuracy, in such settings can be an excellent means of evaluating abnormal cervical cytology. During colposcopy, Visual Inspection with Acetic Acid (VIA) coupled with Pap smear reports can provide an effective screening tool in developing countries like Pakistan. Colposcopy is available only at a limited number of Government Hospitals. However the attractive features of colposcopy include immediate availability of results, and accuracy comparable to that of good quality Pap smears. Fortunately, colposcopic examination is satisfactory not in older women but quite accurate in nearly all young patients who mostly need conservative treatment.[5]
The rationale of our study comes from the need for early detection to decrease the incidence of cervical Cancer in Pakistan as we all are well aware that there are usually years between dyskaryotic changes, CIN and invasive carcinoma.

Materials and Methods

A quasi experimental study was conducted from January 2008 to April 2010 in the Department of Obstetrics & Gynecology, Railway Hospital Rawalpindi.
The study population included total of three hundred women who attended the outpatient department of Railway hospital over a period of two years. In study, during initial evaluation of women we first explored different variables like the age at first intercourse, HPV infection, STDs, multiparty, history of previous CIN, smoking, immunocompromised state and poor personal hygiene. All the data recorded on a specially designed Performa.
Out of these two symptomatic women between the ages of 30-60 years, smoker or non smoker, with any or more of the complaints of recurrent abnormal vaginal discharge, erosion/ ectropion on cervix, an unhealthy cervix or any cervical lesion which is bleeding on touch, previous abnormal Pap smear, post coital bleeding, intermenstral bleeding, and postmenopausal bleeding were recruited. Pregnant women, women with uterovaginal prolapsed;Post hysterectomy and post radiation cases were excluded.
The recruited women were examined by speculum, followed by pap-smears. The prepared Pap smear slides were sent for cytological examination in our hospital. Smears were reported either as Normal, Unsatisfactory/insignificant changes, Inflammatory or borderline. All borderline cases group included cases showing mild, moderate, or severe dyskaryosis or showing abnormal glandular cells. These ladies were immediately recruited for suspicion of malignancy and booked for colposcopy.

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All other women whose cytological reports showed inflammatory response were first treated by antibiotics for fourteen days and then their Pap-smears repeated. Out of this group, all those women who's Pap smear still showed inflammatory lesions at three consecutive times were also booked for colposcopy.

During colposcopy all women underwent both acetic acid and Schiller's test. The colposcopic findings and suspicious biopsy sites were recorded on specially designed Performas and their colposcopic picture was drawn accordingly. The acetowhoite areas and iodine negative areas were selected sites for cervical biopsies. Interpretation of colposcopy reports were on finding acetowhite leisions, surface pattern of lesion, vascular/mosaic pattern or whether it was a single, bifocal or annular leisions. All these findings were then interpreted according to Clinicocolposcopic index. Maximum score was set as 10, 0-2 was for insignificant lesion, 3-5 for low grade lesion and 6-10 for high grade lesion (Table I).

Women with abnormal colposcopic findings were admitted for cervical biopsy, biopsies taken and sent for histopathology. The reports of cervical biopsy were then analyzed and work up planned accordingly. The histopathological cervical biopsy findings were categorized according to the nomenclature into:

*Normal,*Abnormal,*Undifferentiated and *Miscellaneous.

Normal included all those: when there was no cellular evidence of neoplasia whether or not there were organisms such as Trichomonas vaginalis or Fungal organisms morphologically consistent with Candida spp or Shift in flora suggestive of bacterial vaginosi or Cellular changes consistent with Herpes simplex virus.

Abnormal cases included: Cases showing either Atypical squamous cells of undetermined significance (ASC-US), Low grade squamous intraepithelial lesion (LSIL) (encompassing: HPV/mild dysplasia/CIN 1), High grade squamous intraepithelial lesion (HSIL) (encompassing: moderate and severe dysplasia, CIS, CIN 2 and CIN 3) with features suspicious for invasion (if invasion is suspected) or Squamous cell carcinoma.

Miscellaneous group included cases of Nabothian cyst, reactive changes due to IUCDs, radiation, post hysterectomy or atrophy.

All the study variables including Pap smear reports, colposcopy findings, histopathological diagnosis, age of the patient, parity, smoking and history of previous cervical malignancies were calculated. The data was entered and confidence interval calculated.

Table I: Clinicocolposcopic Index

	0	1	2
Index cytology	Low grade		High grade
Smoking	No		Yes
Age(years)	< 30		>30
Acetowhitening	Slight		Marked
Surface area(cm2)	<1	>1	
Intercapillary distance(µm)	<350 no mosaic punctation	>350 mosaic punctation	
Focality of lesion	Unifocal or multifocal	Annular	
Surface pattern	Smooth	Irregular	

Results

Out of 300 women recruited, 200 showed positive Pap smear. Out of these 200 patients, 96 (32%) were in the age group of 30-39 years, 57(19%) were 40-49 years and 147(49%) were in the age group of 50-59. One hundred and seventeen (39%) were in the parity group 0-4 and 183 (61%) were in the parity group 4-6.The major presenting

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complaints were a white discharge per vaginum and lower abdominal pain. Most of the patients with dysplasia had white discharge per vaginum and post-coital bleeding.

Out of 200 patients with positive Papanicolaou smears, 108(54%) women showed normal epithelium at colposcopy, while 92(46%) had abnormal transformation zone changes. In 108 women, colposcopic directed biopsy evaluation was not done because we would have expected the biopsy specimens to be negative as they had no significant findings at colposcopic examinations.

Out of 200 positive cases, Pap smear reports picked 4 cases with dyskaryotic changes. All these positive cases were examined under colposcope and underwent cervical biopsy. 92(46%) of these women had showed abnormal epithelium changes and underwent cervical Biopsy. The abnormal findings on colposcopy were acetowhoite areas, punctation, mosaic pattern and an abnormal vasculature or nabothian cyst (Figure 1).

In 92 women with abnormal colposcopic

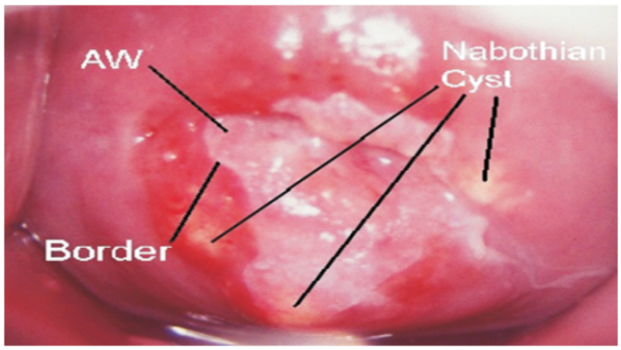

Figure 1: Colposcopic picture showing acetowhoite areas, an abnormal vasculature as punctation and nabothian cyst.

findings, the cervical biopsy revealed that sixty cases had chronics cervicites, ten cases were of miscellaneous cervical pathology, ten cases showed no dysplasia and cervical carcinoma was diagnosed in twelve cases. Out of these twelve cases, 5 women showed Low grade squamous intraepithelial leisions, 2 had High grade intraepithelial leisions and 5 with invasive leisions were picked. Using the same data, we calculated the percentage of positive and suspicious tests and their confidence interval calculated (Table II).

Cervical biopsy reports of 4 cases with dyskaryotic changes on Pap smear and suspicious colposcopy were also diagnosed to have CIN I & 3.Cervical biopsy reports of 8 cases with both Pap smear and colposcopy showed CIN 1, 2 & 3. Total twelve patients with cervical intraepithelial neoplasia lesions were detected by using both methods followed by colposcopically directed cervical biopsies (Table III)

Further Analysis of the result showed that

Table II: Results of Colposcopically directed biopsies for patients with positive Papanicolaou smear and suspicious colposcopy

Tissue diagnosis	Positive Pap smear Suspicious colposcopy	Prevalence	Confidence index
Chronic cervicites	60	60/92	65.21%
Miscellaneous cervical pathologies	10	10/92	10.86%
No dysplasia	10	10/92	10.86%
CIN 1	5	5/92	5 43%
CIN 2	2	2/92	2 17%
CIN 3	5	5/92	5.43%
Total no of CIN lesions	12	12/92	13.04%
Total	92		

Table III: Colposcopically directed biopsies for patients with either positive Papanicolaou smear or Pap smear plus colposcopy

Tissue diagnosis	Pap smear	Colposcopy	No. of patients
No dysplasia	-	10	10
CIN 1	3	2	5
CIN 2	0	2	2
CIN 3	1	4	5
Total	4	18	22
Total no. of CIN lesions	4	8	12

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screening of 200 women by both the Papanicolaou smear and colposcopic examination and subsequent biopsies was more effective than Pap smear alone. In these women, the screening alone with Pap smear picked up only 4/92(4.35%) cases (table 4). Pap smear alone failed to diagnose abnormalities in 88 cases, which were diagnosed colposcopically and histologically.Pap smear when coupled with colposcopic evaluation and the guided biopsy were successful in detecting abnormalities in 92 cases. Colposcopy picked up 8/92(8.7%) cases. Colposcopy proved to be more sensitive when coupled with the Papanicolaou smear as it helped in detection of other cervical pathologies also and cervical intraepithelial neoplasia. The incidence of CIN 1 and CIN 2, 3 was found to be 5.43 % and 7.60 % respectively in the present study.The sensitivity and the specificity of colposcopy& Pap smear to diagnose premalignant and malignant leisions were 75% and 50% respectively. The predictive value of colposcopy in the present study was 42.85% (Table IV)

The sensitivity of colposcopy when coupled with Pap smear to diagnose premalignant and malignant leisions decreased from 75% to 58.33% but the specificity of colposcopy& Pap smear improved from 50% to 57.44% respectively.

Table IV: Papanicolaou smear alone & papsmear coupled with Colposcopy

	Positive Pap smear	Colposcopy & Positive Pap smear	Total
Premalignant Leisions	3	4	7
Malignant	1	4	5
Total	4	8	12

Depending upon their degree of dysplasia, the young patients with mild dysplasia were subjected to conservative treatments like cryotherapy and conization. The perimenopausal and post menopausal women were booked for surgery.

Discussion

The worldwide burden of cervical disease is enormous, with over 500 000 new cases of cervical cancer diagnosed each year, resulting in 250 000 deaths. This burden and ramification of cervical cancer due to Human Papilloma virus (HPV) infection is significantly and proportionally greater with over 300 million new cases of HPV infection, 30 million new cases of Low Grade Squamous Intraepithelial Lesions (LSIL) and 10 million new cases of high-grade squamous intraepithelial lesions (HSIL) diagnosed yearly.[6]

The prevalence of cervical disease is highest in underdeveloped countries and lowest in developed countries where screening program's have significantly reduced the incidence of disease.[7] Cervical cancer mortality in the Netherlands has been steadily declining in the last decades, largely as a result of a well-functioning, cytology-based screening programme in which women are invited for a Pap smear every 5 years from age 30 to 60 years.[8]

It is claimed that in future, HPV DNA testing to replace cytology as the primary screening test.[9]However, results from randomized controlled trials show that HPV testing at baseline lead to a lower detection rate of cervical lesions at the next screening round than cytology-based screening.[9]

In reference to above literature research, our study demonstrated the need to incorporate colposcopy and Pap smear in the screening program for early detection and final diagnosis of cervical cancer in Pakistan. Although Pap smears are considered the standard of care for cervical cancer screening in countries with adequate resources, the use of Pap smears alone in our country over the past several decades has

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failed to lower cervical cancer rates.[3]

In our study, colposcopy and colposcopy directed cervical biopsy proved an effective screening tool, when combined with Pap smear. In our hospital, approximately 3000 Papanicolaou smears are done every year, and incidence of positive smears is approximately 5.7% per 1,000 women, which are comparable to that in other studies. The colposcopy of positive cases is routinely done.

In our study we focused on all women presenting with postcoital bleeding as the primary complaint. The available NICE guidelines state that women with postcoital bleeding should have full pelvic examination, including speculum examination, by the primary health care professional and those patients who have clinical features suspicious of cervical cancer should be referred urgently.[10] A cervical smear test is not required before referral, and a previous negative smear result is not a reason to delay referral.[11] Similarly, the National Health Service cervical screening programme of UK recommends that women presenting with symptoms of cervical cancer such as postcoital bleeding (particularly in women over 40 years) should be referred for gynecological examination and onward referral for colposcopy if cancer is suspected.[12] In our study we recruited ladies only with positive Pap smear. In our study women presenting with postcoital bleeding as the primary complaint showed 8 % prevalence of CIN. Most of these cases had 2.2%CIN3(high grade leisions) which is in contrast to study by R A Saidi where prevalence of invasive cancer was zero.[13] The majority of the women in that study were with a normal-appearing cervix and a prior negative smear test, so showed no underlying significant cervical pathology.

It is clear from the literature that there is variation in the reported prevalence of underlying CIN and cervical cancer in women presenting with postcoital bleeding, with or without normal smears. This could be partially attributed to different populations being studied where risk factors for CIN or cervical cancer vary. In a study for the evaluation of the women who presented with postcoital bleeding by cytology and colposcopy, the sensitivity of colposcopy reported to be 79% by Afsaneh Tehranian.[14]

In our study, the accuracy of the colposcopic directed biopsies is 90.97%, which is comparable to a study by Sukhpreet L Singh i.e., 91%.[15] The sensitivity of this test was 75%, which was comparable to above mentioned.I'They found the positive predictive value of colposcopy to be 36 %, the false positive rate to be 63.64% and the false negative rate to be 42%, which were comparable to those of the present study i.e. 40%, 57.5% and 20% respectively.

In a study by Papa Dasari, with Colposcopically directed biopsies, the incidence of CIN 1 was 13% and that of CIN 2/3 was 11%, which were although more but still comparable to those in the present study i.e. 5.43% and 7.60% respectively.[16]

In another study in which colposcopy was tested for the detection of CIN found the test range of sensitivity of colposcopy for the detection of histologically confirmed low grade cervical intraepithelial neoplasia grade (CIN 1) or high grade cervical intraepithelial neoplasia grade (CIN 2) was 58.0-74.7% and that of specificity was 57.5-92.9%. The sensitivity and specificity of cytology to detect CIN 2 was 57.4% and 99.4%, respectively.[17]

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In our study 98% of women with CIN showed acetowhoite areas, which is comparable to the study conducted by Massad in which 93% of women with CIN2+ had at least one acetowhite lesion. Massad in his study concludes that finding acetowhite lesions identifies women with CIN2+, but using subtler colposcopic characteristics to grade lesions is insensitive. Therefore all acetowhite lesions should be assessed with biopsy to maximize sensitivity of colposcopic diagnosis with good specificity.[18]

During colposcopy, the VIA screening was also found more cost-effective than Pap smear screening by an order of magnitude.[19] Population-wide screening with VIA was more costly than screening with Pap smears because more women received treatment. However, the cost per cancer case avoided was far lower because VIA was much more successful at detecting pre-cancerous lesions.[20]

Cytology remains a standardized method for screening for cervical neoplasia but the value of colposcopy is vital in the evaluation of patients with abnormal cervical smears, the false negative cytology results and the poor compliance for follow up. During study it has been felt that apart from cervical smear evaluation, colposcopy should be offered as a diagnostic method in all the patients with unhealthy cervix.

Conclusions

A detailed colposcopic evaluation of the abnormal cervix with a guided biopsy is not only an important diagnostic method for the detection of abnormal or precancerous cells but remains a valuable intervention in planning management and understanding the morphology of the cervical lesions, both the neoplastic and the non-neoplastic. To conclude regular screening of women should be done with Pap smear followed by colposcopy and cervical biopsies of suspicious sites.

Recommendations

Our results are comparable to major published studies. Universal screening is the need of the hour. Improvement in infrastructure, trained personnel, supplies and equipment to enable accurate, reliable and timely testing and reporting of results for one screening visit is required. Many Social factors which influence the outcome in our setting are Illiteracy, lack of awareness, poverty and resorting to alternate medicine which need to be addressed

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ORIGINAL ARTICLE

Association of Risk Factors With Hepatitis B Surface Antigen Positivity in Pregnant Women at Aga Khan University Hospital Karachi

Nafees Akhtar, Shamaila Sharif, Rahat Najam Qureshi, Raazia Rauf

ABSTRACT

Objective: To determine association of risk factors with hepatitis B surface antigen positivity in pregnant women.
Study Design: Case control study.
Place and Duration of Study: Two years from 2004 to 2006 at Agha Khan University Hospital.
Materials and Methods: A total of 210 subjects including 35 cases and 175 controls were enrolled into study. A detailed history from study subjects was recorded on a performa during antenatal visits. Univariate and multivariate analysis was done using SPSS package.
Results: A significant association was observed for the history of at least four injections for minor illnesses in past one year (adjusted odds ratio (AOR) = 5.5; 95% confidence interval (CI): 1.6, 18.1) and history of blood transfusion (AOR= 6.025; 95% CI: 2.1, 17.1), with HBsAg status of pregnant women.
Conclusion: We recommend interventions to improve injection safety and to discourage unnecessary therapeutic injections. There is also urgent need for strict enforcement of regulations for safe blood transfusion. Further research is required to estimate proportion and to evaluate reasons for unnecessary injections in women of reproductive age.

Key Words: *Blood transfusion, Therapeutic injections, Parity, Hepatitis B surface antigen*

Introduction

An estimated 2 billion people are infected with HBV worldwide, among them 350 millions are hepatitis B surface antigen (HBsAg) positive. HBsAg positivity in Pakistan studies selected groups have shown variable prevalence of chronic infection with HBV as assessed by HBsAg positivity: 7% in health professionals, 2%14% in blood donors.[1]In developed countries varies from 0.6 percent in Wales, England, to 1.2 percent in Texas, USA. [1] However, higher prevalence of infection with HBV have been reported from various parts of the developing world including 3.5% in Gaza, Palestine [2] , 1.6%7.7 % in Brazil ,19.6 % in Egypt and 2%10 % from various parts of India .[3] Pre-employment screening revealed 2.6% HBsAg positivity among the healthy individuals in northern Pakistan [4] Moreover, some hospital-based studies have revealed that 30% 42% of the cases of chronic liver disease [5] and 78% of the cases of hepatocellular carcinoma were positive for HBsAg.Intravenous drug use, needle stick injuries, haemodialysis, tattooing and multiple sexual partners have been identified as common modes of HBV transmission in the developed world.[6] In many developing countries however, the relative contributions of various routes of HBV infection have not been defined in population-based studies. Due to a lack of universal and appropriate blood screening in these countries, the risk of post-transfusion HBV infection is still unknown.[1] Parenteral routes implicated as the most likely factors for HBV transmission include un-sterilized needles and syringes in health-care settings.[7,8] Moreover, in low socio-economic settings, horizontal transmissions of HBV through contact with infected family member have also been reported [9], but these findings are yet to be verified.Developed countries have been successful in reducing the risk of HBV spread by interrupting some of the known routes of HBV transmission

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and through mass HBV vaccinations. The vaccine against HBV infection is available in most of the developing world including Pakistan, but its high cost limits the widespread use. Recently, Pakistan initiated universal HBV vaccination for neonates through its expanded program of immunization with the assistance of Global Alliance for Vaccines and Immunization. However, public health benefits of this initiative require some time to accrue as the program focuses on neonates only.[1] A better understanding of the mode of spread of HBV will help in prevention of HBV infection.No local studies are available about spread of HBV infection in pregnant women. Routine antenatal screening for hepatitis B and C is recommended by the ACOG as well as the RCOG and ensures proper care when positive cases are discovered .[10]

This study aimed to identify the risk factors for hepatitis B surface antigen positivity among pregnant women.

Materials and Methods

The study was conducted in outpatient department of Obstetrics and Gynecology at Aga Khan University Hospital, Karachi over a period of Two years from 2004 to 2006.Sample size consisted of 210 subjects. Thirty-five registered pregnant women diagnosed as hepatitis B surface antigen positive were selected as cases. Against each case, five age-matched controls were selected .the inclusion criteria were pregnant women registered in outpatient department of Aga Khan University Hospital who were diagnosed hepatitis B surface antigen positive. Inclusion criteria for controls group were pregnant women registered in outpatient department of Aga Khan University Hospital who were diagnosed hepatitis B surface antigen negative. Those who refused for consent and lost for follow after enrollment into study before completion of history taking were excluded from study. The demographic characteristics were Age, Area of Residence, Religion, Education, Occupation, Gravidity, Parity, History of previous surgery, History of at least four injections for minor illnesses in past one year, History of blood transfusion. Seven thousand pregnant women registered in outpatient department of Aga Khan University Hospital during the study period were tested for hepatitis B surface antigen as per hospital protocol. Five ml blood was drawn from each pregnant woman. Test was performed by kit second generation by MEIA. Test results were reported as hepatitis B surface antigen positive and hepatitis B surface antigen negative. Thirty-five pregnant women who were diagnosed hepatitis B surface antigen positive were selected as cases. For each case, five age matched pregnant women diagnosed hepatitis B surface antigen negative were selected as controls. Age of the five controls taken against each case was equal to age of that case in year's ± three years. Study subjects were explained about the study and an informed verbal consent was taken. A detailed history was taken from study subjects in optimal privacy. History was recorded on a predesigned performa. The data were entered and analyzed through statistical package for social sciences (SPSS 16).

Descriptive statistics were computed for area of residence, religion, education, occupation and gravidity among cases and controls by computing their frequencies for the two groups (cases and controls).

Univariate analysis was performed to evaluate the association of each potential risk factor with hepatitis B surface antigen. For each potential risk factor an odds ratio and 95% confidence interval were computed by simple logistic regression method.

Multivariate analysis was performed to study the association of risk factors with

hepatitis B surface antigen while adjusting for other independent variables. Those variables with a p-value of = 0.20 in univariate analysis were considered for multivariate analysis. Variables found not significant i.e. p-value > 0.05, were removed from the final model. Adjusted odds ratios and their 95% confidence intervals were calculated to present the results of final model. .

Results

Thirty-five registered pregnant women diagnosed hepatitis B surface antigen positive were enrolled into study. We also recruited 5 age matched controls for each case from the same outpatient department. Finally we had one seventy five controls for analysis.

Most of the cases (91.4%) and controls (94.9%) were from Karachi.

Islam was the main religion both among the cases (91.4%) and the controls (96.0%).

An equal proportion of cases and controls were Matric and above (82.9%), while 11.4% of cases and 13.1% of controls had education below Matric. Another two percent of cases and seven percent of controls were illiterates as shown in table I.

Many of the cases (62.9 %) and controls (74.9 %) were found to be housewives. Only a small number of cases (2.9 %) and controls (5.7 %) were healthcare workers.

On univariate analysis cases were more likely to have history of at least four injections for minor illnesses in past one year (odds ratio (OR) = 5.5; 95% confidence interval (CI): 1.9-15.8; p-0.002). Similarly history of blood transfusion was found to have significant association (OR=6; 95%CI: 2.3-15.6; p-<0.001) with HBsAg positivity among pregnant women. Education, occupation, parity and history of previous surgery were not found to have significant association with HBsAg status of pregnant women in this study as shown in table II.

Multivariate analysis was used to control the effects of various risk factors on hepatitis B surface antigen status of pregnant women. At multivariate level only two risk factors i.e. history of at least four injections for minor illnesses in past one year and history of blood transfusion, were found significant as shown in table III. The cases were significantly more likely than controls to receive at least four injections for minor illnesses in past one year (adjusted odds ratio (AOR) = 5.5; 95% CI: 1.7-18.1) when adjusted for history of blood transfusion. Similarly cases were more likely to receive blood transfusion in the past (AOR= 6.0; 95% CI: 2.1-17.1) when adjusted for history of at least four injections for minor illnesses in past one year. P-value was < 0.001 for both of these factors after adjusting for each other.

Discussion

This study was conducted to determine

Table I: Distribution Of Demographic Variables Among Cases And Controls

Variables	Cases (n = 35)		Controls (n = 175)	
	n	%	n	%
Area of residence				
Karachi	32	91.4	166	94.9
Outside Karachi	3	8. 6	9	5.1
Religion				
Islam	32	91. 4	168	96.0
Hinduism	2	5.7	5	2.9
Christianity	1	2.9	2	1.1
Others	0	0.0	0	0.0
Occupation				
House wife	22	62.9	131	74.9
Non healthcare	12	34.3	34	19.4
worker			10	5.7
Healthcare worker	1	2.9		
Education				
Illiterate	2	5.7	7	4.0
Below Matric	4	11.4	23	13.1
Matric & above	29	82.9	145	82.9
Gravidity				
Primigravida	4	11.4	50	28.6
Multigravida	31	88.5	125	71.4

Table II: Univariate Analysis Showing The Association Of Various Risk Factors With Hepatitis B Surface Antigen Positivity In Pregnant Women By Their Odds Ratios (or) And 95% Confidence Intervals (ci)

	Risk factor	Cases (n = 35)	Controls (n = 175)	Odds ratio	95% CI	P-value
Education	Matric & above Below Matric Illiterate	29(82.9%) 4(11.4%) 2(5.7%)	145(82.9%) 23(13.1%) 7(4%)	1 0.9 1.4	 0.2 ,2.8 0.3 ,7.2	0.88
Occupation	Non-health care worker House wife Health care worker	12(34.3%) 22(62.9%) 1(2.9%)	34(19.4%) 131(74.9%) 10(5.7%)	1 2.06 0.57	 0.9, 4.5 0.1, 4.7	0.16
Parity	Nulliparous Para 1-3 Para >3	7(20%) 25(71.4%) 3(8.6%)	55(31.4%) 111(63.4%) 9(5.1%)	1 1.9 4.6	 0.7, 5.1 0.6, 37.5	0.22
History of previous surgery	No Yes	16(45.8%) 19(54.8%)	99(56.6%) 76(43.4%)	1 1.6	 0.7, 3.3	0.23
History of at least 4 injections for minor illness in past 1 yrs	No yes	26(74.3%) 9(25.7%)	163(93.1%) 12(6.9%)	1 4.7	 1.9,15.8	0.002
History of blood transfusion	No Yes	23(65.7%) 12(34.3%)	159(90.9%) 16(9.1%)	1 6.0	 2.3, 15.6	<0.001

Table III: Multivariate Logistic Regression Analysis of Risk Factors Associated With Hepatitis B Surface Antigen Positivity In Pregnant Women.

Risk factor		Cases (n = 35)	Controls (n = 175)	Odds ratio	95% CI	Adjusted OR	95% CI
History of at least 4 injections for minor illness in past 1 yrs	No yes	26 9	163 12	1 5.5	 1.9,15.8	1 5.5	 1.7, 18,1
History of blood transfusion	No Yes	23 12	159 16	1 6.0	 2.3, 15.6	1 6.0	 2.1, 17.1

X^2 =26.36; df = 2 ; p-value <0.001

association of various risk factors with HBsAg positivity in pregnant women. History of at least four injections for minor illnesses in past one year was significantly associated with hepatitis B surface antigen positivity in pregnant women in this study. Other studies conducted in developing countries have also identified therapeutic injections as a risk factor for HBV infection.[1,11,12] In developing countries, a large proportion of patients prefers injectable medicines and considered them more efficacious than other routes of drug administration.[13] In addition to patients' preference for injection, physicians' prescribing practices, their belief in better efficacy of injected drugs, direct observation of the prescribed therapy, patients demand and financial incentive have been reported as the reasons for increased frequency of injections in developing countries.[14] In Pakistan, the proportion of injections per prescription is one of the highest compared to some other countries.[13] In a periurban community in Pakistan, women of reproductive age had been found five times more likely than similarly aged men to receive more than ten injections per year during 1994.[8] In Pakistan a large proportion of injections given for minor illnesses were found unnecessary.[8,15] In our study injections received for minor illnesses not requiring hospitalization were recorded in order to emphasize the association of HBV transmission with unnecessary use of therapeutic injections. History of blood transfusion was also found significantly associated with HBsAg positivity in pregnant women in this study. Association of blood transfusion with HBV infection had been seen in other studies .[16,17] Implementation of stringent donor eligibility criteria, improved donor screening and more sophisticated as well as sensitive methods of antibody, antigen and viral genome detection, have virtually eliminated transfusion transmitted infections in developed countries. The risk of HBV transmission by blood transfusion in the USA was estimated by the Retrovirus Epidemiology Donor Study (REDS) as

1:63,000 units transfused.[18] Screening for HBsAg before blood transfusion is not universal in developing countries including Pakistan. The main source of blood in Pakistan is from replacement donors. Prevalence of HBsAg, HCV antibody and HIV antibody was found much lower in voluntary non-remunerated blood donors as compared to replacement donors in northern Pakistan.[19] In a study conducted in Karachi the practices of most blood banks were found well below WHO standards. [20]

Occupation was not significantly associated with HBsAg status in this study. Increased rate of blood borne infections among healthcare workers have been well described in the industrialized countries. However the extent of the problem in developing countries has been poorly quantified. Among healthcare workers up to 9% in Pakistan have been reported as HBsAg positive. The prevalence of HBV infection among health care workers is likely to decrease with the implementation of HBV vaccination.[21]Education; parity and history of previous surgery were not significantly associated with HBsAg positivity among pregnant women in this study. These results are in accordance with the results of previous studies. [16, 22, 23]Re-call bias is an inherent limitation of a case control. This might have been introduced in measurement of some of the variables especially when past history of injections were exposed. For economic reasons we were unable to test for some other markers of active HBV infection such as HBV DNA and/ or hepatitis B e antigen (HBeAg), and IgM anti-HBc an indicator of early acute HBV infection. Therefore some pregnant women in this category may have been missed since some patients with acute self limited primary HBV infection never have detectable HBsAg in the blood.In the case-control arm of the study, we did not test controls for anti-HBs (antibodies to HBsAg) to exclude those who might have resolved past infection, became immune and lacked potential to become case as defined in this study. Ascertainment of control's srostats may have non-differentially led to controls who are not susceptible to HBV infection due to previous infection or immunization, thereby biasing results toward the null Future studies should take this aspect into account.

Conclusion

We recommend interventions to discourage the use of unnecessary therapeutic injections. Resources and efforts should be invested to educate health care providers as well as the health seekers on hazards and indications of injections in order to reduce injection frequency. Further research is needed to estimate the proportion and to evaluate reasons for unnecessary injections in women of reproductive age. The association of blood transfusion with HBsAg positivity indicates that there is failure to meet standard safety practices in our blood banks. Efforts should be invested to increase awareness among women of reproductive age about mode of spread of hepatitis B.

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ORIGINAL ARTICLE

Intrauterine Death - An Outcome of Post Term Pregnancy at Pakistan Railways Hospital Rawalpindi

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ABSTRACT

Objective: The objective is to determine the frequency of intrauterine death in post term pregnancy at Pakistan Railway Teaching Hospital - Rawalpindi.

Study Design: It is an observational prospective study

Place and Duration of Study: The study included four year data of all the deliveries conducted during 10th January 2005 -9th Jan 2011 at Pakistan Railways Teaching Hospital. Total 6540 deliveries were conducted during this time

Materials and Methods: 104 Pregnant women with gestational age of 294 days or more, who were sure of their LMP were included. Detailed history was taken along with physical & ultrasound examination. All women with associated medical problems were excluded. Data collected about study variables was included in sample. All relevant data was collected using perform, that was developed in the light of objectives and variables. Data was analyzed on computer using SPSS Version 10. Frequency of intrauterine deaths in post term pregnancy was calculated and 95% confidence interval was calculated for it.

Results: The overall prevalence of post term pregnancy was 3.13% which is much less than those in different studies. Maternal and neonatal complications were compared with normal term pregnancy. This comparative study revealed increased risk to mother and fetus as pregnancy advances beyond term.

Key Words: *Post term pregnancy, Apgar score, Intrauterine death, Perinatal mortality.*

Introduction

The International Federation of Gynaecology and Obstetrics along with World Health Organization have defined the term delivery as that occurring between 259-294 days of pregnancy from the last menstrual period.[1] If the pregnancy exceeds this period it is classified as post term pregnancy (PTP). Although the last menstrual period (LMP) has been traditionally used to calculate estimated date of delivery (EDD). Inaccuracies exist using this method in woman who have irregular cycles, have been on recent hormonal birth control, or who have first trimester bleeding.[2] Ultrasonographic dating early in pregnancy can improve the reliability of the EDD; however it is necessary to understand the margin of error reported at various times during each trimester.[3] The composite biometic gestational age by a sonogram must be considered an estimate and must take into account the range of possibilities. The reported incidence of post term or prolonged pregnancies approximately 3-14% with an average of about 10%.[4] The most frequent cause of an apparently prolonged gestation is an error in dating.The management of post term pregnancy, despite of intensive research, remains a controversial issue and varies not only in different countries but also among different clinicians in the same settings.[5] Identification of prolonged pregnancy for a woman depends on her accurate dates, and preferably a first trimester estimate of crown rump length.[6] The assessment of the gestational age by early ultrasound examination has reduced the "incidence" of post term pregnancy by 50%. Post term

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pregnancy is a high risk pregnancy. [7] Management of PTP is a subject of concern due to its known association with increased fetal morbidity and mortality. The women with PTP along with the doctors become anxious for the mode of delivery and outcome.[1, 2] Induction of labour also has increased risk to mother and the baby. A large survey in 1970 reported the peri-natal mortality following induced labour to be twice as high as that following spontaneous labour.[8] Various studies have been conducted and data from randomized control trials favor a policy of inducing labour after 41 completed weeks of gestation as induction of labour is not as hazardous as it was claimed in the past, and if performed appropriately, it can reduce the chance of c-section. The post term pregnancy causes multiple risks as reduced amniotic fluid volume; meconium passed in utero, placental changes like calafication, abruption placenta and big baby. Some authors are despite of all these risks claim that the risk is low, where as other studies present the risk as being twice as that in term birth. In the presence of these risks Cardoso still reports that increased fetal monitoring is the most acceptable management of PTP. [9] Randomized control trials suggest that induction of labour may reduce the PNM.[8, 9] The calculated risk of still births varies from 37 weeks onwards in 3000 pregnancies, from 42 weeks onwards is in 1000 pregnancies and from 43 weeks onwards is in 500 pregnancies. [7,8]

Materials and Methods

This was a prospective study conducted at Pakistan Railway Teaching Hospital Rawalpindi. This hospital has 24 hours emergency, 7 days a week routine. The study was carried out from 10th January 2005 to 9th January 2011. One Hundred and four 104 patients were included in the study. Keeping in mind post term pregnancy causing lots of threats to the mother and fetus, we in our hospital, induce patient at 41 weeks to avoid the risks. In this study we tried to find out the prevalence of PTP (pregnancy beyond 42 weeks), it's maternal and fetal outcome and compare the same with term pregnancy (37-42 weeks). To fulfill the required objective we went through the records of out patient and in patient department of obstetrics, labour room, Operation Theater and neonatal unit. Cases with incomplete history, unsure LMP, irregular cycles, multiple pregnancies, mal-presentations, APH, medical conditions like hypertension and heart disease were excluded from both study and comparison groups. We tried to compare the outcome of term and post term pregnancy, such as types of deliveries, maternal complications, birth weight of the baby, Apgar score gain at 5 minutes and admission.

Results

Data was analyzed on computer by using SPSS version 10, chi-square test was applied and P-value of less than 0.05 was considered to show significant relationship. The sturdy group consisted of all deliveries in six year time period from 10th Jan 2005 - 9th Jan 2011. Total number of deliveries was 6540 out of which 104 were post term. The overall prevalence of post term pregnancy came out to be 3.1%.

There was almost equal incidence of normal deliveries. The incidence of normal & instrumental deliveries was almost equal but the incidence of c- section rate was significantly higher.

The results also showed that the incidence of extreme low birth weight (less than 2kg) and big babies (4.1kg & above) is higher in post term group.

Table I:Types of delivery

Type of delivery	Term pregnancy		Post term pregnancy	
	n	%	n	%
Normal delivery	3200	80%	77	74%
Instrumental delivery	200	5%	4	3.8%
c-section	600	15%	23	22.5%
Total	4000	100%	104	

Table II: Comparison of birth weight

Birth in weight (k g)	Term pregnancy		Post term pregnancy	
Less than 2	n	%	n	%
	120	3%	6	5.7%
2.1 – 2.4	360	9%	4	3.8%
2.5 – 3.5	1360	34%	35	33.6%
3.6 – 4.0	2040	51%	52	50%
4.1 & above	120	3%	7	6.7%
Total	4000	100	104	100%

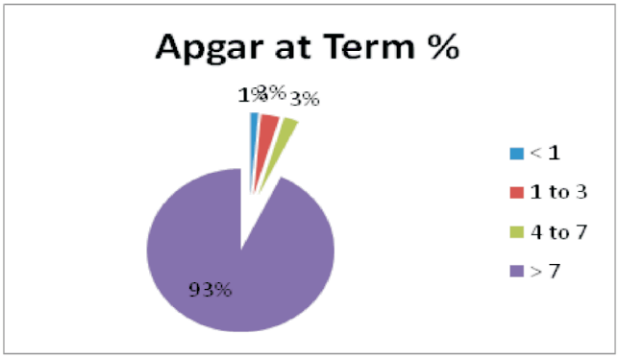

Figure 1: Apgar score at 5 minutes

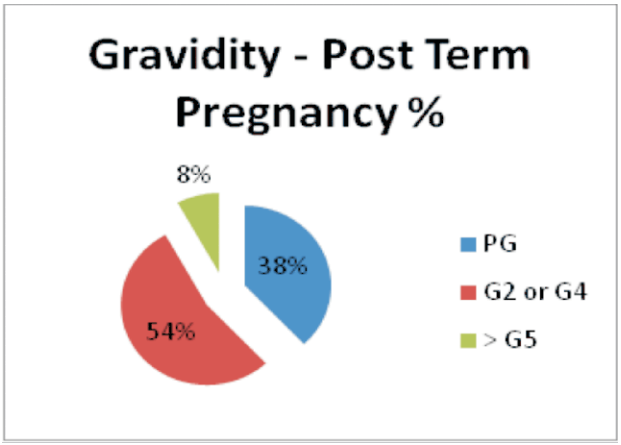

Figure 2: Comparison of Gravidity

Cases were divided into 3 groups according to Apgar score at 5 minutes after birth. Perinatal mortality was 4 intrauterine death and 7 neonate deaths in post term group as compared to 5 per 100 births in term group.

Regarding the complications associated with delivery there were 51(1.2%) cases of post partum haemorrhage in term and 7(6.7%) in post term group. Similarly (15) 0.375% cases had cesarean wound infection in term and 3(2.8%) in term group.

Discussion

Still birth at term remains a relevant issue today despite advances in obstetric care.[9,10] Post term pregnancy poses number of risk to the fetus including meconium aspiration, birth injuries & hyporexia. However the concern that occupies the mind of mothers and attendants is risk of fetal loss.[11]

These acute events cannot be easily anticipated. Therefore despite advances in neonatal care in salvaging very preterm infants , the rate of sudden fetal demise due to acute events such as abruption or cord accident remains almost constant over the years. Many of these near term stillbirths may be prevented if delivered before the pregnancy continues to a prolonged gestation. Undiagnosed causes such as placental insufficiency probably constitute a propotion of these unexplained stillbirths , and they might be avoided by induction of labour. Induction of labor is method to deliver the baby where we encounter such pregnancies. There are standard protocols of different hospital that supports induction between 41-42 weeks.[12] These protocols are based on consideration about fetal well being and Meta analysis indicating that induction reduces perinatal mortality.

The largest trial to look at this issue showed that elective induction resulted in a lower caesarean section rate(21.2%vs24.5%). This

was primarily due to fewer caesarean sections being performed for non reassuring fetal status. Patient satisfaction was higher in the induction group.[13]

A recent Cochrane review concluded that a policy of labour induction at 41 weeks or beyond was associated with fewer perinatal deaths(relative risk 0.30). There was no evidence of a statistically significant difference in the risk of caesarean section for women induced at 41 and 42 completed weeks of gestation. Women between 37 and 40 weeks of gestation were more likely to have caesarean section with expectant management than those in the labour induction group (relative risk 5.8). There were also fewer babies with Meconium Aspiration Syndrome.[14]

In our retrospective study the incidence of post term pregnancy was 3.1% which is less than reported by other studies 8.3% by ingemarsson and kallen, [10] 7.6% by Ahanya et all [11]. Another study conducted by anner et al in different cities of komi republic, Russia showed the prevalence rate of post term pregnancy in an average 3.1%.[12] Zeitin et al [15] found incidence as 0.4-7.1% with an average of 3.7% in different countries of Europe.

In five years study done in Bombay consisting of 3200 deliveries 85 cases showed post dating. These give an overall incidence of 2.6% [12, 13]. Some variability in these rates may be due to difference in methods for determining gestational age, which has broader implications for international comparisons of gestational age, including rates of post term and preterm births and small for gestational age newborns and it is term group. Similar results were noticed in studies where stillbirth rate was lowest at 40 weeks and gradually increased as pregnancy advanced.

Conclusion

Post term pregnancy is assonated with increased frequency of intrauterine death. The maternal and fetal complication increases with increasing gestation age. To avoid intrauterine death the pregnancy should not be allowed to go beyond 42 weeks especially in case where there is poor compliance to feto-maternal surveillance.

Accurate diagnosis and delivering of term pregnancy require accurate menstrual record keeping; early ultrasound assessment and regular antedated visits .Community awareness the enough media and community based pregnancy involving communing workers should be initiated and can be very promising.

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ORIGINAL ARTICLE

Posterior Capsular Opacification after Cataract Surgery

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ABSTRACT

Objective: To assess the Frequency and the types of Posterior Capsular Opacification after extra capsular cataract extraction and posterior chamber intraocular lens (*PMMA)* implantation.

Study Design: Descriptive study

Place and Duration of Study: Department of Ophthalmology Holy Family Hospital, Rawalpindi from May 2003 to May 2005.

Materials and Methods: Two hundred patients, with age ranges from 55 to 80 years, having uncomplicated senile mature cataracts who underwent ECCE with PCIOL over a period of one year were selected for the study. At 6th Month post operatively the patients were examined for any evidence of posterior capsular opacification with its type and the results were analyzed.

Results: At 6 months follow up 70 patients (35%) developed posterior capsular opacification. Out of these 70 patients, 40 patients (57%) showed capsular fibrosis and 30 patients (43 %) Elschnig pearls.

Conclusion: Our study revealed that the occurrence of posterior capsular opacification with PMMA intra ocular lens is high leading to significant number of patients with visually disabling complication in the post operative period.

Key words: *Cataract, Posterior capsular opacification, intraocular lens, Elschnig pearls*

Introduction

Cataract is the leading cause of reversible blindness in the world[1]. Statistics suggests that there are ten million blinds in the world today. The current global estimate indicates that blindness from cataract affects near 18 million people. 4% of the world's blind population lives in Pakistan; 80% of which is avoidable.[2]

Currently the only treatment available for cataract is surgery[3]. In the past intra capsular cataract extraction (ICCE), which is the complete removal of the cataractous lens with its capsule, was the preferred technique available.Now this has been totally replaced by extra capsular cataract extraction in which posterior capsule is left behind so that a posterior chamber intraocular lens can be implanted.[4] Most recently phacoemusification with introcular lens implantation has become the operation of choice. Phacoemulsification is the method of choice in developed countries.[5]In the developing countries like Pakistan extra capsular cataract extraction with posterior chamber intraocular lens implantation is the operation most commonly performed mainly because of non-availability of phaco facilities, high cost and less experienced phaco surgeons.[6] Posterior capsular opacification or "after cataract" is the most common complication of cataract surgery.[7]

Many studies have been documented in international literature regarding the incidence of posterior capsular opacification.[8] Local research in this aspect is limited. So we present a prospective study to determine the frequency and types of posterior capsular opacification occurring after cataract extraction with posterior chamber intraocular lens implantation in our local population.

Materials and Methods

This prospective study with non-probability convenient sampling was conducted in the Eye Department, Holy Family Hospital, Rawalpindi from May 2003 to May 2005.Two hundred patients, with age

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ranges from 55 to 80 years, having uncomplicated senile mature cataracts were selected for the study.

Patients were admitted and the need for the operation with its advantages and implications were explained carefully to the patients and only after this knowledge the patients signed the consent form. Complete preoperative evaluation was done and patients found to have any other ocular morbidly were excluded.

Operative Procedure: All the cases were operated by the single surgeon having expertise in the technique. 5% povidone iodine was instilled in the conjunctival sac after local injection. The conjunctiva was undermined and bleeding vessels were gently electrically cauterized. First a partial thickness vertical 7 - 7.5mm corneoscleral incision was given with surgical blade no. 15, 1mm behind the limbal blue line. Then a horizontal incision was given in the bed of the first incision to make a stepped wound. The wound was deepened temporally for point of entry into the anterior chamber. A canopener capsulotomy was made with the help of a cystitome after filling anterior chamber with a viscoelastic substance. Then the wound was opened with the corneal scissors along the incision line. The nucleus was expressed by pressure and counter-pressure technique with wire vectus and squint hook. The remaining lens matter was removed using Simcoe Irrigation/ aspiration canula. The viscoelastic substance was injected and posterior chamber PMMA intraocular lens of 6.5 diameters was implanted. The wound was closed using 10/0 monofilament nylon sutures and the viscoelastic substance was replaced by ringer lactate irrigation. A subconjunctival injection of antibiotic/steroid was given and the eye was padded for 24 hours. To deal with any intra operative complications the surgical technique was modified accordingly. The data was entered on statistical package for social sciences (SPSS) version 13.0 and the results were calculated in frequencies.

Patients having surgical complications like posterior capsular rent with or without vitreous loss were excluded. At 6th month post operatively the patients were examined for any evidence of posterior capsular opacification with its type and the results were analyzed.

Results

A total of 200 patients were included in the study, within the age group 55 to 80 years, mean age was 62 years with standard deviation of 10.20. Out of the total number of patients, 116 (58%) were male and 84 (42%) were female. Our study revealed that at 6 months follow up 70 patients (35%) developed posterior capsular opacification. Out of these 70 patients, 40 patients (57%) showed capsular fibrosis and 30 patients (43 %) showed Elschnig pearls.

Discussion

Posterior capsule opacification (PCO) is the most common complication after cataract surgery leading to reduced vision

Table I: No of patients with PCO at 6 months follow up(n=200)

	No. of Patients Operared	Developed PCO
Male	116 (58%)	48(24%)
Female	84 (42%)	22(11%)

Table II: Type of PCO in patients

Patients with PCO	Elsching Pearls	Capsular Fibrosis	Total
Male	21(30%)	27(38.5%)	48
Female	9(13%)	13(18.5%)	22
Total	30(43%)	40(57%)	70

postoperatively.[7] PCO, the term itself is not correct. It is not the capsule that undergoes opacification rather it is the attempt of the lens material to form a new lens by proliferation.[8]

Two types encountered most commonly are:

The capsular fibrosis: It is formed by the lens epithelial cells which migrate to the posterior capsular surface when anterior capsulotomy is done. The lens epithelial cells undergo transformation into myofibroblasts and then they proliferate into collagen and hence form an opaque fibrous membrane on the posterior capsule.

Elschnig's pearls: These are a proliferation of cells on the outer surface of the capsule. This type of PCO can be several layers thick and are named due to their similar appearance as of bladder cells.

PCO has medical, social and economic implications .Although it is easy to clear the visual axis by Nd YAG laser capsulotomy, if this is available this technique is not without problems and the cost is still prohibitive. Its complications include damage to intra ocular lens, intra ocular pressure elevation, cystoid macular edema, retinal detachment, intra ocular lens subluxation and localized endophthalmitis exacerbation.[9]

In our study 35% of patients out of 200 developed PCO at six months follow up. Our results are comparable with the study conducted by Sterling and Wood who found that the incidence of PCO after extra capsular cataract extraction with posterior chamber intraocular lens implantation ranged from 19 % to 50 %.[10] Another study done by Shrestha, Pradhan, and Snellingen, showed that extra capsular cataract extraction even in the best of the surgical hands gives PCO in 10 % to 50 % of cases.[11] Hollick and co-others, also mention 17 % to 46 % occurrence of PCO after extra capsular cataract extraction with posterior chamber lens implantation.[12]

According to our study the incidence of capsular fibrosis was 57% and Elschnig pearls 43 %.which is contrary to findings of study conducted by Kuasar A et al[13] which shows greater incidence of capsular fibrosis.

There have been multiple modifications in the IOL design, material, type of heptic and surface to prevent PCO. Some researchers recommended sharp-edged[14] and round-edged IOLs.[15] Others suggested lens design like square edge and single piece.[15] Similarly different lens materials have been introduced. Basti[16] and Koraszewska-Matuszewska[17] used heparin surface modified IOLs .Some authors advocated the use of acrylic intraocular lenses instead of PMMA like Rowe[18] Nihalani[19] and Aasuri[20], who found that the incidence of PCO was lesser in acrylic intraocular lenses. But Pavlovic's[21] found that hydrophobic acrylic material are associated with a much higher rate of posterior capsule opacification (PCO) then previously thought. Similarly Sushma[22] found that PCO was more common in eyes implanted with acrylic hydrophobic IOLs as compared to silicone IOLs. So the problem persists despite of

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modifications in the lens material and design. We used PMMA IOL in order to find the incidence of PCO as it is the most commonly used lens due to cost restrictions. The use of modern IOLS is the costly option and is not applicable in developing countries like ours.

Extensive research is in progress to reduce the incidence of PCO like use of topical heparin eye drops postoperatively. [23] Dexamethasone-coated IOLs that can deliver slow release molecules[24] are also being evaluated. Another new concept is sealed capsule irrigation (SCI), which allows the isolated safe delivery of irrigating solutions containing pharmacological[25] or nonpharmacological agents into the capsular bag following cataract surgery such as 5-fluorouracil. 5-fluorouracil was shown to be successful in preventing PCO in young rabbit eyes[26] and may also prove successful in human eyes.

Conclusion

Our study revealed that the occurrence of posterior capsular opacification with PMMA intra ocular lens is high leading to significant number of patients with visually disabling complication in the post operative period.

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ORIGINAL ARTICLE

Comparison of Needle Aspiration With Incision & Drainage in the Management of Patients Presenting with Peritonsillar Abscess

Nayyer Ayub, Mirza Nasheed Baig, Muhammad Azeem Aslam, Kashif Mehmood

ABSTRACT

Objective: To compare the efficacy of needle aspiration with incision & drainage in the management of Peritonsillar abscess.

Place and Duration of the Study: This study was carried out at Ear, Nose, Throat and Head & Neck Surgery Department of Tertiary Care Teaching Hospital at Rawalpindi from August 2007 to July 2009.

Materials and Methods: Total of 60 patients with diagnosed Peritonsillar abscesses were included in the study. They were divided into two groups A & B, each consisting of 30 patients. Needle aspiration was done in group 'A' whereas patinets in group B were treated with incision & drainage. All the patients received the same parenteral antibiotics and analgesics. Patients were observed for reoccurrence of disease, fever, pain, oral intake, duration of stay in hospital.

Results: The mean age of patients in both groups was 20.7 (SD±7.3) years. Four (13%) patients developed reoccurrence in group A after needle aspiration and were subjected to incision & drainage. Two of them again developed reoccurrence and required interval tonsillectomy. In group B, 3 (10%) patients developed reoccurrence after incision and drainage and all of them needed interval tonsillectomy. Twenty six (86.6%) patients in group A were afebrile at 24 hrs after treatment whereas in group B, 29 (96.9%) patients had no fever. Twenty five (83.3%) patients in group A were pain free at 24 hours while in group B, the number of pain free patients were only 16 (53.3%). Seventeen patients (56.6%) in group A began to take solid diet at 24 hours while none had taken solid diet in group B after that interval. The duration of hospital stay in group A was 27.6 hours (SD±15.1) while it was 76.9 hours (SD±116.3) in group B.

Conclusion: Needle aspiration is as effective as Incision & drainage in the management of peritonsillar abscess.

Key Words: *Peritonsillar abscess, Drainage, Tonsillitis*

Introduction

Peritonsillar infection describes a spectrum of disease that range from Peritonsillar cellulitis to Peritonsillar abscess. Peritonsilar abscess or quinsy refers to the collection of pus located between the fibrous capsule of the pharyngeal tonsil and the superior constrictor muscles of the pharynx.[1] The Peritonsillar abscess is very common deep infection of the head & neck and usually occurs in adults.It is typically caused by a combination of aerobic and anaerobic bacteria.[2] The common aerobic organisms are streptococcus pyogenes, staphylococcus aureus, Haemophilus influenza and Neisseria species while common anaerobic organisms are Fusobacterium, Peptostreptococcus, Prevotella and Bacteroides.[3] The main symptoms and signs were: fever, odynophagia, cervical lymphadenitis and asymmetric tonsillar hypertrophy.[4] Some of the patients have also the complaint of dysphagia and trismus.[5] If abscess progresses, it can involve the surrounding anatomy, including the masseter muscles and the pterygoid muscles. If severe, the infection can also penetrate the carotid sheath.[2] Different treatment modalities are suggested for the management of peritonsillar absess but controversity still exsist regarding best treatment option.[6] The choice of best treatment option depends upon many factors eg patient discomfort, time taken by disease to recover, financial issues and possibility of recurrence.[7] Adequate drainage with accompanying antimicrobial therapy and hydration are the corner stone's of management. Other

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treatment options include aspiration, incision & drainage and quinsy tonsillectomy. The choice of treatment is largely dependent on the preference of the individual practitioner.[8] The purpose of this study is to compare needle aspiration with incision and drainage in the management of peritonsillar abscess.

Materials and Methods

It is a Quasi experimental study design. It is carried out in the Department of Ear, Nose, Throat and Head & Neck Surgery at Tertiary Care Teaching Hospital in Rawalpindi. 60 Patients included in this study. Patients were divided in to two groups, Group 'A' and Group 'B'. Group A were for Aspiration and Group B for Incision and Drainage. We used Convenience Sampling Technique. Patients coming in the outpatient department in the age group of 15 to 35 years with diagnosed peritonsillar abscesses were included in the study. Patients with recurrent peritonsillar abscess, diabetes, hypertension and bleeding diathesis were not included in the study.

As number of patients with peritonsillar abscess were short so we have requested the other allied hospitals to refer the patients of peritonsillar abscess in our hospital. The patients were admitted in the ward. Informed consent explaining advantages and disadvantages of two procedures was taken from the patients and approval of the study from hospital ethical committee taken.

All necessary investigations like blood complete picture, blood sugar random (normal up to 200 mg/dl), clotting time (4-11 minutes), bleeding time (2-11 minutes) done. Blood pressure charting maintained to detect any undiagnosed hypertension (up to 120/80 mm Hg).Every patient advised gargling with Xylocain 4% solution for anaesthetizing the throat. For aspiration 10cc 22G*1$^{-1/4''}$ syringe used. Aspiration done at the level of upper and middle poles of tonsil under vision.For incision and drainage peritonsillar abscess opened at the point of maximum bulge above upper pole of tonsil or just lateral to the point at the junction of anterior pillar with a line drawn though the base of Uvula. With the help of guarded knife a small stab incision was made and then sinus forceps inserted to open the abscess & whole pus drained. All the patients were given the same antibiotic (Inj Augmentin 1.2 gm, Intravenously twice daily) and same analgesics (Inj dicloran 75 mg intramuscular twice daily).Patients were observed for pain, fever, oral intake (at presentation, at 12 hours & at 24 hours) and duration of stay in hospital after procedure. Pain measured on visual analogue scale. Patients discharged on same antibiotics and analgesics. Data collected on proforma.Data was analyzed using SPSS version 10. Mean and standard deviation were calculated for age and duration of stay in hospital. Frequency and percentages calculated for gender, pain, fever and oral intake. T Test used to compare the age groups and duration of stay in hospital. Chi square test used to compare the pain, fever and oral intake.P value less than 0.05 taken as significant.

Results

Demographics of group A and B are shown in Table I.

In group A, 4 (13%) out of 30 patients developed recurrence of peritonsillar abscess. In two of them incision and drainage was done and in other two we did interval tonsillectomy. While in group B three (10 %) out of 30 patients presented with recurrence in which interval tonsillectomy done. The symptoms of both groups at presentation, at 12 hours and at 24 hours of treatment are shown in Table II.

The Chi Square test was applied for pain at presentation, at 12 hours and at 24 hours for both groups. While fever and oral intake were compared at 12 hours and 24 hours. P

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value was calculated for pain at three steps and found to be<0.001. P value for fever and oral intake when counted was<0.01. The mean for duration of stay in hospital in group A was 27.6 hours (SD ±15.1). While mean duration of stay in group B was 76.9 hours (SD ±116.3). P value for duration of stay in hospital in both groups when compared was 0.030 which is <0.05.

Table I: Demographics of Group A & B

Groups	Male	Female	Mean Age
Group A	13 (43%)	17 (57%)	20.7
Group B	12 (40%)	18 (60%)	20.7

Table II: Symptoms at presentation, at 12 hours and 24 hours after treatment

Symptom	Group	At Presentation		At 12 Hours			At 24 Hours			
Pain		Moderate Pain	Severe Pain	No Pain	Mild Pain	Moderate Pain	No Pain	Mild Pain	Moderate Pain	
	A	9 (30%)	21 (70%)	5 (16.6%)	16 (53.3 %)	9 (30%)	25 (83.3 %)	4 (13.3 %)	1 (3.3%)	
	B	11 (37%)	19 (63.3%)	0 %	12 (40%)	18 (60%)	16 (53.3 %)	14 (46.6 %)	0 %	
Fever				Yes		No	Yes		No	
	A			11 (37%)		19 (63.3%)	4 (13.3%)		26 (86.6%)	
	B			16 (53.3%)		14 (46.6%)	1 (3.3%)		29 (96.6%)	
Oral Intake				None	Liquid	Semi Solid	Solid Diet	None	Liquid	Semi Solid	Solid Diet
	A			3(10 %)	12 (40%)	7 (23 %)	8 (26%)	1 (3%)	4 (13 %)	8(26 %)	17 (56. 6%)
	B			11 (37%)	19 (63%)	0%	0%	3 (10%)	6 (20 %)	21 (70%)	0 %

Discussion

Peritonsillar Abscess is the most common deep infection of head and neck in adults. Treatment modalities vary from center to center and person to person. Three main surgical procedures used to treat peritonsillar Abscess are needle aspiration, Incision & Drainage and interval Tonsillectomy. In our country, the most commonly employed treatment modalities are needle aspiration and Incision & Drainage whereas Interval tonsillectomy has been reserved for recurrent cases. Controversy still exists regarding the best treatment modality of peritonsillar abscess. Some studies claim that there is no significant difference between the results of Needle Aspiration and Incision & Drainage as there is no recurrence of disease with both modalities[9,10] while others do not agree with this opinion.[11,16,13] The percentage of reoccurrence of disease after needle aspiration was observed to be 10%, 17.3% and 23% in various studies.[11,15,13] The recurrence rate noted in our study was 13 % in patients treated with Needle Aspiration whereas 10 % recurrence was seen after incision and drainage of peritonsillar abscess. These results suggests that needle aspiration is a superior modality of treatment compared with incision and drainage in the management of peritonsillar abscess.Regarding symptoms relief, opinion again differ about the superiority of one treatment modality over the other. Our study suggests that needle aspiration resulted in earlier relief of symptoms compared with incision and drainage. We have seen 56.6 % of the patients treated with needle aspiration started taking solid diet at 24 hours and none of the patients of Incision & Drainage started solid diet at 24 hours. This observation is shared in another study where solid diet intake by patients of Needle Aspiration was started at 3.2 days and those treated with Incision & Drainage took 3.8 days to start solid diet.[14] This study also showed that fever was relieved earlier in the patients of Incision & Drainage then in the patients of Needle Aspiration and our study also support this view. Few studies do not share this observation and claim that there is no significant difference between the two above mentioned treatment modalities.[9,10] In our study we noted remarkable difference in duration of hospital stay in two groups. The mean duration of hospital stay in the patients of Needle Aspiration was 27.6 hours whereas those treated with incision and drainage stayed much longer with mean duration of 76.9 hours. One study showed no significant difference in duration of hospital stay (5.5 days in patients treated with Needle Aspiration and 5.4 days in patients treated with Incision &

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Drainage)[15]So whole of this discussion ends in saying that Needle Aspiration is a selected strategy for the management of peritonsillar abscess as our study has proved.These results suggest that Needle Aspiration of peritonsillar abscess results in early relief of signs and symptoms and shorter duration of stay in hospital. It is associated with less recurrence rate as compared to incision and drainage. In our set up where most of our patients belong to low socioenonomic group, cannot afford to remain away from their work and longer duration of hospital stay put extra burden on our limited health resources, needle aspiration is superior treatment modality in the management of peritonsillar abscess as suggested by the results of our study.

Conclusion

Needle Aspiration is equally effective as Incision and Drainage in the management of Peritonsillar abscess as suggested by early relief of symptoms and signs, shorter duration of stay in hospital.

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ORIGINAL ARTICLE

Phloroglucinol for Acceleration of Labour: Double Blind, Randomized Controlled Trial

Raazia Rauf, Anser Begum, Umber Bakhtair, Asma Shaheen, Attiqa Ziagham, Azra Saeed

ABSTRACT

Objective: To determine the effect of Phloroglucinol Trimethylether vs Placebo on the duration of 1st stage of labour in term pregnancies.

Study Design: Quasi experimental study.

Place and Duration of Study: Obs/Gynae wards IIMC, Railway hospital, Rawalpindi from June 2011 to May 2012.

Materials and Methods: A double blind randomized placebo controlled trial was conducted on 131 patients in active phase of uncomplicated labour. The patients were randomized into two groups by simple random technique. After evaluation, patients were divided into group A and B. Neither the patients nor the doctor knew about the injection of phloroglucinol or distilled water. Sixty five patients in group a received Phloroglucinol Trimethylether 40 mg (4 ml) intravenous and 66 patients in group B received distilled water as placebo at 4 cm cervical dilatation. Dose was repeated after 60 minutes. Maximum 3 doses were given. Progress of labour was plotted on partogram. Any adverse effects of the drug on mother and fetus were noted. Student't-test was applied for statistical analysis.

Results: Out of 131 labouring patients, 61 patients from group A and 61 patients from group B were included in analysis. During 1st stage of labour 61 cases(100%) received 1 injection, whereas 11 cases (18.0%) were given 2 injections and 3 cases (4.91%) received 3 injections during the 1st stage of labour in group A and in group B 61 patients (100%) received 1 injection , 52 patients (85.2%) were given 2 injection and 37 cases (60.6%) were received 3 injection. The average duration of observed active phase of 1st stage of labour was shortened by almost two hours in patients receiving Phloroglucinol. The mean duration of 2nd stage of labour in group A was 25.16 mins and 34.52 mins in group B.

Conclusions: Phloroglucinol definitely has a therapeutic role to play in obstetrics with its strong antispasmodic effect. In the presence of good and regular uterine contractions, it shortens the duration of labour, is non toxic to both mother and fetus and it also decreases the severity of labour pain.

Keywords: *Phloroglucinol, First stage of labour, Duration of labour, Placebo*

Introduction

The problems and hazards of prolonged labour both for the mother and fetus have been recognized for many years. The mother is exposed to a higher risk of 0infection, ketosis, and obstructed labour, while the foetus faces the dangers of infection, asphyxia and excessive cranial moulding. Professor O'Driscoll at the National Maternity Hospital, Dublin (1973), introduced the concept of "active management of labour" and this has influenced the obstetricians to change their outlook regarding first stage of labour.[1] The Causes of prolong 1st stage of labour is multifactorial and cervical dilatation is the end result of these factors.[2] Active management of labour is associated with the low incidence of prolonged labour and low Cesarean Section rate.[3]

Various drugs have been tried over the last few decades, which accelerate labour either by increasing the uterine activity or by accelerating cervical dilatation. Oxytocin and prostaglandins are used to intensify uterine contractions. Sedatives and belladonna alkaloids have been tried to hasten cervical dilatation, but many have adverse effects on the mother or the feotus.[4] Drotaverine and Vaethamate bromide have

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been used to accelerate cervical dilatation but many have anticholinergic side effects like dryness of mouth, tachycardia and vomiting. An ideal antispasmodic for acceleration of cervical dilatation should have a prompt and long lasting action, no adverse effects on uterine contractility and be free from the risk of uterine inertia. It should also minimal side effects in the mother and the foetus.[5] Spasmolytics and spasmoanalgesics mixtures are administered to facilitate dilatation of the cervix during delivery and to shorten the 1st stage of labour. Which results in reduced need of analgesia, decreasing patient's anxiety and less amount of time spent in painful process of parturition.[6] Phloroglucinol trimethyle ether is primarily used in gastrointestinal tract colics.[7] It was used for augmentation of labour in some centres in 1970. Recently there is again a surge for the use of Phloroglucinol Trimethyl Ether to accelerate the first stage of labour in many centers. It is extensively used in obstetrics. It can relieve the spasm and edema of cervix and can lower the tension of cervix muscles. So, can be used to improve dilatation of cervix and promote the progression of labour.[8] It modulates the release of prostaglandin and other inflammatory mediators as nitricoxide.[9] It reduces the glycerol induced abdominal pain by reducing smooth muscle contraction without affecting tone.[10]

The rationale of the study is to shorten the duration of labour, thus avoiding the complications of prolonged labour and instrumental deliveries and to lower the Cesarean Section rate.

Materials and Methods

A Randomized controlled trial was conducted in labour ward of obstetric unit.All patients fulfilling inclusion criteria admitted through OPD and ER of Obs/Gynae unit IIMC, Railway Teaching Hospital Rawalpindi were recruited and divided into 2 equal groups. Permission from hospital ethical committee was taken and patients were appraised of merits and demerits of study. Proper informed consent was taken from each woman. Inclusion Criteria was laboring patients including term primigravida and multigravida, having singleton fetus with cephalic presentation, in active phase (4cm) of uncomplicated labour (active phase was defined as 3cm > cervical dilatation with regular uterine contractions).Exclusion Criteria were any contraindication to vaginal delivery e.g. CPD, placenta previa ,Multigravida , Multiple gestation ,Pre-term Meconium stained liquor ,CTG abnormalities and any obstetrical, surgical or severe medical complications such as heart disease or eclampsia. The patients were randomized into two groups by simple random technique. Sixty one patients in the study group received phloroglucinol 40mg (4ml) I/V at 4cm dilatation and 61 patients in the control group received placebo (distilled water) 4ml I/V .Dose was repeated after 60min. Neither patient nor observer knew the content of the injection. Maximum 3 doses were given. Labour progress was plotted on partograph. All data pertaining to labour events, maternal and neonatal outcome, adverse effect of drug or placebo (nausea, vomiting, giddiness, palpatation , hypo/hypertension, tachycardia, dry mouth , blurring of vision, fetal heart rate) were recorded.Amout of blood loss after second stage of labour was estimated subjectively by the attending doctor and objectively by weighing the soaked pads. Blood loss of > than 500ml was considered abnormal.Follow up of the patients was done till 24 hours after delivery. Four hypothesis were tested in the study. First was that pholoroglocinol can safely reduce the duration of labour, secondly they donot have any maternal and neonatal adverse effects, third do not cause primary

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postpartum hemorrhage and finally it can significantly reduce the pain of labour. Primary outcomes measures was duration of labour. Secondary outcomes was foetal outcome, maternal side effects and effect of drug on blood loss after second stage of labour. Data was entered on the proforma and was analyzed by SPSS version 18.Mean and SD were calculated for quantitative variables i.e. age, gestational age, duration of active 1st stage, 2nd stage, 3rd stage and total duration of labour. Frequencies and percentages were calculated for number of doses used. Independent sample t-test was used to compare duration of 1st stage of labour in drug and placebo group. P-value < 0.05 was taken as significant.

Results

Table I shows baseline demographic and clinical characteristics of the patients. The primary analysis was intention to treat and involved all patients who were randomly assigned.Out of 131 labouring patients , 4 pateints in group A (out of 65 patients) and 5 patients in group B(out of 66 patients) were removed from consideration because they were delivered by Cesarean Section. 5 patients developed fetal distress and 4 patients had failed progress in 2nd stage. Therefore 61 patients from group A and 60 patients from group B were included in analysis. Mean age of patients in group A was 24.4± 3.51 years and in group B was 23.1±3.26 years. Mean gestational age in both groups was 38.8 ± 0.76 weeks. During 1st stage of labour 61 cases(100%) received 1 injection, whereas 11 cases (18.0%) were given 2 injections and 3 cases(4.91%) received 3 injections during the 1st stage of labour in group A and in group B 61 patients (100%) received 1 injection ,52 patients (85.2%) were given 2 injection and 37 cases (60.6%) were received 3 injection .

The average duration of observed active phase of 1st stage of labour was shortened by almost two hours in patients receiving

Table I: Baseline Characteristics of Patients of both Groups. (n = 122)

Characteristics	Group A N=61 Mean (SD)	Group B N=61 Mean(SD)	*P*-value
Age (years)	26.62(6.09)	25.83(5.38)	0.620
Height (cm)	155.18(3.37)	155.64(3.06)	0.314
Weight(Kg)	66.72(4.52)	69.09(3.73)	0.642
Period of gestation(weeks)	38.61(1.26)	38.70(1.35)	0.778

Phloroglucinol. The mean duration of the observed active phase of 1st stage of labour in drug group was 183.04 mins(35.64) and 316 mins(52.29) in placebo group.The mean duration of 2nd stage of labour in drug group was 25.16 mins(6.21) and 34.52mins(5.57) in placebo group.The mean duration of 3rd stage of labour in drug group was 8.72mins(3.47) and 11.1mins(2.02) in placebo group.

The mean total duration of labour in drug group was 216.88 mins(38.94) and 358.52 mins(65.88) in placebo group.The mode of delivery was not altered in 2 groups (Table II).

Table II: Summary of Results of Primary Outcomes

STAGES OF LABOUR	GROUP A		GROUP B		P VALUE
	MEAN	S.D	MEAN	S.D	
IST STAGE	183.0	35.6	316.0	52.2	.0.00
2ND STAGE	25.1	6.2	34.5	5.5	0.00
3RD STAGE	8.7	3.4	11.1	2.0	0.00
TOTAL DURATION	216.8	38.9	358.5	65.8	0.00

The mode of delivery was not altered in two groups. Frequencies of normal vaginal delivery was 80% and 85% in group A and group B respectively. In group A 2 patients (4%) and 3 in group B (6%) had outlet forceps delivery due to fetal distress whereas 2 patients (4%) and 3 patients (6%) in group B underwent cesarean section for foetal distress and non progress of labour. Table III showed Secondary outcome measures.

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Neonatal outcome as assessed by APGAR Score at 1 minute 9.70 in group A Vs 9.14 in group B and 5 minute 9.90 in group A Vs 9.80 in group B were similar in both groups. There were no complications like cervical tear and vaginal laceration in either group. No side effects like nausea, vomiting, hypotension and dry mouth were noted in any of the groups. Due to analgesic action of drug the patients in group A were calmer and intensity of labour pain was lesser as compared to group B. They did not need analgesia while patients in group B did so.

Table III. Summary of Secondary Outcome Measures

Measures	Group A Mean (SD)	Group B Mean (SD)	P-Value
Fetal outcome (APGAR score)			
At 1 minute	9.70(0.44)	9.14(0.77)	0.000
At 2 minute	9.90(0.20)	9.80(0.39)	0.000
Blood loss after second stage(ml)	405.5(72.9)	426.0(62.5)	0.005
Maternal side effects	0.00	0.00	

Discussion

In modern obstetrics a drug that offers convenience and assures shortening of first stage of labour without compromising the mother or fetus is a welcome drug. In primary gravidas,the cervix normally dilates at the rate of 1cm/hour. Phloroglucinol accelerates the labour by relieving the spasm and edema of cervix,facilitate dilatation,shorten process of labour,harmonize the shrinkage of uterus and has no effect on the rhythm and the strength of uterine contraction.[8] Since 1960s foreign research indicated that phloroglucinol could obviously improve the dilatation of the cervix during the process of labour especially after the cervix dilated 4cm,the effect is better.[2] A review of literature showed that the drug was extensively used during 1970s and early

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ORIGINAL ARTICLE

Patient Compliance in Systemic Hypertension and to Identify Causes of Non-Compliance

Muhammad Ali, Jawad Hameed, Muhammad Hamza Zia, Raja Adil Masood, Aamir Shahzad

ABSTRACT

Objective: To assess patient compliance in systemic hypertension and to identify the causes of non-compliance.

Study Design: A descriptive observational study.

Place and Duration of Study: The study was conducted in the Department of Medicine Unit I and Unit II at Pakistan Railway Hospital, Rawalpindi, for 1 month from 5th of September, 2012 to 5th of October, 2012.

Materials and Methods: Semi structured interviews of 32 patients with primary hypertension who were admitted in medical ward were done along with their blood pressure readings and their compliance was assessed. Morisky 8-item medication adherence questionnaire[1] was used to assess the adherence to anti-hypertensive medication. Scores of less than 3 out of 8 were termed as compliant while scores of 3 or more were termed as non-compliant. **Non-compliance** was defined as missing at least two days of medications per week. This definition was arrived at from the general understanding that a minimum compliance of 80% is needed to achieve an adequate reduction in blood pressure in the treatment of hypertension.[2]

Results: Among 32 patients, 18 were male while 14 were female with mean age of 56 years. Twenty six out of thirty two (81.25%) patients did not comply with their antihypertensive medications. In majority of the patients (42.3%), misperception about disease and management due to inadequate education by health care providers was found to be the cause of non-compliance. Other causes were considering medication unnecessary (15.3%) or ineffective (11.5%), forgetting to take them regularly (11.5%), unaffordable drug prices (11.5%) and unpleasant side effects (7.7%).

Conclusion: Patients compliance in hypertension was sub-optimal and misperceptions of the disease and its management seemed to play a major role for non-compliance. Physician-patient relationship, effective communication and better understanding of the disease can result in adequate control of hypertension and its complications.

Key words: *Patient compliance, Hypertension, Physician patient relationship*

Introduction

Hypertension is defined as a blood pressure of 140/90 mm Hg or more than 130/85 mm Hg if Diabetic or having **chronic kidney disease** (CKD), stage III, measured in a proper setting on at least two different occasions.[3] Hypertension is an overwhelming global challenge, which ranks third as a means of reduction in disability-adjusted life-years.[4] It affects 1 billion people worldwide and is the most easily recognized treatable risk factor for stroke, myocardial infarction, heart failure, peripheral vascular disease, aortic dissection, atrial fibrillation and end-stage kidney disease. In a World Health Organization report, blood pressure was responsible for approximately half of all cardiovascular disease worldwide.[5]

Despite this knowledge and unequivocal scientific proof that treatment of hypertension can prevent many of its life-altering complications, hypertension remains untreated or undertreated in the majority of affected individuals in all countries, including those with the most advanced systems of medical care. Inadequate treatment of hypertension is a major factor contributing to some of the adverse secular trends since the early 1990s,

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including an increased incidence of stroke, heart failure, and kidney failure plus a leveling off of the decline in coronary heart disease mortality. The asymptomatic nature of the condition impedes early detection, which requires regular blood pressure measurement. Because most cases of hypertension cannot be cured, blood pressure control requires lifelong treatment with prescription medication, which is costly and often causes more symptoms than the underlying disease process.[6]

Compliance with treatment is an important issue in the successful control of hypertension and prevention of complications. According to the World Health Organization (WHO), poor adherence to antihypertensive medication is the most important cause of uncontrolled blood pressure and estimates that 50-70% of the patients don't take their antihypertensive medication as prescribed by their health care providers.[7]

This study was done to assess the patient compliance in systemic hypertension and to identify the causes of non-compliance in our settings. Railway hospital caters to the railway employees along with general public. Railway employees are entitled for free investigations/ treatment, so lack of financial resources can't be a major factor for non-compliance.

Materials and Methods

This observational study was performed at IIMCT-Pakistan Railway Hospital; a 400 bedded teaching hospital located in West ridge, affiliated with Islamic International Medical College, Rawalpindi.A total of 32 patients who were admitted in medical unit I and II with various medical conditions were included in this study. 12 patients presented with medical conditions resulting as the complications of hypertension mostly stroke, myocardial infarction and heart failure while rest of the patients were having hypertension as co-morbidity. All the patients were previously diagnosed cases of hypertension and had been prescribed with antihypertensive medication. Semi-structured interviews were conducted and Morisky 8-item medication adherence questionnaire[1] was used to assess their adherence to anti-hypertensive medication. Scores of less than 3 out of 8 were termed as compliant while scores of 3 or more were termed as non-compliant. The non-compliance was defined as missing at least two days of medications per week. This definition was arrived at from the general understanding that a minimum **compliance** of 80% is needed to achieve an adequate reduction in blood pressure in the treatment of hypertension.[2] Blood pressures of all the patients were measured at the time of interview and they were within normal limits due to the fact that they were given antihypertensive medication regularly during their management in the ward.

Results

Out of 32 patients, 18 were male and 14 were female. 25 patients were above the age of 50 years with the **age range of** 43 years to 68 years and the mean age was 56 years. 26 out of 32 (81.25%) patients did not comply with their antihypertensive medications. Non-compliance in males was found to be 77.7% while in females it was 85.7%. 11 patients were of the view that their blood pressures were controlled as they experienced no symptoms so they stopped taking their medicines. 4 patients considered medication unnecessary and believed they do not need it. 3 patients considered them ineffective. 3 patients forgot to take medication regularly. 3 patients cited unaffordable drug prices as the main reason for noncompliance. 2 patients experienced unpleasant side effects. Majority of the patients considered the necessity of taking antihypertensive medication only when they experienced symptoms like headache etc and believed

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that they do not need the medication when they are asymptomatic. Non-adherence was an active decision, partly based on misunderstandings of the condition and general disapproval of medication.

Table I: Frequency of Causes of Non-Compliance

CAUSES OF NON-COMPLIANCE	OVERALL FREQUENCY (%)	FREQUENCY IN MALES (%)	FREQUENCY IN FEMALES (%)
Misperception about disease and management(Due to inadequate education by health care providers)	42.3%	42.8%	41.6%
Drugs are unnecessary	15.3%	14.2%	16.6%
Ineffective drugs	11.5%	14.2%	8.3%
Forget to take medication regularly	11.5%	7.1%	16.6%
Unaffordable drug prices	11.5%	14.2%	8.3%
Unpleasant side effects	7.7%	7.1%	8.3%

Discussion

Despite improvements in the management of hypertension in the past several years, nearly 70% of patients with hypertension are not adequately controlled.[8] One of the major contributors to the large number of uncontrolled hypertensive patients appears to be non-compliance with prescribed regimens. In prescribing medication, compliance usually means "the extent to which the patient takes the medication as prescribed".[9] Non-adherence to prescribed drugs schedule has been and continues to be a major problem the world over.

The World Health Organization (WHO) describes poor adherence as the most important cause of uncontrolled blood pressure and estimates that 50-70% of people do not take their antihypertensive medication as prescribed.[7] Data from the National Health and Nutrition Examination Survey in USA indicates that approximately 40% of hypertensive individuals are untreated, and 65% do not have their hypertension controlled to a blood pressure level of 140/90 mm Hg.[10]

As with the treatment of other chronic illnesses in which long-term treatment is required, adherence to prescribed medications for hypertension is also a problem. Studies have shown that almost 50% of individuals discontinue antihypertensive medications within 6 to 12 months of their initiation.[11] According to the National Health Survey of Pakistan, the prevalence rate of hypertension is 18% in the Pakistani population of more than 15 years of age, with a prevalence rate of hypertension of 16.2% and 21.6% in rural and urban population respectively and it also showed that among all hypertensive patients in Pakistan, more than 70% are unaware of their disease.[12] A study done by *Saleem et al in 2011 at Quetta, Pakistan showed that 64.7% of the patients were non-compliant*[13] *and a study done by* Nazir et al in 2008 at Abbottabad showed that 51.7% of the patients were non-compliant.[14] Another study from Agha Khan University Karachi by Hashmi et al showed compliance to be significantly higher around 77% in hypertensive patients.[15] In our study 81.25% of the patients were found to be non-compliant. This poor compliance was mainly due to the fact that patients were not given adequate education about their disease and its management. Consequently they stopped taking their medication although majority of them were entitled for free treatment by Railway hospital. The free treatment by the Railway hospital also excludes unaffordable drug prices as the major cause in our study as this cause was only found in 11.5% of the patients mainly in those who were Railway non-entitled but this cause cannot be ignored in general

population as we have a substantial poor population in our country. Patients' beliefs and attitudes have been explored in studies worldwide to explain not taking medication as prescribed. Egan *et al* found forgetfulness, adverse effects and not liking to take medication among the reasons for poor adherence in the United States.[16] Commonly encouraging factors, such as understanding the need and effectiveness of medication, a good support system and employing methods to reduce forgetfulness such as keeping medication in sight, were all significantly associated with better adherence in our population. Similarly, among the discouraging factors cited in literature, most commonly reported in our population was forgetfulness (48%) followed by cost (40%) and fear of getting used to medication (27%). These were, however, factors that reduced adherence among the adherent (>80% adherence) population. This was different from the major factors reducing adherence in the non-adherent (<80% adherence) patients, whose main issues were lack of understanding of need of medication (70%) and lack of understanding of effectiveness of medication (59%).[17]

In our study 42.3% of the patients believed that one should only take medication when there are symptoms and had strong concerns about the potential adverse effects of taking medication every day or did not see the need for taking medication when one is not feeling ill. This finding also provides a preliminary insight into the mechanism by which beliefs relating to medication might influence compliance. A study done by ***Saleem et al*** *in Quetta, Pakistan showed that* patients were unsure of the benefits of continuous medication use which resulted in non-adherence (64.7%) to regimens.[13] The same study showed that out of the 385 patients 37.9 % of the patients were within the poor knowledge range, 61.3 % of the patients moderate and only 0.8 % of the patients showed adequate general knowledge about hypertension[13]. Some of these findings were similar to those reported in previous studies.[18,19]

Familoni *et al.,* in a 2004 study in Nigeria, reported that only about one-third of patients knew that hypertension should ideally be treated for life, and 58.3% believed that antihypertensive drugs should be used only where there are 'symptoms' while the remaining 6.3% believed that the treatment should be for a period of time and not for life.[20]

Hayrettin K. in his study showed that there is a positive relationship between patient's levels of knowledge of treatment and better adherence.[21] It was found in the same study that 43.7% of patients believed that antihypertensive drugs can be stopped once the blood pressure has stabilized. This shows how the lack of knowledge about treatment contributes to patient low adherence behavior. Patients cannot necessarily be blamed for this as studies[21-23] have shown that patients' poor knowledge about disease and medication is often related to the effectiveness of the health education they receive. There are many studies which describe the role of physician-patient communication in enhancing patients' adherence to medication.[24-26] The outcome of 'patient-centered' communication between patients and health care providers is that it contributes to increase patients' understanding about their illnesses and adherence to treatments.

Although the interpersonal communication process in the patient-physician relationship has a potentially positive impact on patients'

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health outcomes, physicians usually do not ask their patients about medication-taking behavior or may use ineffective communication approaches.[24] It is argued that non-collaborative communication on the part of healthcare providers often result in poor patient adherence to antihypertensive treatments.[25] In our study population 81.25 % of were non-adherent to the treatment regimen which is similar to the study "Prevalence, awareness, treatment and control of hypertension among the elderly in Bangladesh and India: a multicentre study" where 90% patients were estimated as being non-adherent.[27]

Patient knowledge is critical in the management of hypertension and yet is an area that is frequently neglected. In our study the most important factor resulting in non-adherence was found to be lack of patient education about disease, its management and side effects. Patients who have been educated and understand their disease process, the goal of controlling blood pressures, potential side effects associated with antihypertensive medication (and the fact the medication can be changed if there are side effects), and the consequences of poor adherence and inadequate BP control tend to be more adherent with the medical regimen.[28]

A recent systematic review of 59 papers in July 2012 from 16 countries (United States, United Kingdom, Brazil, Sweden, Canada, New Zealand, Denmark, Finland, Ghana, Iran, Israel, Netherlands, South Korea, Spain, Tanzania, and Thailand) by Marshall IJ, Wolfe CD, McKevitt C., showed that non-adherence to hypertension treatment often resulted from patients' understanding of the causes and effects of hypertension; particularly relying on the presence of stress or symptoms to determine if blood pressure was raised. These beliefs were remarkably similar across ethnic and geographical groups.[29] To improve adherence, clinicians and educational interventions must better understand and engage with patients' ideas about causality, experiences of symptoms, and concerns about drug side effects. Although it has been suggested that it is sometimes possible to withdraw drug therapy and continue lifestyle-modification after several years, the consensus is that almost all who are hypertensive before treatment will become hypertensive again if treatment is stopped.[30]

Conclusion

Misperception of disease understanding and its management is a significant cause of non-compliance in hypertension. Educational efforts and behavioral techniques can improve patient compliance in chronic, asymptomatic conditions. Effective management requires continuity of care by a regular and knowledgeable physician as well as sustained active involvement by an educated patient. Health care providers need to educate, counsel and motivate their patients in this regard. Further studies should be carried out to identify major causes of non-compliance.

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ORIGINAL ARTICLE

Comparison of Topical Glyceryl Trinitrate and Nifedipine in Management of Chronic Anal Fissure

Maliha Yunus, Mumtaz Akhtar, Zeeshan Ghani

ABSTRACT

Objective: To compare the complete healing of chronic anal fissure by using 2% nifedipine paste and 0.5% glyceryl trinitrate ointment each applied locally for 6 weeks.

Study Design: Randomized Controlled Trail.

Place and Duration of Study: Surgical Unit-I, Pakistan Railway Hospital Rawalpindi spanning over a period of 06 months starting from March 2011 to August 2011.

Materials and Methods: Seventy six patients of chronic anal fissure were included in the study. Non-probability convenience sampling was used for the enrolment of patients. Patients were divided equally into two treatment groups A & B. Group 'A' was treated with topical 2% nifedipine paste and Group 'B' was treated with 0.5% glyceryl trinirate ointment. Patients were asked to come for the follow up after six weeks to look for symptomatic improvement and healing rate.

Results: All 38 patients included in the study completed the follow up after 06 weeks of treatment in either group. Three patients from Group B experienced intractable headache and were managed by analgesics accordingly but they went on to complete the treatment. None of the patient in group A had any significant side effect causing any adjustment in the treatment. At the end of 06 weeks of treatment, 28 patients in Group A and 25 in Group B showed complete healing of anal fissure. The overall healing rate was 69.75 %(n=76). There was statistically no significant difference at the end of 06 weeks of treatment (p=0.454).

Conclusion: It is concluded that 2% nifedipine paste is as effective as 0.5% GTN ointment in terms of healing of chronic anal fissure.

Key words: Chronic Anal fissure, GTN, Nifedipine.

Introduction

Anal fissure is one of the most common proctologic problems presenting with painful bleeding per rectum[1] estimated to be affecting 10% of the patients attending the colorectal clinics.[2] It is common condition affecting all age groups, but it is particularly seen in young and otherwise healthy adults usually in third and fourth decade.[3]

Chronic anal fissure is associated with persistent hypertonia of internal anal sphincter and high resting anal pressure.[4] The manometric evidence has confirmed that the high resting anal pressure is caused by internal anal sphincter spasm and hypertonicity of sphincter as the fissure bed lies on the internal anal sphincter. [5] All the current available treatment modalities of anal fissure are aimed to focus on high resting anal pressure. The underlying principle of treating anal fissure is to reduce internal anal sphincter tone, thus reducing the resting anal pressure.[6] This can be achieved both by pharmacological or surgical means.[7]

Surgical operations including anal dilatation and internal sphincterotomy are effective in lowering the resting anal pressure and decreasing the anal tone but carry a significant risk of impaired level of continence.[8] Therefore, there has been a significant change during the last decade in the treatment of anal fissure with major emphasis on the conservative treatment modalities. These pharmacological methods are aimed at reversible relaxation of anal sphincter.[9]

Glyceryl trinitrate is regarded as the first line agent, which is widely used for chemical sphincterotomy.[10] Although it has high

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healing rates but associated with major side effects like headache.[11] Calcium channel blockers, e.g. nifedipine, diltiazem are the other class of drugs which are used for chemical sphincterotomy with comparable healing rates with fewer side effects specially headache.[12]

There is no research conducted in our set up in which the efficacy of topical nifedipine for healing of chronic anal fissure is studied. Though nifedipine has been recommended as first line treatment in the management of chronic anal fissure in United Kingdom, it is neither dispensed nor used in tertiary care set ups due to lack of awareness and confidence about the drugs. Its cost is also comparable to GTN. This study is based on very limited available data on the better healing with topical nifedipine as compared to glyceryl trinitrate for chronic anal fissure. This would help in building the confidence of surgeons in adapting nifedipine, as a new treatment modality which can be used in tertiary care hospitals in local population.

Materials and Methods

It was Randomized Controlled Trail conducted at Surgical Unit-I of IIMC-T, Pakistan Railway Hospital Rawalpindi. The study was conducted on OPD basis over a period of 06 months starting from March to August 2011.

Sample size of 76 patients was calculated by using WHO sample size calculator. The sample was selected by using the consecutive (non-probability) sampling technique .First 76 adult patients, of both genders, having a history of anal pain, worsening with bowel movements, for duration more than 6 weeks, and on anal examination showing a longitudinal tear in the lining of distal anal canal below the dentate line, in the midline anteriorly or posteriorly and who gave consent to enter the study were considered eligible for enrollment in the trial. Patients with acute anal fissure, fissures occurring in locations other than the midline posteriorly or anteriorly, and patients with TB, inflammatory bowel disease, anal carcinoma and recurrent anal fissure were not included in the study. Patients with multiple anal fissures and patients on other formulations of nitrates and calcium channel blockers for illness were also excluded from the study. After taking approval from hospital ethical committee and after explaining the purpose of the study, informed consent was obtained from the patients participating in the study. Patients were randomly assigned using the lottery method, to either topical nifedipine paste (2%) [Group A] or GTN ointment (0.5%) [Group B] .The assigned medication was applied locally both externally and internally about the size of a pea every 12 hours for six weeks by the patient. The outcome was noted as 'complete healing' or 'incomplete / no healing' at the end of 06 weeks based on inspection on digital rectal examination of the anal canal. First examination as well as follow up examination was done by consultants. Data collected from the patients was entered on the Performa. Data was analyzed using the Statistical Package for Social Sciences (SPSS version 16).

Results

From March 2011 to August 2011, 76 consecutive outpatients were enrolled on a convenient sampling bases; 38 patients received 2% Nifedipine paste (Group A), and 38 patients received GTN Ointment (Group B).Our study population was in age group of 11 to 60 years. Mean age of patients in our study was 31.36 years .The duration of symptoms varied from 06 to 40 weeks. The

maximum number of patients who fall in a specific duration were 14 (n=76) and that was 12 weeks followed by 11 patients in 08 weeks duration. Mean for duration of symptoms was 14.83.Standard deviation was 7.01.

The distribution of duration of symptoms is shown in the Figure 1.

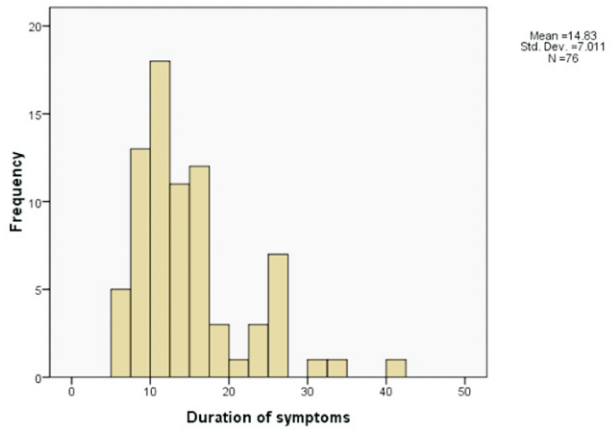

Figure 1: Duration of Symptoms in Weeks

In our study, 24 patients (31.6%) were male and 52 patients (68.4%) were female (n=76).There were 5 (6.67%) male and 33 (43.42%) female patients in the group A. On the other hand there were 19 (25%) male and 19 (25%) female patients in group B.The location of fissure is shown in the Table I

Table I: Position of Fissures(n=76)

Position	Frequency (n)	Percentage (%)
Anterior	19	25%
Posterior	57	75%
Anterior & Posterior	00	00%
Total	76	100%

All the patients in the study completed the follow up of 06 weeks of treatment in both groupA and groupB. Three patients (n=3) 3.94% from Group B experienced intractable headache and were managed by analgesics accordingly but they went on to complete the treatment. None of the patient in group A

Table II: Outcome of Treatment(n=76)

Treatment Group	Complete Healing	Incomplete / No Healing	% of Healing
Nifedipine (Group A) N=38	28	10	73.68
GTN (GROUP B) N=38	25	13	65.79
TOTAL N=76	53	23	69.74

(P=0.454)

procedures. Incontinence is a major and irreversible complication. Topical GTN remains the most widely used non-surgical treatment for chronic anal fissure.[13] GTN also remains the standard agent against which the other newer agents are compared in terms of efficacy and compliance.[14] Aim of this study was to compare the efficacy of Nifedipine treatment against the glyceryl trinirate in the management of chronic anal fissure.

According to literature, anal fissure is particularly seen in young and otherwise healthy individuals.[15,16] Fissures have a predilection for the posterior midline (90 %) but may also be located in the anterior midline or lateral. The explanation for this

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phenomenon is both anatomic and functional.[17,18]

Calcium channel blockers such as nifedipine and diltiazem have been the focus of research in recent years regarding their role in fissure management. Cook et al. demonstrated the reduction of resting anal tone, inhibition of contraction of internal anal sphincter and the healing of anal fissure by using oral nifedipine.[19] Our study showed that 73% of patients with chronic anal fissure could achieve complete healing by using topical nifedipine. This finding is lower than a comparable study conducted by Perrotti et al which showed the healing rates of over 95%.[20] They added topical lidocaine to nifedipine and compared it with the control. Perhaps the addition of local anesthetic to topical nifedipine has beneficial effect in lowering the anal tone.[21] Ezri and Susmalliam showed better healing rates with topical nifedipine than GTN when used for anal fissure.[22] There were more side effects in GTN group than the nifedipine group Many controlled clinical trials have shown varied results in terms of fissure healing with the topical GTN (45-80%).[23] The major side effect of topical GTN therapy for anal fissure is that almost 40% of patients experienced headaches.[24] Masood et al demonstrated the healing of anal fissure in 82% of the patients with the use of topical GTN; however headache was experienced by 67% of the patients. Another known considerable drawback to GTN therapy is high recurrence rate.[25] Poor compliance with prescribed treatment often contributes to low outcome.

The healing showed in the GTN group in our study was 65% which is comparable to other studies in term of efficacy. Usman et al demonstrated the healing of anal fissure in 88% of patients after 06 weeks of topical treatment with GTN. They compared topical GTN with internal anal sphincterotomy in chronic anal fissure. However, headache of variable intensity was reported in 40% of the patients.[17]

In a local study conducted at a tertiary care teaching hospital in Pakistan, in which the effect of topical GTN was studied in acute anal fissure, the healing rate of 68% was reported with GTN.[17] In a prospective randomized trail which included 35 patients of anal fissure, Bacher et al demonstrated complete fissure healing in 80% of the patients after 04 weeks of topical GTN treatment against 40% of the controls.[26] This result was better as compared to many other studies in which healing was reported around 65-70% with GTN treatment.[27]

Our study was unique in the way that a very few randomized trials available in the literature in which nifedipine was compared with the GTN in topical management of anal fissure. Ezri et al compared topical nifedipine and GTN in a randomized trial involving 52 patients. They found that the healing was higher with nifedipine (89% vs. 58%) with less frequent side effects (5% vs. 40%).[22] Although the side effects profile was not made the part of work for which the study was conducted, but nevertheless, the number of headaches reported in our study were significantly lower in the nifedipine group than the GTN group. This had been shown in many previous studies.[1]

We were unable to prove our hypothesis. Although nifedipine failed to show any statistically significant difference over GTN in terms of efficacy, still the rates of healing are comparable to other studies showing its effectiveness.

Conclusion

It is concluded that 2% nifedipine paste is as effective as 0.5% GTN ointment in terms of

efficacy in management of chronic anal fissure. .

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ORIGINAL ARTICLE

Measuring and Comparing Educational Environment of Two Education Systems (Integrated and Traditional Medical Curriculum) Running Simultaneously at Islamic International Medical College with (DREEM) Inventory

Rahila Yasmeen, Masood Anwar

ABSTRACT

Objectives: Measuring and comparing educational environment of two education systems (integrated and traditional medical curriculum), running simultaneously at Islamic International Medical College with (DREEM) Inventory

Study Design: It was a quantitative descriptive study, a survey was conducted using DREEM inventory.

Place and Duration of Study: The study was carried out at Islamic International Medical College from September 2011 to January 2012.

Materials and Methods: Total 137 out of 180 students filled the Dundee Ready Education Environment Measure (DREEM) Inventory (Roff et al., 1997) respectively. In traditional system, i.e. final year MBBS, the number of students who filled the inventory was n=63; out of which 46 were females and 17 were males. In integrated system MBBS i.e. 4th year, the number of students who filled the inventory were n=74 out of which 49 were females and 25 were males. Response rate was 76%. Mean age of the final year and 4th year students was 23 and 22 years respectively.

Results: On analysis of DREEM Inventory the overall score of integrated system was 130 and traditional system scored 114, fall in more positive than negative environment, but integrated system score was more towards excellent i.e.150-200, subscale of inventory revealed the following mean score results: Perception of learning, 4th year scored 37-a more positive perception while traditional class had 25, just on border of teaching is viewed negatively. Others subscales does not deviate more.

Conclusions: Positive perceptions of integrated system's students identified the strengths of the curriculum i.e. curriculum enhance their problem solving skills, competencies, student centeredness, teaching and learning strategies strengthened retention of their knowledge in long term memory on the other hand traditional system students scored negative to these areas. Dreem inventory is a useful tool in measuring the learning environment and helps in finding the problems in it.

Key words: *Educational environment, DREEM inventory, Integrated curriculum*

Introduction

When students enter a new learning institution, they become aware of the curriculum they will follow through various explicit means such as the course syllabi, the classes they attend, the examinations they prepare for.[1,2] The teachers, of course, should be well aware of the curriculum they are expected to teach through the course documentation and through faculty meetings and discussions.[3]

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In addition to documented curriculum, students and teachers both should be aware of the educational environment' or 'climate' of the institution as well.[4,5]

There are some important key questions in determining the nature of the learning experience these are; is the teaching and learning environment very competitive? is it authoritarian? is the atmosphere in classes and field placements relaxed or is it in various ways stressful, perhaps even intimidating? These expectations can be varied from course to course or from class to class and can be perceived as either formal or informal components of the educational experience and they can vary from individual to individual.[6,7,8] They can be

motivating or de-motivating and individual students may respond differently to these subtle elements in their learning experience. [9] In order to enhance the learning experience in relation to teaching goal, it is of prime importance that institution should identify the basis for modifying the course by recognizing the elements operating in the educational environment of the institution or a course and evaluate how they are perceived by the students and teachers (strengths and weaknesses). [10]

Materials and Methods

In 2009, department of medical education of Riphah International University initiated a major reform in its undergraduate medical curriculum with profound impact on the overall organization and delivery of educational strategies, after doing need analysis and piloting of project. The purpose of the paper is to identify and compare the educational environment of traditional and integrated system of undergraduate medical education by using Dundee Ready Education Environment Measure[1] (DREEM) Inventory (Roff et al., 1997) in order to diagnose the strengths and weaknesses in the climate of both systems. The overall aim of the project was to improve the quality of medical education and providing a more holistic way of education to the medical students, which should be student centered and ultimately improves the health care delivery system. The educational strategy used in curriculum organization was integrated modular system (both vertical and horizontal) with Problem-Based Learning used as a teaching and learning strategy along with lectures, small group learning, role plays, skill lab and clinical clerkships. The curriculum reform project was implemented in 2009 on the newly inducted first year medical students; rest of the four years were on traditional medical education system, i.e. subject based, teacher centered. After completion of three years of new system, the two systems were compared in terms of its effectiveness by identifying the educational environment at the end of its users i.e. the students. We selected the two classes 4th year (senior most class of integrated system) and final year MBBS (traditional system), and asked them to fill the inventory named *DREEM* (Dundee Ready Environment Measure).The DREEM Inventory (Roff et al.2001) was used, it contains 50 statements relating to a range of topics directly to educational climate. The inventory was administered by a survey face to face in the class room. Students were asked to read each statement carefully and to respond using a 5 point Likert-type scale ranging from strongly agree to strongly disagree. This inventory can produce global readings and diagnostic analysis of undergraduate educational environments in medical schools and other health professions institutions.

Results

Total 137 out of 180 students filled the Dundee Ready Education Environment Measure (DREEM) Inventory (Roff et al., 1997) respectively. In traditional system, i.e. final year MBBS, the number of students who filled the inventory was n=63; out of which 46 were females and 17 were males. In integrated system MBBS i.e. 4th year, the number of students who filled the inventory were n=74 out of which 49 were females and 25 were males. Response rate was 76%.

On analysis of DREEM inventory *the overall* score of integrated system was 130 and traditional system scored 114, placed in more positive than negative environment, but integrated system score was more towards excellent i.e.150-200.

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*Subscal*e of inventory revealed the following mean score results:

I: Students' perception of learning, 4th year scored 37, a more positive perception while traditional class had 25 that is just on border of teaching which is viewed negatively.

II: Students' perceptions of teachers 4th year scored 26 and traditional class have 25- not much difference because same teachers are teaching i.e. moving in the right direction.

III: Students' Academic self perception of 4th & 5th year is nearly same for both i.e. 19-20, means feeling more on the positive side.

IV: Students' perception of atmosphere 4th and 5th years scored 30& 25; more towards positive but 5th year is on borderline.

V: Students' social self perceptions of 4th & 5th year scored 17 & 15 respectively which is on not too bad.

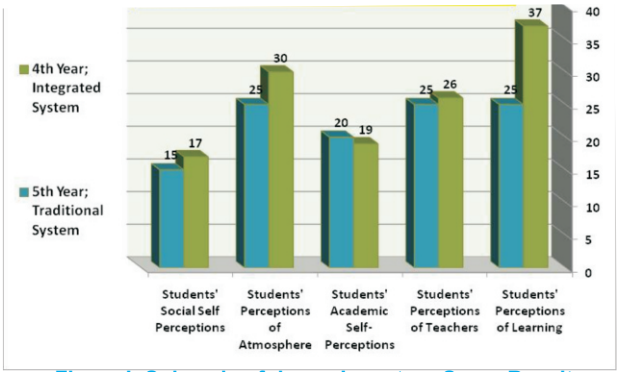

Figure I: Subscale of dreem Inventory Score Results

Discussion

To pinpoint the specific strengths and weaknesses within the climate we look at the responses to individual items. No item falls in the mean score of 3.5 (real positive points) for both years, 62% of items from 4th year and 34% from final year have the mean score between 2-3 (aspects of climate that can be enhanced),while 38% from 4th year and 66% of items from final year scores 2 or less indicate problems. Among the problem areas 5th year (traditional system) students identified that teaching is teacher centered, , teaching overemphasized factual knowledge, teachers ridicule the students, feeling about well prepared for the profession, I am able to memorize all I need on the other hand 4th year students rated high to their problem solving skills are well develop, teaching helps in developing my competency and rated high to student centered teaching and long term learning is emphasized over short term learning.

Positive perceptions of integrated system's students identified the following strengths of the curriculum i.e. curriculum enhance their problem solving skills, competencies, student centeredness, teaching and learning strategies strengthened retention of their knowledge in long term memory on the other hand traditional system students scored negative to these areas. But the problem areas identified by the new system need to be rectified i.e. teachers ridicule the students and are still authoritarian, teaching do not develop their confidence, teachers do not provide constructive criticism, the atmosphere is not relaxed during teaching, good support system for students who get stressed is not available, I am too tired to enjoy the course, hence DREEM, inventory help in identifying the important areas which need to be modified in students perspective in order to enhance their learning.The ultimate aim of teaching... is to help students learn" and this will be achieved by enhancing the educational environment Overall, scores reflect that both classes did not score excellent on subscales but 4th year scores (integrated curriculum) are little higher then 5th year and their self efficacy is higher because their attributes about their self are more towards positive hence their educational environment is little better than traditional education system. Further exploration is required to justify it

and identify the areas of strengths and weaknesses in both education systems.

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