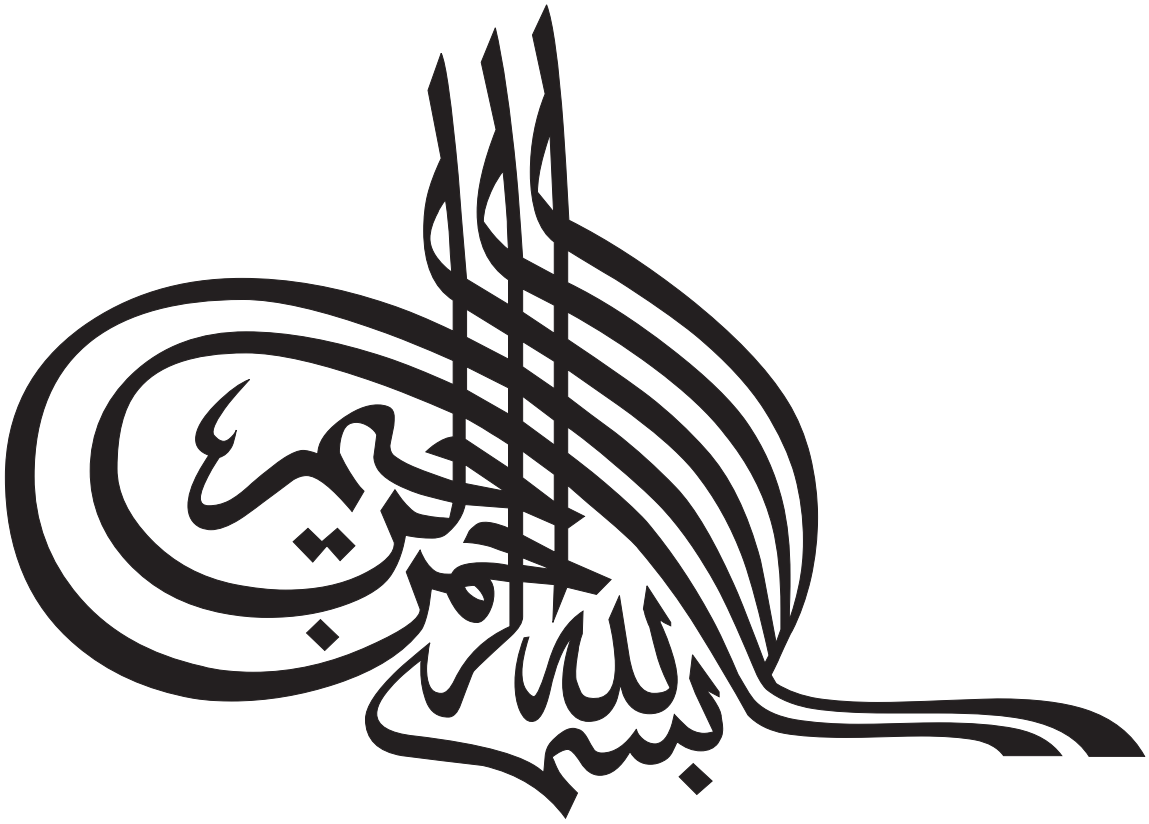


**In the name of Allah, the most Beneficent, the most Merciful**

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# CONTENTS

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# Psychosocial Aspects of Infertility

Wahid Bakhsh Sajid



Infertility generally refers to women who have never conceived despite exposure to the chance of pregnancy and women who have previously conceived but subsequently are unable to succeed.

An infertile woman or a couple is constantly subjected to psychosocial stressors due to deep rooted cultural belief that children are continuation of family / pedigree and security of old age. Parenthood is an inherent instinct and a passion of high order and thus culminates in diverse psychiatric and psychosomatic disorders if this passion does not translate into parenthood. These effects are described in a number of studies .[1]

Typically the psychological response is that of loss and subsequent grief.[2,3] One hypothesis suggests that unexplained psychogenic and physiologic infertility are the result of Psychological stress.[4] A terrible emotional complex of guilt, fear and anger is the major stress to which an infertile woman is continuously exposed to.

A woman with this problem specifically blames herself and on occasions attributes her problem to past transgressions and a punishment.

The infertility as such leads to strong guilt feelings, an uncertain future and fear of unknown.

The fear that she possesses an imperfect body, fear of losing control over her life arouse feelings of anger directed towards self and therefore sense of worthlessness, hopelessness, helplessness and the inappropriate projection of anger to the partner as unsupportive, callous and insensitive person emerge and usually generates marital disharmony as well as sexual problems.

It is a common observation that women unable to conceive within a few months after marriage start visiting different general practitioners, specialists, homeopaths and more so the faith-healers on account of vague somatic complaints which are infect the manifestations related to their infertility. Various studies have further emphasized that psychotherapeutic measures are more important for couples seeking help from infertility clinics since psychological factors largely affect the fertility rate which has also cultural and social impact.[5]

A number of other research studies have established that women with infertility are at higher risk of developing

psychiatric illnesses as compared to general population.[6] Mahtstendt found that 80 % of their infertile sample described infertility as extremely stressful where as Free man and her collogues found out 49 % of female sample considered as the most upsetting experience in their life.[7,8] Depressive disorders are the commonest morbidity followed by somatization disorder, dissociative (conversion) disorders, generalized anxiety disorder, obsessive compulsive disorder and panic disorders

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and phobic disorders.[9] It is thus high time to create awareness among medical professionals and the patients alike for understanding basic psychopathology and spectrum of symptoms of psychiatric disorders in this group of female population.

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ORIGINAL ARTICLE

# Psychological Morbidity amongst Infertile Couples

Shazia Ali, Fazaila Sabih, Farah Rashid, Sarwat Jehan, Masood Anwar

**ABSTRACT**

**Objective:** To assess psychological morbidity amongst infertile couples.
**Study Design:** Cross-Sectional study.
**Place and Duration of Study:** This study was carried out at MAS Infertility Clinic, Rawalpindi from August 2010 to January 2011.
**Materials & Methods:** A total of 30 subjects (15 couples) were included in the study. After taking an informed consent, they were asked to complete a questionnaire. Depression, Anxiety and Stress Scale (DASS) questionnaire was used for this study. Data was analyzed using SPSS version-14 and t-test was applied to see the significance in differences.
**Results:** Majority of couples were over 30 years of age and were married for more than 5 years. Vast majority (73.3%) were living in joint family system. Psychological morbidity, particularly anxiety and depression affected significantly (p=0.05) female partner. However no significant relationship was observed between the cause of infertility or duration of infertility and psychological manifestations.
**Conclusion:** This study presents pragmatic evidence regarding the psychological health of infertile couples in our society. Findings suggest that high levels of stress and depression exist in these couples, which not only affects their physical health, but also their psychological well being. It highlights the importance of providing psychotherapeutic help along with treatment for the cause of infertility.

**Key Words:** *Infertility, Infertile couple, Psychological morbidity, Depression, Anxiety and Stress*

## Introduction

Infertility is defined as failure to conceive after a year of regular intercourse without contraception. Infertility is the major life crisis particularly in our society. It comes as a severe shock to couples who have probably taken their fertility for granted. It cannot be denied that infertility is a deeply distressing experience for many couples.[1] Couples suffering from infertility have a tough time admitting that they have a problem as they feel that they have failed in their basic role of reproduction. When they are not successful in treatments they feel that they and their marriage is a failure.[2] This life crisis can lead to many emotional and psychological reactions. It presents them with one of their first major crises together.

It may affect the couple's inter-personal relationships, marital, social and sexual aspects of life.

Infertility can cause depression, anxiety, social isolation and sexual dysfunction.[3,4] That is why the impact of infertility on the psychological well being of couples has been the object of increasing attention in recent year many studies have reported psychological symptoms and problems in infertile couples. These psychological symptoms can be the cause of infertility or the consequence of it or both. A study found that infertility has a significant effect on psychological health of couples. They suffer from loss of self-esteem, sadness of mood, fear, sexual dysfunction, depression, guilt, anxiety, frustration, emotional distress.[5] Among the psychological problem depression, anxiety and stress are most

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commonly reported. Several studies have demonstrated that anxiety has a detrimental effect on fertility.[6] and the reduction of anxiety increases pregnancy rate.[7,8] Men and women with infertility experience poor self esteem and loss of physical potency and feeling of stigma in the society, which ultimately leads to elevated distress and great difficulties for the couple.[9] Different tools used for measurement of depression, anxiety and stress include Depression Anxiety Stress Scale (DASS).[10,11] BECK Depression Inventory (BDI).[12] and Symptom Check List (SCL-90-R).[13]

Eventually these all yield comparable results.[11, 12, & 13] We have used, in this study DASS for the reason of convenience and simplicity. The present study focuses on the psychological morbidity of Pakistani couples attending an infertility clinic. The Depression Anxiety Stress Scale (DASS) is used to assess psychological morbidity which is increasingly used in diverse clinical settings.

## Materials and Methods

This was a cross-sectional study of psychological morbidity in infertile couples attending MAS Infertility Clinic in Rawalpindi, from August 2010 to January 2011. All infertile couples attending MAS infertility clinic for the first time were asked to participate in this prospective, cross sectional study. Thirty patients (15 women, 15 men) were entered into the study. The couples were asked, after informed consent to complete the questionnaire separately in the clinic. The Depression Anxiety Stress Scale (DASS) questionnaire was used for the study.[11]

### Study Measures

The psychological morbidity was assessed using the Depression Anxiety Stress Scale (DASS).[11] The Depression Anxiety Stress Scale (DASS) is a 42-item self-report measure of anxiety, depression and stress which is increasingly used in diverse settings. The DASS has three sub-scales i.e. Depression, Anxiety and Stress. Each of the three DASS scales contains 14 items and scores on each subscale range from zero to 3 indicating did not apply to me at all to applied to me very much. The alpha reliability of the instrument for this study was 93, which is highly significant. Patients' demographic and clinical characteristics were also recorded on history taking proforma. Data were analyzed through SPSS-14 by applying different statistical tests. Student t- test was used to measure the significances.

## Results

A total of 30 subjects, 15 male & 15 female (15 couples) were included in the study. Age of the couples ranged from 25-30 years in 11, 31-35 years in 13 and more than 35 years in 6 subjects. Only 8(26.7%) were living independently while 22(73.3%) were living in joint family system. Eight (26.7%) couples were married for more than 10 years, ten (33.3%) for 6-10 years and 12 (40%) for up to 5 years. In majority (73.3%) both male and female factors were identified as the cause of infertility. Female factor alone was responsible in 6(20%) females and no cause of infertility could be determined in 2(6.7%) couples. Majority (28/30) of the subjects were found to have psychological morbidity. However, manifestations were moderate in most (53.3%) of them. Anxiety

and depression was observed in all affected (93.3%) subjects where is stress was seen in 86.6%. All three were seen in 66.7%. Details are shown in Figure 1. Significant gender differences were observed. DASS total score was significantly (p=0.05) higher in females and so, were the manifestations of anxiety and depression. Details are shown in table-I. No significant relationship was observed between the cause of infertility and psychological manifestations in either of the gender (Table-II). There was also no significant relationship between the duration of infertility and psychological morbidity in both sexes (Table-III).

## Discussion

This study investigated psychological morbidity among infertile couples attending infertility clinic. We observed that 93.3% of infertile couples suffered from different levels of depression anxiety and stress (Figure-1). In the present study the psychological morbidity was assessed using the Depression Anxiety Stress Scale (DASS).[11] It is reported by Siebel and Taymor using BECK Depression Inventory (BDI).[12] that overall percentage of psychological problems in infertile couples range between 25 and 60%.[12] Another study carried out by Downey J using Symptom Check List (SCL-90-R) demonstrated that 74.6% patients reported changes in their mood.[13] Prevalence Psychological morbidity appears to be much higher in our society. This may be the result specific religious and cultural effects. Psychological difficulties of infertile patients are complex and influenced by a number of factors such as gender differences, cause and length of infertility. Risk factors that predispose an individual to anxiety and depression during infertility are being female, age over 30, lower level of education, lack of occupational activity, a male cause for infertility, and infertility for 3-6 years. Duration of infertility also affects the psychological state of the couple as 2-3 years infertility had more depression / anxiety than those couples who suffer from infertility for more than 6 years.[14, 15] We also observed that it was female gender which was affected more. In our study there was also no significant relationship between the duration of infertility and psychological morbidity in both sexes Similar results have also been reported by many others.[16,17,18] One reason for such findings is due to the fact that usually women are more vulnerable to psychological problems. In our society women especially get more stigmatized regardless of the diagnosis of infertility and they carry more burden of being labeled as infertile from all sections of society. It causes more distress and decline in health-related quality of life amongst infertile females.[19,20] In various studies it is observed that when the male partner is responsible for infertility in the couple the reaction of the male partner is very different from the couple in which the diagnosis was female, mixed or unexplained infertility. This was not observed in our study. This may be because in our study in majority there was a male as well a female cause for infertility. Therefore, our study analysis showed that no significant differences in the psychological morbidity when aspects of duration of infertility and causes of infertility (Table II, III) were considered. These results are in line with previous studies.[21] A possible explanation might be

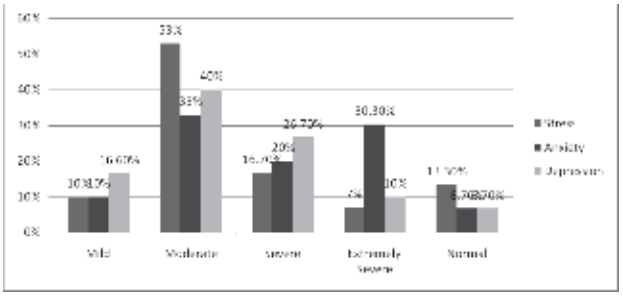

**Figure 1: Levels of Depression, Anxiety and Stress Amongst Infertile Couples**

**Table-I: Mean, SD and t-value of Infertile Couples (Male and Female) on the total scores of DASS and its Subscales (N = 30)**

| Subscales | Gender (Males) (*n* = 15) | | Gender (Females) (*n* = 15) | | *t* |
|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | |
| DASS (total) | 50.00 | 18.16 | 62.93 | 16.27 | -2.054* |
| Depression | 16.33 | 6.11 | 21.27 | 6.91 | -2.070* |
| Anxiety | 14.07 | 6.95 | 18.73 | 6.43 | -1.908* |
| Stress | 20.73 | 6.72 | 23.93 | 4.62 | -1.519 |

*df = 28 , *p < .05*

**Table-II: Mean, SD and t-value of Causes of Infertility on the Scores on the total scores of DASS and its Subscales (N = 28)**

| Subscales | Causes of infertility (Female factor) (*n* = 6) | | Causes of infertility (Both) (*n* = 22) | | *t* |
|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | |
| DASS (total) | 55.00 | 17.38 | 54.41 | 17.09 | .075 |
| Depression | 17.83 | 7.25 | 18.36 | 6.76 | -.168 |
| Anxiety | 16.33 | 6.65 | 15.55 | 6.43 | .264 |
| Stress | 22.33 | 5.09 | 21.45 | 5.64 | .345 |

*df = 26 , p=n.s*

**Table-III: Mean, SD and t-value of Duration of Infertility on the total scores of DASS and its Subscales (N = 30)**

| Subscales | Duration of infertility (<10 years) (*n* = 22) | | Duration of infertility (>10 years) (*n* = 8) | | *t* |
|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | |
| DASS (total) | 54.27 | 18.89 | 62.50 | 15.54 | -1.101 |
| Depression | 17.82 | 6.79 | 21.50 | 6.82 | -1.311 |
| Anxiety | 15.27 | 7.21 | 19.50 | 5.66 | -1.494 |
| Stress | 22.27 | 6.54 | 22.50 | 3.96 | -.092 |

*df = 28 , p=n.s*

that the infertility leads to similar experiences by all men and women although they might express themselves in different ways. In the light of above we recommend that more attention should be given to health education and awareness about reproductive health for male and female both. Couples should be advised to seek treatment early and should receive proper counseling and psycho-education.

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# Effects of Honey on Lead Induced Changes in Spermatogenesis

Saffia Shaukat, Imran Qureshi, Rehmah Sarfraz


## ABSTRACT

**Objective**: The objective of this study was to observe changes in spermatogenesis testes of albino rats exposed to intraperitoneal lead acetate and to look for the reversibility of these changes after cessation of lead acetate and subsequent oral administration of honey.
**Study Design**: Experimental animal study.
**Place and Duration of Study**: National Institute of Health Islamabad from January to June, 2009.
**Materials and Methods**: Animals were obtained from the animal house of N.I.H and were divided into three groups A, B and C. Group A was subdivided into two groups A-I and A-II. Group B was also subdivided into two sub groups; B-I & B-II. Group C was not subdivided into subgroups. The animals in group A were used as control, while those of groups B and C were treated with lead acetate that was given intraperitonially in the dose of 4mg/kg body weight, 5 days a week for 6 weeks. The animals in group B-I were sacrificed at the end of six week to observe the toxic changes while animas in group B-II were kept alive for another 6 weeks on normal diet. The animals in group C were given honey in dosage of 10ml/100ml water with normal diet for further 6weeks. These groups (B-II and C) were then sacrificed after 12 weeks to observe the effects of honey on spermatogenesis.
**Results**: The **h**istological comparison of testes of both groups of animals showed that after six weeks, the width of germinal epithelium and the number of spermatogenic cells had decreased in lead toxic groups as compared to the control rats ($p<0.05$) and in majority of the seminiferous tubules, the basement membrane was disrupted. The width of germinal epithelium, and the number of spermatogenic cells were improved after oral administration of honey.
**Conclusion:** This study provides evidence that lead has toxic effects on testis which are partially reversible on oral intake of honey.


**Key Words:** *lead, testes, rat, honey.*

## Introduction

In Pakistan people are specially exposed to lead pollution through three main sources i.e., air, soil, and water.[1] Lead toxicity induces rupture of nuclear membrane accompanied by fragmentation of nucleus in testis (Karyorrhexis).[2] In the females, lead toxicity results in irregular menstrual periods, decreased ovarian weight, decreased corpora leutea.[3] The common sources of lead are:

1. When the lead rich gasoline comes in contact with the soil, it gets contaminated.[4]
2. Workers exposed to high levels of lead in refineries and smelters. They also come in contact while manufacturing of lead batteries and cables, rubber and (PVC) plastic products.[5]
3. The center for disease control (CDC) discovered that there is no toxic threshold for lead. This means that there is no measurable level of lead in the body below which no harm can occur.[6] Lead toxicity has shown to disrupt both spermatogenesis and steoidogenesis.[7]Thus; it becomes imperative to find out measures, by which our body can maintain and regulate healthy living and homeostasis even if exposed to high levels of lead toxicity. The standard treatment of lead toxicity is chelation therapy which has many side effects.[8] Honey is a sweet, golden

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coloured, viscous liquid food produced in the honey sac sofvarious honey bees. Its value in treating burns, infected surgical wounds and ulcers is established. Its viscosity enables it to absorb water from surrounding inflamed tissue. Honey is remedial in cases of persistent coughs and sore throat.[9] It provides an important part of energy needed by the body to combat infections, and for blood formation.[10] Honey is cheap, easily available, that's why I have use honey for my research project.

## Materials and Methods

A total of 50, eight weeks old healthy adult male albino rats of Sprague Dawley strain, weighing 200±10 gm were used in the study. These animals were randomly divided into three groups; one was labeled as Control (A), while the other was labeled as Experimental (B and C) group. These animals were randomly divided into three groups. Day 0 was considered to be the starting day of experiment.

1. Group A was further subdivided into two subgroups; A-I &A-II (each group having 10 animals)
2. Group B was also subdivided into two sub groups; B-I & B-II (each group having 10 animals)
3. Group C with 10 animals was not subdivided into subgroups.
4. A-I Group was control group for lead toxic group B-I. Both groups were sacrificed at six weeks.
5. A-II Group was control group for B-II and C. Both groups were sacrificed at twelve weeks. All animals were kept in the animal house under standard conditions at a room temperature ranging between18o C to 26o C for six weeks. They were maintained on 12 hours light and dark cycle. The rats were fed ad libitum. Day 0 was considered to be the starting day of experiment. The animals in group B-I, B-II and C were treated with intraperitoneal lead acetate in the dosage of 4mg / Kg body weight / day, 5 days a week for a period of 6 weeks. The animals in group B-I were sacrificed at the end of six week to observe the toxic changes while animals in group B-II were kept alive for another 6 weeks on normal diet. The animals in group C were given honey in dosage of 10ml/100ml water with normal diet for further 6weeks. These groups (B-II and C) were then sacrificed after 12 weeks to observe the effects of honey on spermatogenesis. After sacrifice, each animal was taken out of the jar and placed on the dissecting board. The scrotal sac was then opened with the help of forceps and scissors. Testes were examined with the help of hand lens and their colour, consistency and gross appearance was noted. The testes were fixed in Formalin and then processed for paraffin embedding. Five micrometer thick section were cut, stained with Hematoxylin & Eosin, and observed microscopically for germinal epithelium thickness and to study the cells of spermatogenic series.

**Statistical Analysis**

The data was entered into SPSS version 13.0. Analysis of variance (ANOVA) was used to compare the change in variables between the groups. Mean and standard deviation of the parameters were calculated and results of different study groups were compared. P-value of $< 0.05$ was considered significant.

## Results

All the rats in control group A remained

active and healthy with normal feeding behavior. After six weeks, the animals in group C were relatively more active than Group B-II animals. The testes of rats exposed to toxic dose of lead (Group B-I & B-II) showed reduction in size; they were pale looking, tough in consistency and showed resistance on cutting. It was difficult to pluck out any tubule from the testes and stringing out phenomenon was absent. The testes of the rat in group C were light pink in color and firm in consistency. Their blood vessels were visible under magnifying glass and showed mild resistance on cutting. The animals in this group gained significant weight increase in the testes i.e. 1.27 gm. (SD ± 0.040) in comparison with group B-II.

**Germ Cell Count / Cross Section of Seminiferous Tubule:**

The average germ cell count in group A-I was 304.53 cells/cross section of seminiferous tubule (SD + 28.46), in group A-II it was 323.53 cells/unit (SD = 28.46), in group B-I it was 116.91 cells/unit (SD + 32.66), in group B-II it was 136.24 cells/unit (SD + 33.51) and in group C it was 214.58 cells/unit (SD + 33.51). The difference between all the groups was significant ($p < 0.001$). The germ cell count was significantly higher in group A-I as compared to groups B-I, B-II and C ($p < 0.001$) (Figure 1). The difference between groups A-I and A-II was insignificant ($p > 0.467$). In group A-II, the germ cell count was significantly higher as compared to groups B-I, B-II and C ($p < 0.001$) but the difference from group A-I was insignificant ($p > 0.467$). The germ cell count was significantly lower in group B-I as compared to groups A-I, A-II and C ($p < 0.001$) but the difference from group B-II was insignificant ($p > 0.449$) Figure 2. In group B-II, the germ cell count was significantly lower as compared to groups A-I, A-II and C ($p < 0.001$) but insignificant from group B-I ($p > 0.449$).

The germ cell count in group C was significantly lower as compared to groups A-I and A-II but significantly higher as compared to groups B-I and B-II, ($p < 0.001$). (Figure .3) & Table No.II

The testes of rats in the control group A were easily pushed out of the scrotal sac, well vascularized and were soft in consistency. They were pink in colour and on cutting, gave little resistance. The seminiferous tubules had normal plucking and stringing out phenomenon of the tubules. The mean weight of pairedtestes was 1.28 gm (SD + 0.04).The testes of rats exposed to toxic dose of lead (Group B) showed reduction in size; they were pale looking, tough in consistency. It was difficult to pluck out any tubule from the testes. The mean weight of paired testes was 1.16 gm (SD ± 0.029) in Group B .

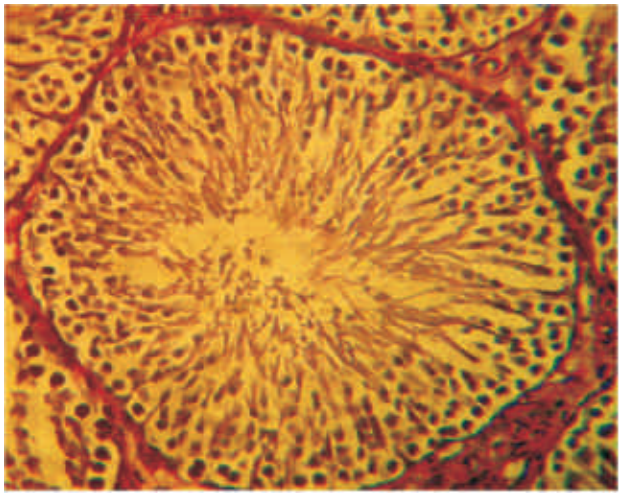

**Figure-1: Photomicrograph; testis cross section, seminiferous tubule of control group A- I, animal1 number 1. H & E x 400**

The epithelial height was significantly

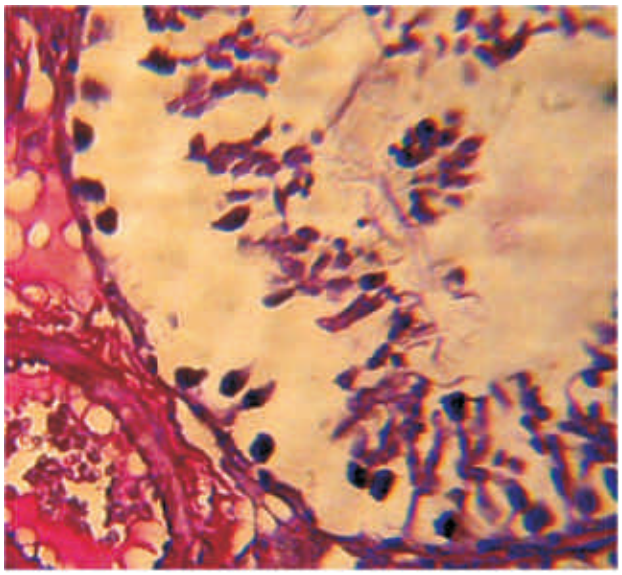

**Figure-2: Photomicrograph-Section of testis of experimental group (Group B-I) animal number 10, showing reduced germ cell count and reduced height of germinal epithelium. H&E stain. x 420.**

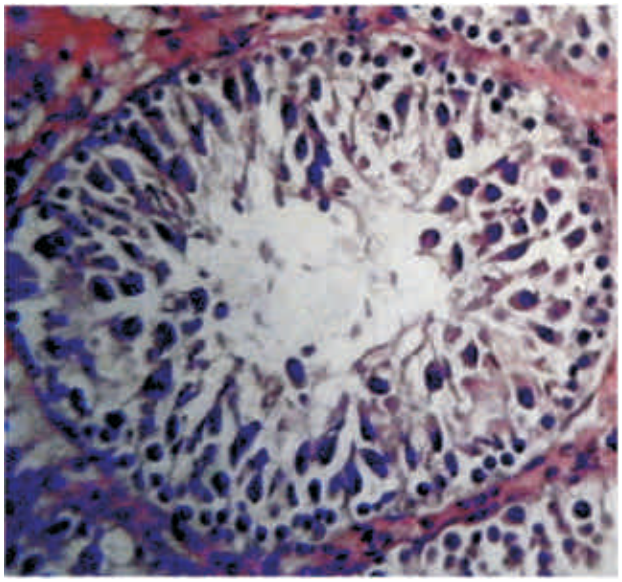

**Figure - 3: Photomicrograph; cross section of testis; honey treated group C, animal number 10, seminiferous tubule showing basement membrane and spermatogenesis H&E stain x 400**

higher in group A as compared to groups B, ($p < 0.001$) Figure 1.

**Table No-I: Table showing description of Germ Cell Count (Cells/ Cross Section of Seminiferous Tubule) in all the study groups (error bars ± S**

| Group | Sub Group | Lead Toxic | Treated with Honey | Sacrificed after period of | Germ Cell Count |
|---|---|---|---|---|---|
| A (N =20) | A-I (N=10) | -- | -- | 6 Weeks | 304.53 |
| | A-II (N=10) | -- | -- | 12 Weeks | 323.53 |
| B (N= 30) | B-I (N=10) | 6 Weeks | -- | 6 Weeks | 116.91 |
| | B-II (N=10) | 6 Weeks | -- | 12 Weeks (6 Weeks withdrawal of Lead Acetate) | 136.25 |
| C (N=15) | -- | 6 Weeks | 6 Weeks | 12 Weeks | 214.58 |

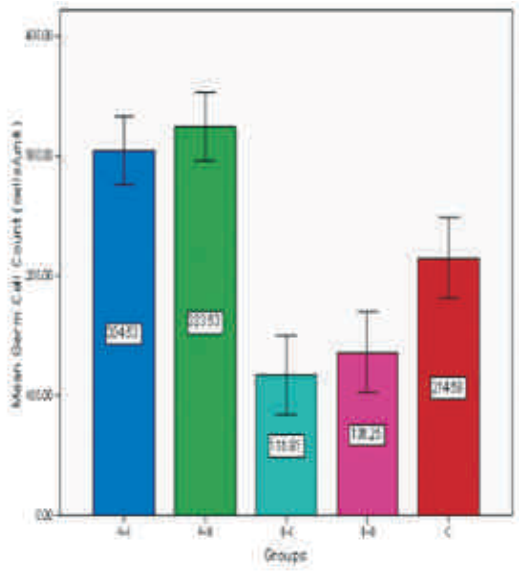

**Figure 4: Bar chart showing description of Germ Cell Count (Cells/ Cross Section of Seminiferous Tubule) in all the study groups (error bars ± SD**

## Discussion

The present study was conducted to evaluate the protective role of honey on lead induced histological changes in the rat's testes. Lancranjan et. al, (1975) and Cullen et al., (1983)conducted a study on men exposed to lead at their workplace. They showed abnormalities of spermatogenesis.[11,12] Roshandel (2006) found that after 8 weeks of lead exposure, there was decrease in the height of germinal

epithelium and the number of sertoli cells in test group, whereas spermatogonia and primary spermatocytes remained unchanged . This study showed that lead intoxication induced some changes in the adult testes which were irreversible even after D-Penicillamine treatment which is contrary to our results, which showed that honey caused partial reversible changes in the testes.[13]Another study conducted by Sokol (1985).[14] revealed that lead acetate exposure in 52 days old male wistar rats is toxic to the reproductive axis and caused abnormalities of spermatogenesis which is in accordance to the present study. There was no testicular weight change found in that study as 0.3% lead acetate was given in distilled water. However rats lost overall weight.[14] Manlay (1995) administered lead acetate to rats in the dose of 8mg/kg body weight, 5 days a week for 35 days.[15] The study concluded that the germ cells and Sertoli cells were not affected by such a high dose of lead and this is in contrary to the present study but it did affect accessory sex glands by reducing the intertubular tissue volume in testes which indicate Leydig cell function impairment.[15]During past three decades, the decline in male reproductive health and fertility has been linked with environmental toxicants and xenobiotics.[16] A study conducted by Mohammed (2011) showed that honey could improve the toxic effect of lead on testicular function partly by improving testicular blood flow and spermatogenesis via the oestrogenic activity of its phenolic compounds.[17]My present study validated the previous studies results and further added a new dimension to the existing literature by investigating the effect of honey on lead-induced toxicity in the testes of Sprague Dawley rats.

## Conclusion

This study provides evidence that lead has toxic effects on testis which are partially reversible on oral intake of honey.

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ORIGINAL ARTICLE

# Maternal and Fetal Outcome of Pregnancies with Umbilical Cord Problems

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## ABSTRACT

**Objective:** To seek relationship between cord problems (like long cords, short cords, nuchal cord and cord knots) and its effects on fetus as well as mode of delivery.
**Study Design:** Descriptive (case series)
**Place and Duration of Study:** Obs/Gynae wards Railway hospital, Rawalpindi from September 2006 to August 2007.
**Materials and Methods:** It was a descriptive case series study. Hundred patients with umbilical cord problems, detected at delivery were included.Effects of these cord problems on mode of delivery and fetal outcome were observed.
**Results:** Twenty two percent patients had long cord, 14% had short cords.41% had single nuchal cord, 22% had double loop of cord around the neck, and 4% patients had triple loops of Nuchal cord. It was observed that 4% patients were having true kanots in umbilical cord and and only 26% patients had false knots in umbilical cord. In the patients with cord problems, rate of SVD was more than 70% and LSCS < 20%. These problems did not show significant effects on birth weight and Apgar scores when present alone.But multiple cord problems in a single pregnancy were associated with fetal complications.
**Conclusion**: Long and short umbilical cords, umbilical cord knots and Nuchal cords had no significant effects on mode of delivery and Apgar score in 5 minutes. But multiple umbilical cord problems in same case may pose problems to the fetus and early diagnosis can prevent fetal harm.


**Key words**: *Long cords, short cords, true knots, false knots, Nuchal cord, Apgar score.*

## Introduction

At birth, the normal mature cord is about 50-60 cm in length and 12 mm in diameter. A long cord is defined as more than 70 cm and a short cord as less than 30 cm. There may be as many as 40 spiral twists in the cord, as well as false knots and true knots. When umbilical blood flow is interrupted at birth, the intra-abdominal sections of the umbilical arteries and vein gradually become fibrous.[1]

It appears from indirect evidence in the human fetus that the length of the umbilical cord at term is determined by the amount of amniotic fluid present during the first and second trimesters and by the mobility of the fetus.

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If oligohydramnios, amniotic bands, or limitations of fetal motion occur for any reason, the umbilical cord will not develop to an average length. Amniocentesis performed to produce oligohydramnios in pregnant rats at 14-16 days result in significant reduction of umbilical cord length.1 Twisting of the cord about the fetus may be the reason for excessive cord length. One loop of cord is present around the neck in 21% of fetuses, 2 loops in 2.5%, and 3 loops in 0.2%. When 3 loops are present, the cord is usually longer than 70 cm.

True knots occur in the cord in 1% of fetuses, leading to a perinatal loss of 6.1% in such cases. False knots are developmental variations with no clinical importance.[2,3]

Nuchal Cord (NC) is defined as the umbilical cord being wrapped 360 degrees around the fetal neck. It is one of the most

common complications of the umbilical cord and any pregnancy might be complicated with a nuchal cord.[4,5,6] If a nuchal cord occurs in a pregnant woman with decreased fetal movements, it should be considered to be at high risk, particularly for foetuses with multiple nuchal cords.[7,8]

An entangled cord around the fetal neck does not seem to increase the risk of induction failure.[9] Our study is planned to see the maternal and fetal outcome in patients with short and long umbilical cord, umbilical cord knots, and nuchal umbilical cord. The purpose of present study was to determine the frequency of the umbilical cord problems and determine the effect of umbilical cord problem on the mother and the neonate.

## Materials & Methods

Descriptive (case series) study was carried out in the department of Obs/Gynea, Pakistan Railway Hospital, Rawalpindi, from Sep 2006 to Aug 2007. Hundred delivering women were included in the study by non-probability convenient sampling.

**Inclusion criteria:**

Full term delivered ladies and babies with

- Short umbilical cord
- Long umbilical cord
- Nuchal cord
- Umbilical cord knots.

**Exclusion Criteria:**

- Preterm deliveries
- Deliveries with associated medical problems.
- Congenitally anomalous babies.

Data was collected using a Proforma. Hundred patients who delivered in Railway Hospital with cord problems were included in this study. The information obtained from patients was taken on a Proforma after the informed consent of patients and their relatives. Patients were evaluated through comprehensive history, general physical, systemic examination and investigations.

In the hospital, mode of delivery of the patient, maternal and fetal outcome and well being were recorded. The variables were short umbilical cord, long umbilical cord, knots in the umbilical cord, Nuchal umbilical cord, identified at delivery, and maternal outcome i.e. spontaneous vertex delivery, caesarean section, and fetal outcome i.e. intrauterine growth restriction, intrauterine fetal death, poor Apgar sore, and early neonatal death.

Fetal growth restriction was assessed by abdominal ultrasonography performed during antenatal time with biparietal diameter and femur length. After birth by measuring weight, length and head circumference of baby and comparing it with the standard centile chart. Apgar score at one minute and five minutes to assess the activity of the baby after birth.

Long umbilical cord, knots in the umbilical cord, Nuchal umbilical cord, identified at delivery,and maternal outcome i.e. spontaneous vertex delivery, caesarean section, and fetal outcome i.e. intrauterine growth restriction, intrauterine fetal death, poor Apgar sore, and early neonatal death and fetal growth restriction was assessed by abdominal ultrasonography with biparietal diameter and femur length, after birth by measuring weight, length and head circumference of baby and comparing it with the standard centile chart. Apgar score at one minute and five minutes to assess the activity of the baby after birth.

## Results

Cases collected with long cord of > 70 cm length, were 22.6%. Rate of spontaneous delivery was 66.6%, operative vaginal delivery was 11.1% and lower segment caesarean section 22.2%. Apgar score in 5 min was 10/10 in 96.2% babies and NICU admissions were required 14.8% babies.Breakup of various cord problems are shown in Table I, maternal and fetal outcome are shown in Table II and Table III respectively.

Patients were identified having short cords < 30 cm were 11.7% Out of these patients 85.7% had spontaneous vaginal delivery ,7.1% had operative vaginal delivery and7.1% had LSCS.Apgar score in 5 min was 10/10 in 100% babies.

In this study 40.3% patients were having single Nuchal cord, either double loop of cord around the neck, or tripple loops of nuchal cord.Fifty percent of them had spontaneous vaginal delivery,25% patients had operative vaginal delivery and 25% had LSCS. Ninety three point seven percent babies were born with good apgar score.Only 2% needed admission in NICU.

Regarding true knots in umbilical cord 4% patients had these knots and 50% of them had SVD, 25% had operative vaginal delivery and 25% had LSCS due to fetal distress. Babies born with Apgar 10/10 in 5 min were 75% and 0/10 Apgar was in only one baby.Fifty percent babies needed NICU admission in this group.

Twenty one point eight percent. patients had false knots in umbilical cord 73% had vaginal delivery, 11.5% had operative delivery due to prolonged 2nd stage of labor and only 15.3% patients underwent LSCS due to different indications. 100% babies born with Apgar score of 10/10 after 5 min. and only 3 babies out of 26 needed NICU admissions mainly for observation

**Table-I: Umbilical Cord Problems in the Study Population (n=100)**

| Sr.No | Cord Problems | Frequency |
|---|---|---|
| 1 | Short Umbilical Cord | 14 (11.7%) |
| 2 | Long Umbilical Cord | 27 (22.6%) |
| 3 | True Knots | 4 (3.36) |
| 4 | False Knots | 26 (21.8%) |
| 5 | Nuchal Cords | 48 (40.3%) |

**Table-II: Umbilical Cord Problems and Maternal Outcome**

| Sr.No | Short Cord | Long Cord | True Knots | False Knots | Nuchal Cord |
|---|---|---|---|---|---|
| OVD | 1 (7.1%) | 3 (11.1%) | 1 (25%) | 3(11.5%) | 12 (25%) |
| SVD | 12(85.7%) | 18(66.6%) | 2 (50%) | 19 (73%) | 24 (50%) |
| LSCS | 1 (7.1%) | 6 (22.2%) | 1 (25%) | 4(15.3%) | 12 (25%) |

**Table-III: Umbilical Cord Problems and Foetal Outcome**

| | Short Cord | Long Cord | True Knots | False Knots | Nuchal Cord |
|---|---|---|---|---|---|
| Good Apgar Score(1mintutes) | 14 | 23 | 2 | 26 | 43 |
| Bad Apgar Score (1 minutes) | 0 | 4 | 2 | 0 | 5 |
| Good Apgar Score(5 minutes) | 14 (100%) | 26 (96.2%) | 3 (75%) | 26 (100%) | 45 (93.75%) |
| Bad Apgar Score(5 minutes) | 0 | 1 | 1 | 0 | 3 (6.2%) |
| Admission in NICU | 1 (7.1%) | 4 (14.8%) | 2 (50%) | 3 (11.5%) | 1 (2%) |

## Discussion

Every fetus should have the opportunity to begin life with all its God-given talents and abilities. Realistically, this may not be possible, but some physically normal newborns could benefit from a reduction in the risks of a cord mishap. It is estimated that learning disabilities are due to some type of cord complications. The issue of cerebral palsy is important, but currently no solution and few insights exist as to its origin. Preventing the stillbirth of a normal infant would be an important step in identifying cord-related harm. What is the size of the problem, and what best describes each part of the problem of umbilical cord mishap?

Causes of differences in cord length are

unknown; however the length of the cord is thought to reflect movement of the fetus in utero. Short cords are associated with fetal movement disorders and intrauterine constraints, as well as placental abruption and cord rupture. Excessively long cords are associated with fetal entanglement, the knots and thrombi.[10]

Even knots in the cord do not automatically cause distress, since blood flow is not impeded unless the knot is tight.Risk factors for having a true knot in the umbilical cord include advanced maternal age, multiparity, previous miscarriages, obesity, prolonged gravidity, male fetus, long cord, maternal anemia, maternal chronic hypertension and hydramnios.[11,12]

A study was conducted by Carey JC.[13] in Oklahama city USA to determine if the presence of a single or multiple nuchal cord encirclement has a negative effect on fetal growth. The mean birth weight was no different in the presence of a single or multiple nuchal cord encirclement than with no encirclement and conclusion was that birth weight in unaffected by a single or multiple nuchal cord encirclement. One study concluded that gross cord abnormalities like true knots, long cords, nuchal cords predispose the fetus to stasis induced vascular ectasia and thrombosis, thus leading to vascular obstruction and adverse neonatal outcome including IUGR and still birth.[14]

In another study, by Shrestha, at Kathmandu Medical College, carried out to find the incidence of nuchal cord at delivery, intrapartum complication and perinatal outcomes in the cases with nuchal cord.[15] Incidence of single nuchal cord was highest intrapartum complications like fetal heart rate irregularities and meconium staining of liquor was increased in nuchal cord group but it was not statistically significant. Instrumental delivery was high in nuchal cord group but not significantly. However caesarean section rate was high in this group with out nuchal cord. Apgar score <7 at 1 minute was significantly low in nuchal cord group. But Apgar score at 5 minutes and admission to neonatal unit was not more common. They concluded that nuchal cord is not associated with adverse perinatal outcome. In one study conducted in China, Nuchal cord was one of the nine factors which showed significant association with Autism.[16]

Our study also shows that nuchal cord is not associated with adverse prenatal outcome.

A study by Baergen, and colleagues showed that infants with excessively long umbilical cords are found to be at a significantly increased risk of brain imaging abnormalities and/or abnormal neurological follow-up.[17] Another study by Itakura it was concluded that abnormally long cords are associated with repeated coiling of cord around fetal neck and consequently can result in fetal growth restriction, distress and even demise.[18] Fortunately the outcome was good in our study inspite of multiple abnormalities of umbilical cord that could have resulted in fetal compromise or demise.

Study by Sornes concluded that knots in umbilical cord are associated with increased incidence of fetal distress; meconium stained liquor and tenfold increased risk of intrauterine fetal death.[19] but in this study above complications was not significant and did not adversely affect the fetal and maternal outcome.

## Conclusion

Our study showed statistically significant no adverse effect on maternal and fetal outcome.There was only one still birth in our study having single loop of cord around neck, true knots, and long cord.These findings are not statistically significant. This is due to small sample size of our study. And this warrants
further evaluation in future prospective studies with larger number of patients

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# Closed Interlocking Tibial Nailing without using an Image Intensifier

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## ABSTRACT

**Introduction:** Internal fixation with interlocking nails is commonly performed using an image intensifier which is expensive and is not readily available in most resource-poor countries of the world.
**Objective:** The aim of this study was to achieve internal fixation with interlocking nail without the use of an image intensifier and to study the mean union time and complications in these patients.
**Study Design:** It was a quasi-experimental study.
**Place and Duration of Study:** This study was carried out at Railway General Hospital (RGH), Rawalpindi over duration of two years from January 2010 till December 2011.
**Materials and Methods:** 22 closed tibial shaft fractures were fixed with interlocking intramedullary nails without using an image intensifier.
**Results:** The study included 22 closed tibial shaft fractures. The mean age of the patients was 39.4±9.97 years and the range was 2255 years. There were 8 females and 14 males. Postoperative plain radiographs confirmed that all of the cases had satisfactory positioning of the inserted nails and interlocking screws. The mean union time was 13.8±4.2 weeks. Two cases of delayed union were seen (union occurred at 24 and 28 weeks). One case of infection occurred and presented with an infrapatellar abscess. Shortening of 12 mm and valgus deformity occurred in one case due to loosening of distal screw.
**Conclusion:** Internal fixation with interlocking of tibial shaft fractures can be achieved successfully without an image intensifier.


**Key Words:** *Tibial Fracture, Interlocking, Intramedullary Nails*

## Introduction

The tibia is commonly fractured bone frequently caused by high-energy trauma leading to the complications and major disabilities.[1] Surgeons have employed different types of intramedullary nails over past 500 years. Today, the intramedullary interlocking tibial nailing is the leading modality of treatment because of its biomechanical advantage over the other modalities.[2] This procedure is done in the advanced centers under the image intensifier.[3,4,5] However, there is no facility of C- arm image intensifier in the operation theatre at most of the tertiary level hospitals in Pakistan. Most of the peripheral hospitals do not even have portable X- ray facility. The purpose of this study was to study the success rate of intramedullary nailing of tibial shaft fractures without the aid of image intensifier. Tanna et al reported a method for locked tibial nailing without image intensifier in 1994, using hollow tubular nails with no slit and anteroposterior holes for the locking screws.[6]

With newly designed interlocking nails, it is now feasible to achieve interlocking nail insertion without the aid of an intraoperative image intensifier, simply by the use of an external jig and slot finder eg the SIGN (Surgical Implant Generation Network) system. Successful interlocking nailing using such method should not only improve the quality of fracture care, but should also lead to a reduction of exposure to intra-operative ionizing radiation.[7,8,9] SIGN nail is not freely available in our

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region and if available it is expensive, so we started doing interlocking nailing of tibia with ordinary tibial interlocking instruments which are freely available and inexpensive. This work, which describes my experience in using this method, is expected to contribute to knowledge in our sub region, since there is a paucity of literature on this subject matter. This work will also help to introduce this mode of treating fractures in resource-poor regions of the world, where image intensifiers are not widely available.

## Material and Methods

This quasi-experimental study was conducted over duration of two years from January 2010 to December 2011 in the Orthopedic Unit of Railway General Hospital (RGH) Rawalpindi. The study was conducted after approval from the hospital ethical committee.Tibial shaft fracture patients presenting to the emergency department were recruited into the study by consecutive non-probability sampling and an informed consent was taken. Anteroposterior (AP) and lateral view radiographs of tibial shaft incorporating the entire length of the lower leg from knee to ankle were obtained. Closed tibial shaft fractures with significant malrotation (=10 degrees of rotation in any plane), malalignment (angulated =10 degrees), and displacement (=5 mm of displacement) were opted for operative management by interlocking nailing. Open fractures or severely comminuted fractures were excluded. Moreover fractures with evidence of neurovascular injury, compartment syndrome and fractures with dislocation of the knee or ankle were excluded. Closed, well-aligned, no displaced tibial shaft fractures were treated with a long leg cast and also were not included in our study. Patients were operated under spinal anesthesia. The interlocking nails were inserted as follows; under tourniquet the patient is placed supine and the leg of the patient hangs downwards over the edge of the table making 90 degrees of flexion at knee joint. A skin incision is made over patellar tendon and the patellar tendon is split longitudinally. Hole is made in upper end of tibia with bone awl, after this guide wire is inserted into the medullary cavity. One assistant pulls distal end of fracture downwards and guide wire is pushed through distal end of fracture. Grating feeling is appreciated while guide wire passes into distal fragment and stability is confirmed. Reaming of medullary cavity is done in increasing numbers. After this, size of nail is measured by putting nail over leg from tibial tuberosity to just above ankle. Then another nail of similar size is kept aside. One of the nails is inserted into medullary cavity after attaching it to proximal jig of tibial interlocking nail. Second nail is placed outside the tibia closed to skin and drill bit is passed through jig and then it passes through nail placed outside and then through skin and is drilled into bone. This is checked by passing guide wire through medullary cavity. The drill bit is retrieved and guide wire is passed distally till the lower end of nail. Then upper end of guide wire is marked with help of artery forceps. Another hole is drilled through distal I/L hole by passing drill bit through distal hole in the nail placed over skin, then it is drilled into the inner nail which is confirmed by pushing guide wire, if the

artery forceps mark is lying away from jig, it confirms that the drill is in the hole of inner nail. Then screw is passed, guide wire is removed and screw through upper hole is passed. Finally wound is closed. All patients had a similar preoperative regimen of intravenous Cephradine continued for 5 days postoperatively. Early physiotherapy of all involved joints, as well as early weight bearing, was encouraged. No cast or brace was applied. Analysis of the outcome of treatment with respect to the time of fracture union and the presence of complications was performed. Fracture union was assessed clinically and radiologically at 6 weeks and 3 months, and then subsequently at monthly intervals. The fracture was considered to have united when there was no pain or tenderness, when there was no abnormal movement at the fracture site and when bridging callus was visible on a plain radiograph. A fracture was considered to have normal union if there was osseous union in four months or less and delayed union if the fracture healed between four and eight months post operatively. A fracture that had not healed by eight months was considered to have a non-union. All of our patients were followed-up for at least 12 months. Data was entered into a proforma and was analyzed using SPSS 12.

## Results

The study included 22 closed tibial shaft fractures. The mean age of the patients was 39.4±9.97 years and the range was 2255 years. There were 8 (36.4%) females and 14 (63.6%) males. Postoperative plain radiographs confirmed that all of the cases had satisfactory positioning of the inserted nails and interlocking screws. The mean union time was 13.8±4.2 weeks. Two (9.1%) cases of delayed union were seen (union occurred at 24 and 28 weeks). This was in comminuted fractures of distal one third of tibia. One case (4.5%) of infection occurred nine months after union and presented with an infrapatellar abscess, which did not communicate with the knee joint. This was drained and the nail removed. Shortening of 12 mm and valgus deformity occurred in one (4.5%) due to loosening of distal screw.

## Discussion

The most common cause of morbidity and mortality in the most productive period of life worldwide are road traffic accidents causing fractures.[10] It is not surprising, therefore, that these fractures occur mostly in people aged between 20 and 50 years. The sex ratio distribution of 1.75:1 for male:female is also in keeping with other reports[11] and further emphasizes the greater vulnerability of males to trauma. The availability of the appropriate treatment modality could be of utmost concern to any practicing orthopaedic surgeon in most resource-poor countries of the world, including the Indian subcontinent. The use of interlocking nails for fractures of long bones has increased and indeed has become the gold standard for care of unstable long bone fractures. However, its main drawbacks are cost and the need for a reliable intraoperative image intensifier support.[12,13] There are now nails that can be locked with the aid of external jigs.[14] In our study, 100% of the fractures were fixed without the use of an image intensifier with the satisfactory placement of nails and screws in all cases. Complications were few and mild. Infection could have been avoided

by improving the aseptic technique. Delayed union occurred in the distal third fracture of a tibia with severely comminuted fracture line. The blood supply to this region is very precarious and could be associated with an increase in the incidence of non-union. There was no case of nail or screw

**Table-I: Complications after closed Tibial Nailing**

| Complication | Number (%) |
|---|---|
| Delayed union | 2 (9.1%) |
| Non union | None |
| Infection (infrapatellar abscess) | 1 (4.5%) |
| Deformity (Shortening of 12 mm and valgus deformity) | 1 (4.5%) |
| Nail or screw breakage | None |

breakage in this study, however screw loosening resulted in valgus deformity and shortening in one case.Our results are in agreement with other works.[15,16,17] Only few studies were available for comparison. Ikem et al15 recorded two cases of superficial wound infection, two cases of delayed union and a case of screw loosening Giri.[16] in 2007 reported the success of distal locking in the intramedullary nailing of tibial shaft fractures with the aid of distal aiming device, where the distal hole was directly visualized after proper drilling. The union time in an average was 4 months. Giri.[17] in 2008 in another study reported that after using interlocking nails for fractures of tibial shaft the complication was distal screw loosening leading to valgus deformity and shortening in one case. However, no local study is available for comparison.The exclusion of an image intensifier automatically eliminates the harmful effect of an increased dose of radiation to both the orthopaedic surgeon and the patient. Radiation times were recorded to average about eight seconds, the longest time being 36 seconds in the study by Court et al during interlocking nailing of tibial fractures.3 It has the added advantage of reduced cost to the patient whilst, at the same time, ensuring high-quality fracture care.

## Conclusion

We conclude that internal fixation with interlocking of tibial shaft fractures can be achieved successfully without an image intensifier. However, proficiency in the use

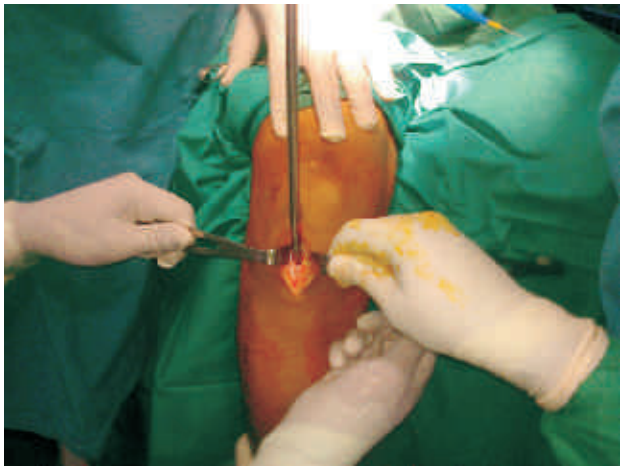

**Figure 1- Reaming of medullary cavity after insertion of guide wire**

**Figure 2- Measurement of the length of the nail and the site of holes**

**Figure 3- Drilling of the hole in the distal interlocking hole**

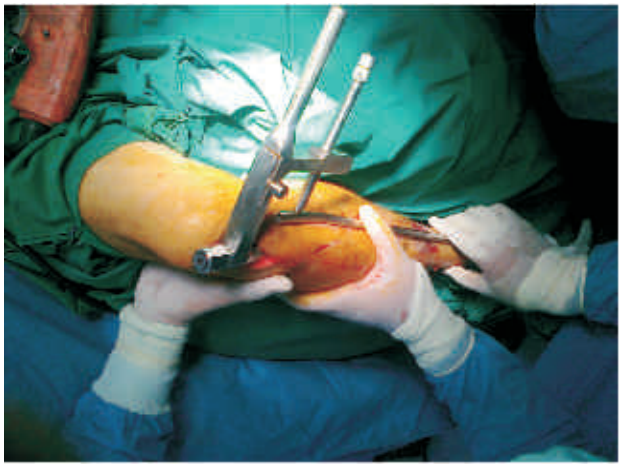

**Figure 4- Insertion of the nail into the medullary cavity of tibia over the guide wire**

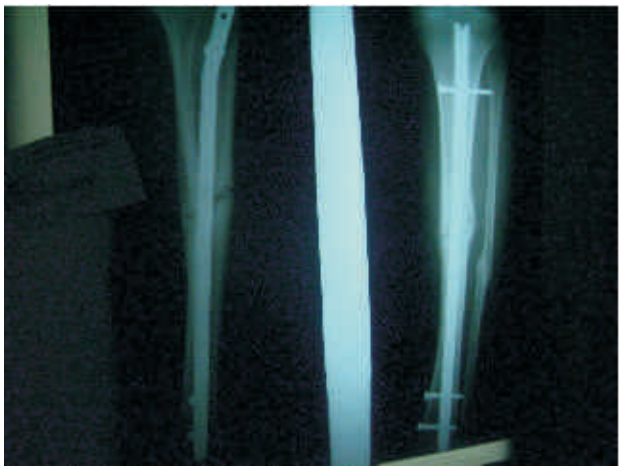

**Figure 5- The healed fracture**

of interlocking nail instrumentation without use of image intensifier will come with practice.

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# Current Maternal Knowledge about Diarrheal causes in Children and Role of Oral Rehydration Salt

Mirza Inam ulhaq, Shahzad Akhtar Aziz, Ayesha Khan, Ayesha Jehan, Anam Farooq, Feroz Inayat


## ABSTRACT

**Objective**: To evaluate the community knowledge about diarrheal causes in children and use of ORS as initial management tool

**Study Design.** A descriptive cross sectional study.

**Place and Duration of Study**. The study was conducted in the outpatient department of Railway hospital from July 15 to September 15, 2011.

**Materials and Methods**: Total 150 mothers were included in the study with inclusion criteria of having at least one child of less than five years of age. A pretested study questionnaire was admitted to the respondents duly filled by the researcher along with the in-depth interview .The result obtained through the study were then categorized into the causes related to digestive system, food contamination and use of hot and cold. Results were analyzed on SPSS 13.0

**Results**: Out of 150 mothers included in the study, 30% believed contaminated food and water cause diarrhea where as 18% viewed infections such as bacterial or viral to be the cause. A large percentage i.e. 22% could not associate any cause to the occurrence of diarrhoea.69% continued the breast feeding and normal feeding during the disease but 31% discontinued the treatment and replaced it with rice water, yogurt ,juices and mineral water available in local markets

**Conclusion**: This study demonstrated that majority of mothers believed childhood diarrhea is caused by contamination of food and water with the bacterial and viral illness.


**Key words** *Prevalence , Childhood diarrhea, Sub urban population, Breast feeding, Contamination.*

## Introduction

Diarrheal diseases are major causes of childhood morbidity and mortality in developing countries. Knowledge and practices of mothers or other care-takers of children are important determinants of the occurrence or outcome of diarrheal diseases. Diarrheal diseases account for nearly 1.3 million deaths a year among children under-five years of age, making them the second most common cause of child deaths worldwide. Over half of the deaths occur in just five countries: India, Nigeria, Afghanistan, Pakistan and Ethiopia.[1]

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Oral rehydration salts (ORS) and oral rehydration therapy (ORT), adopted by UNICEF and WHO in the late 1970s, have been successful in helping manage diarrhea among children. It is estimated that in the 1990s, more than 1 million deaths related to diarrhea may have been prevented each year, largely attributable to the promotion and use of these therapies.[2] Mull and Mull (1988) emphasized the importance of incorporating mothers' perceptions of childhood diarrhea in ORT programs (Mull and Mull, 1988; Malik et al, 1992b; Chavasse et al, 1996). Improving the hygiene and maternal domestic practices is one of the most important means of reducing the prevalence of diarrheal disorder.[3] Kalsoom and Saeed et al(1997) reported about maternal beliefs of bad breast milk,

**Table I: List of different beliefs about childhood diarrhea**

| Serial # | | Frequency | percent |
|---|---|---|---|
| 1. | Watery stools | 84 | 56 |
| 2. | Watery stools/vomiting | 39 | 26 |
| 3. | Watery stools & abdominal. Pain | 18 | 12 |
| 4. | Watery stools, Vomiting, Fever | 6 | 4 |
| 5. | Watery stools, Vomiting, Fever, abdominal. Pain | 3 | 2 |
| | TOTAL | 150 | 100 |

Pregnancy, flies, food and utensils as the major causes of diarrhea.

## Material and Methods

An observational study was conducted in an outpatient department of Pakistan Railway hospital, Rawalpindi from July 15, 2011 to September 15, 2011. Sampling technique was stratified random sampling .The sample size was 150 with the inclusion of all the mothers who had at least one child less than five year of age and educational status of at least matriculate.

The data was collected through the distribution of pretested questionnaires filled by the final year students which included information about the common understanding of the term diarrhea, its causes, severity, complication, diet taken during diarrhea and management with ORS. The questionnaire also includes different health education measures used for creating awareness about diarrhea prevention in people.

The data was analyzed by using SPSS version 13.0. Descriptive statistics were applied for all qualitative variables and presented in the forms of tables, frequencies and percentages.

## Results

The total 150 respondents were included in the study; of which 84% were mothers having at least secondary education and 16% belonged to graduate group: with 68% falling in the age up 15-20 years, 24% each in age groups 20-25 8 % in age group 25-35.

A large percentage of 56% people perceived diarrhea to be watery or increased frequency of stools. 26% understood diarrhea is both, watery stools with vomiting. 12% believed watery stools with abdominal pain are characteristic of diarrhea.

It was revealed that 30% believed contaminated food and water causes diarrhea where as 18% attribute infections such as bacterial or viral to be the cause. A large percentage i.e. 22% could not associate any cause to the occurrence of diarrhea. However, 6% reported other miscellaneous causes such as use of unsterilized feeders, teething, stress, weather changes, and drugs such as use of antibiotics, over-eating and consumption of junk food.

**Table II: List of causes of childhood Diarrhea**

| Serial # | Cause | Frequency | Percent |
|---|---|---|---|
| 1. | Infection | 27 | 18 |
| 2. | Contaminated food | 24 | 16 |
| 3. | Contaminated water | 12 | 8 |
| 4. | Contaminated food & water | 45 | 30 |
| 5. | Soil eating, flies | 9 | 6 |
| 6. | Do not Know | 33 | 22 |
| | TOTAL | 150 | 100 |

Table-III shows 34 percent mothers had knowledge about ORS preparation. 66 percent were totally unaware', 60% ofthe respondents treated diarrhea using self medication and 20% with ORS and home

**Table III: Knowledge about home made ORS**

| Serial # | Homemade preparation | Frequency | Percent |
|---|---|---|---|
| 1. 5gm table salt 20 gm sugar | Know | 57 | 34 |
| 2. 5gm table salt 20 gm sugar | Do not know | 93 | 66 |
| | TOTAL | 150 | 100 |

remedies and 20 % visited the outpatient department when the dehydration became severe. 69% continued the breast feeding and normal feeding during the disease but 31% discontinued the treatment and replaced it with rice water, yogurt, juices and mineral water available in local markets. The study also found out that 96% believed in creating mass awareness about diarrhea through television, radio and news paper specially during the summer season, as 98% knew it was a preventable disease which if not treated adequately can prove to be fatal.

## Discussion

Mothers in this part of Pakistan have diverse and complex explanations about the causes of diarrhea based on individual experiences and personalities as well as educational status. A study conducted at institute of American Academy Of Pediatrics about food absorption in infants showed majority of mothers held contaminated food as leading causes of diarrhoea.[4] Similar study done by(Nielsen et al, 2001) indicates that its mandatory to target the wider range of people within the community including religious leaders ,elders, community health workers ,traditional workers .In other study published in South East Asian Journal of public health revealed various existing beliefs and practices as unbalanced diet of hot and cold food, contamination with flies ,worms in stomach ,soil eating ,passing of shadow. Another study published in Pediatric infectious diseases journal indicated that most of the mothers gave less food to children during diarrhea and medicine were given to child only when there is blood with stool.[5], while in our study, breast feeding and normal feeding were continued during diarrhea by majority This was important finding as there are fluid and electrolyte losses during diarrhea and if a child is in adequately fed, he may become dehydrated. The study also focused on the preventive measures for diarrhea control, almost all substantiated the correct method i.e. interrupting the mode of transmission (faeco-oral route) by using boiled water, maintaining general hygiene of cooking/feeding utensils, washing hands before feeding the child, and improving the general sanitation conditions. The Integrated Management of Neonatal and Childhood Illness guidelines given by SANTE also recommended the interruption of transmission as most important control measure.[6] Water supply and sanitation are good predictors of diarrhea, in our study 9 out of every 10 respondents believed that keeping a clean house, washing fruits and vegetables, washing hands before cooking, washing kitchen utensils, supervising what children eat, and breast feeding were important ways to prevent diarrhea, same findings were also projected by Murray and Lopez.[7,8]Diarrhea, even though a preventable disease has a high mortality index of 28% annually.[9]Therefore, ample emphasis should be laid on its prevention. In order to decrease high rates of morbidity

and mortality attributed to diarrhea, an en masse awareness campaign needs to be launched. There has been a reported decline in diarrheal mortality which is most likely due to adequate case management (introduced since 1980's). Victoria and others' (2000) review provides Oral Rehydration Therapy, has influenced the outcome of dehydrating diarrhoea.[10]If the mixtures of ORS is unavailable a simple homemade consisting of 5 gm table salt and 20 gm sugar dissolved in one liter of water can be easily prepared emphasis should be laid on homemade preparation as the cost is on the rise and cost effective measures are required .[11]

## Conclusion

The study concluded mothers are important stake holders in children growth specially during breast feeding ,weaning and supplementary feeds ,all intervention must direct to enhance health education and similarly use of oral rehydration salt should be advocated at all levels of healthcare.

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ORIGINAL ARTICLE

# The Effect of Heparin on Anterior Chamber Reaction in Pediatric Cataract Surgery

Yasir Iqbal, Sohail Zia, Aneeq Mirza


## ABSTRACT

**Objective:** To find out the effects of heparin added to the irrigating solution on anterior chamber reaction in pediatric cataract surgery.
**Study Design**: A quasi experimental study.
**Place and Duration of study:** This study was conducted in a tertiary eye care hospital from Jan 2008 to July 2010.
**Materials and Methods:** Twenty eyes of fifteen patients aging 4 years to 10 years with uncomplicated pediatric cataract were selected in the study. All children underwent cataract extraction under general anesthesia and received anterior chamber irrigation with heparin sodium (5 IU/cc) during operation added to the irrigating solution of balanced salt solution (BSS Plus). All patients received standardized postoperative treatment. All patients were followed on the first post operative day, after one week, after one month and were advised follow up at the 3rd and 6th months and postoperative anterior chamber reaction was documented according to modified Hogan's classification on each visit.
**Results:** Mild anterior chamber reaction was observed in 10 patients (50%) and moderate anterior reaction was observed in only (15%) three patients on first follow up. Anterior chamber reaction disappeared on 7$^{th}$ post operative day in all patients. Fibrin formation, anterior and posterior synechia, cyclitic and pupillary membrane formation was not observed in any patient. There was also no intraocular lens deposits or posterior capsular opacification (PCO) in any of the cases after the follow up of 6$^{th}$ months.
**Conclusion:** Heparin sodium in the irrigating solution is safe, effective, and promising method to prevent early postoperative inflammatory reaction in pediatric cataract surgery.


**Key Words:** *Heparin, Cataract, Anterior Chamber Reaction, Anticoagulation, Antiproliferative*.

## Introduction

Pediatric cataract presents the major preventable cause of visual impairment and blindness in childhood.[1] The estimated number of children who are blind because of cataract is as high as 200,000.[2] Cataract surgery with intraocular lens (IOL) implantation has been fully accepted in children over the age of 12 years since several years.[3,4] Cataract surgery and other intraocular procedures have a higher incidence and more pronounced postoperative inflammatory reactions in children compared with adults.[5] These reactions are associated with younger age and may be affected by surgical technique, intraoperative injury to adjacent structures such as iris, presence of antecedent ocular infection, and remnants of retained cortical material .[5]

Heparin has anti-inflammatory and antiproliferative effects in addition to its anticoagulant function, inhibits fibrin formation after intraocular surgery, and has also been shown to inhibit fibroblast activity. [6] We present a prospective study to determine the influence of heparin in irrigating solution on the post operative cellular reaction in pediatric cataract surgery.

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## Materials and Methods

It was a prospective non-randomized clinical interventional study conducted

during the period of Jan 2008 to July 2010. All the children with uncomplicated cataract were selected. They were allotted hospital number and were prepared for general anesthesia with all the systemic review and investigations. The parents were asked to sign an informed consent for the procedure. All children underwent cataract extraction under general anesthesia by an experienced surgeon. The patients received anterior chamber irrigation with heparin sodium (5 IU/cc) during operation added to the irrigating solution of balanced salt solution (BSS Plus).A conjunctival flap was made at superotemporal part of the limbus.

Scleral tunnel was constructed using a crescent knife and extended up to 1.0 mm into clear cornea. A 3.2mm keratome was used to access the anterior chamber and the internal corneal incision was extended for about 0.5mm more than the external scleral incision. The anterior chamber was deepened using a viscoelastic and continuous curvilinear capsulorrehexis of 5 - 6 mm was done using a bent 27-gauge needle mounted on the irrigating infusion. The nucleus was aspirated and the cortex was washed using a simcoe cannula. A 6.5 mm optic PMMA PCIOL was implanted in the capsular bag inflated by viscoelastic. The viscoelastic material was replaced by BSS solution containing heparin sodium (5 IU/cc). The integrity of the self-sealing scleral incision was ensured and the cut conjunctival flap was apposed using a forceps fitted to bipolar diathermy. Subconjunctival injection containing gentacin and dexamethasone were given in the end. Standardized postoperative treatment comprised of prednisolone acetate 1% (Pred Forte by Allergan) one hourly for one week followed by five times a day for the second week and tapered over six weeks and moxifloxacin (Vigamox by Alcon) four times a day for one month. No oral steroids or topical mydriatic treatment was given. All patients were followed on the first post operative day, after one week, after one month and were advised follow up at the 3rd and 6th months. At all visits, postoperative intraocular complications, including cellular reaction based upon modified Hogan's classification, fibrin formation, anterior and posterior synechia, cyclitic and pupillary membrane formation, intraocular lens deposits and posterior capsular opacification (PCO),were recorded.

## Results

Twenty eyes of fifteen patients aging 4 years to 10 (mean +.05) years consisting of 45% males and 55% females were included in the study. Mild anterior reaction was seen in 10 cases (50%) and moderate anterior chamber reaction was observed in only (15%) three patients (table. I). It was observed that anterior chamber reaction disappeared in all cases on the 7th post operative day. Pupillary irregularity was not reported in any of these cases. There was no fibrin formation, anterior and posterior synechia, cyclitic and pupillary membrane formation. There were no intraocular lens deposits or posterior capsular opacification (PCO) in any of the cases after the follow up of 6th month. Hyphema or intraocular hemorrhage due to heparin was not reported in any of the cases.

## Discussion

A tendency towards increased

**Table-I: Anterior Chamber Reaction in Post Operation Cataract Children (n=20)**

| Severity of anterior chamber reaction | 1st post op day | 7th Day | 6th Months |
|---|---|---|---|
| Mild | 10(50%) | Nil | Nil |
| Moderate | 3 (15%) | Nil | Nil |
| Severe | Nil | Nil | Nil |

postoperative inflammation in children is well recognized.[7] To control post op inflammation in pediatric cataract surgery is always a challenge for eye surgeon. Intraocular inflammation manifests itself as increased cells and flare, inflammatory precipitates on the IOL and the endothelium, formation of synechia, and inflammatory cyclitic membranes.[7] The pathogenesis of postoperative fibrinoid inflammation is unknown.

The fibrinoid reaction after pediatric cataract surgery is may be caused by the breakdown of the immature blood aqueous barrier (BAB) and insufficient trabecular meshwork fibrinolytic activity.[8] Secondary complications of severe fibrinoid reaction include pupillary membrane and opacification of the anterior hyaloid face.[9] Therefore, measures that may prevent or decrease inflammation in these eyes deserve consideration. In addition to its well-known anticoagulant activity, heparin has anti-inflammatory and antiproliferative properties. Heparin inhibits fibrin formation after intraocular surgery and has also been shown to inhibit fibroblast activity.[10] Studies.[10,11] elucidate several mechanisms through which heparin may inhibit inflammation including induction of apoptosis in human peripheral blood neutrophils, inhibition of the complement activation and lymphocyte migration, l- and p-selectin, adhesion-molecule support of the initial attachment of leukocytes to the vessel wall at the inflammation site, neutrophil chemotaxis, and generation of refractive oxygen species by mononuclear and polymorphonuclear leukocytes. In our study of pediatric cataract surgery, addition of heparin to the irrigating BSS prevented postoperative inflammatory complications. In this study it was shown that early postoperative inflammatory reactions were rare. Bayramlar and colleagues.[13] also concluded that the addition of heparin to the irrigating solution during surgery decreases postoperative fibrinoid reaction and late inflammatory complications. The same was concluded by Iverson and colleagues.[14] in their study.Hyphema, which can be thought of have occurred during surgery due to heparin irrigation, was not seen in our study. However, this risk can also be diminished by using low molecular weight heparin. Iverson and colleagues.[14] suggest that fragmin, at a concentration of 5 IU/mL, lowers the risk of hemorrhage during vitreoretinal and lensectomy surgeries.

## Conclusion

Our results suggest that adding heparin sodium to the irrigating solution seems to be a safe, effective, and promising method to prevent early postoperative inflammatory reaction in pediatric cataract surgery.

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ORIGINAL ARTICLE

# Quality of Antenatal Care Provided at Social Security Hospital, Islamabad

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## ABSTRACT

**Objective:** To assess the quality of antenatal care provided to pregnant women in our set up at social security Hospital Rawalpindi.

**Study Design**: Cross sectional

**Place and Duration of Study:** Department of Obstetrics and Gynaecology, Social Security Hospital, Islamabad from October to December 2011.

**Materials and Methods:** Women attending the antenatal OPD were interviewed using a pre tested semi structured questionnaire. A total of 285 women were included in the study. They were interviewed at their first antenatal visit.

**Results:** Mean age of study population was 30 years and parity ranged from 0- 7.Majority were house wives and had their monthly family income less than 10,000 Rupees. Majority of the patients 'were multigravidas. All (100%) patients were looked after by doctors in Out- Patient Department (OPD). About 34.78% patients were educated about complications of Labour. Only 16.84% and 28.42% patients got advice about antenatal exercises and episiotomy care respectively. More than half (56.8%) patients were counseled for delivery in hospital, 26.31% patients were given contraception advice. About 57% received specific dietary advice for pregnant ladies and 45.26% were told about importance of breast feeding.

**Conclusion:** Our study concluded that adequate antenatal care does not mean merely establishment or improvement of health centers or antenatal clinics, adequate supply of medicines and reducing waiting time, but it also involves education of pregnant women about good antenatal care and different health related issues.


**Key words:** *Antenatal, labour, family planning, immunization, lactation.*

## Introduction

Antenatal care is defined as the care of mother and fetus before birth. It is essential to reduce both the maternal and perinatal morbidity and mortality.[1,2] Systematic antenatal care was introduced first in the early 20th century, in Europe and North America and is now almost universal in the developed world.[3]World health organization (WHO) found that a new model with a reduced number of high quality antenatal visits did not result in worse maternal and perinatal outcomes than standard antenatal care that involved a greater number of visits.[4] Studies Most commonly identified the following factors affecting antenatal care: maternal education, husband' education, marital status, household income, women's employment and history of obstetric complications.[5] Woman's parity is another factor which affects antenatal care; women with high parity tend to attend hospital less frequently, so parity has a significantly negative effect on antenatalattendance.[6,7,8] The importance of quality antenatal care cannot be questioned. Good care can reduce the maternal morbidity and mortality and result in a healthy perinatal outcome. In the present study we want to emphasize the importance of good care for women during pregnancy that will enable them to go safely through pregnancy and child birth, producing a healthy baby.

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## Materials and Methods

A cross sectional study was conducted in October- December 2011 in Social Security

Hospital, Islamabad. This hospital is providing health facilities to 318,000 registered patients (secured workers and their dependents). About 80 patients' daily visit the out- patient department in Gynaecology department. In obstetric set up of Social Security Hospital, antenatal care is provided by women medical officers' under the supervision of a gynecologist. Record of antenatal visits is kept on specially designed antenatal cards to select high risk patients. Antenatal record includes detailed history, findings of examination, details of investigations and ultrasonography. It also contains advice including hospital delivery especially in high risk patients, tetanus prophylaxis and warning signs of labour. The patients include wives of secured workers who are entitled in the hospital for free of cost treatment. So no patients are lost to follow up.

**Inclusion Criteria**

A total of 285 patients attending the antenatal OPD were included in the study. They were interviewed at their first antenatal visit.

Data was collected through semi structured pre tested questionnaire and by interviewing the patients. The questionnaire was written in easy Urdu, so that most of the patients could read and understand it. Those not able to read Urdu were interviewed by the women medical officers (WMO) of Gynae department.

The variables included were sociodemographic factors, health information and satisfaction for resources.

Questionnaire sought information about bio data, factors affecting antenatal attendance and knowledge about antenatal services. Data collected was entered on SPSS- 12 and was analyzed. The results were shown in percentage.



## Results

The mean age of women was 30 years and parity ranged from zero to seven. Most of the patients (84.2%) were less than 30 years old and 15.78% were more than 30 years. Majority of them belonged to poor socioeconomic group as 89.47% had their monthly family income less than 10,000 Rupees. Only 5.26% patients had income between 10,000- 15,000 Rupees and a similar proportion more than 15,000 Rupees. Majority (91.57%) patients were house wives and 8.42% were self-employed in mills and schools. In our study, 135 (47.36%) women were educated to secondary level, 57 (20%) had got primary education, 33 (11.57%) were graduates and 12 (4.21%) had master degree; however 48 (16.84%) patients were illiterate. In the study population, 22.1% patients were primigravidas, 74.3% were multigravida and 3.6% were grand multipara. All (100%) were attended by doctors (medical officers, specialists/ consultants) in OPD. All women were aware of at least one or two methods of family planning.

Table I shows distribution of different factors which affect attendance of Pregnant patients in antenatal care OPD.

Table II shows the education of women during antenatal visit. Regarding different aspects of patient's education or instructions given to the patients by their attending doctors during their check- up, 99 patients (34.73%) were counseled about complications or problems of labour, 201 (70.52%) were counseled regarding immunization against tetanus, 129 (45.26%) were emphasized about benefits of breast feeding, its importance and standard

**Table-I: Sociodemographic variables affecting antenatal attendance**

| Variables | Number of women attending antenatal clinic n= 285 | percent |
|---|---|---|
| **Age in years** | | |
| Less than 30yrs | 240 | 84.2% |
| More than 30yrs | 45 | 15.78% |
| **Woman's education** | | |
| Illiterate | 48 | 16.84% |
| Primary | 57 | 20% |
| Secondary | 135 | 47.36% |
| Graduation | 33 | 11.57% |
| Masters | 12 | 4.21% |
| **Occupation** | | |
| Employed | 24 | 8.42% |
| House wives | 261 | 91.57% |
| **Monthly income (Rupees)** | | |
| Less than 10,000 | 255 | 89.47% |
| 10,000- 15,000 | 15 | 5.26% |
| More than 15,000 | 15 | 5.26% |
| **Parity** | | |
| Primigravida | 63 | 22.1% |
| Multigravida | 213 | 74.3% |
| Grandmultipara* | 09 | 3.6% |

*Women having more than five viable pregnancies.

methods of lactation. More than half (57.89%) patients were educated about specific dietary needs of pregnant ladies, and possible psychological problems in pregnancy and puerperium were discussed with 33 (11.57%) patients. Only 48 (16.84%) ladies received information about antenatal exercises and 84 (28.42%) patients were counseled about the possibility and care of episiotomy. Need for hospital delivery was emphasized during counselling of 56.84% patient.

About 60% patients were satisfied with the overall care provided to them; however 40%showed their concerns over quality of care. Most of them were unsatisfied about waiting time in outpatient department. Most of them said that they had to wait for more than two hours. Especially worth mentioning was their apprehension about delay in getting laboratory investigations. About 70% women were worried about getting medicines and shortage of medicines.

**Table-II: Education of women during antenatal visit**

| Sr. no. | Education of patient | number | percent |
|---|---|---|---|
| 1 | Complications of labour | 99 | 34.73% |
| 2 | Family planning services | 74 | 26.31% |
| 3 | Immunization | 201 | 70.52% |
| 4 | Dietary advice for pregnant women | 165 | 57.89% |
| 5 | Antenatal exercises | 48 | 16.84% |
| 6 | Delivery in hospital | 162 | 56.84% |
| 7 | Psychological problems in pregnancy/ puerperium | 33 | 11.57% |
| 8 | Lactation | 129 | 45.26% |
| 9 | Care of episiotomy | 84 | 28.42% |

## Discussion

High quality antenatal care is a fundamental right of women to safeguard their health and attain a desirably healthy outcome of pregnancy. It not only includes detailed history, examination, appropriate investigations and ultrasonography but also contains advice including specific dietary needs for pregnant women, preparation of patient for labour and possible problems, hospital delivery especially in high risk patients.[8] tetanus prophylaxis and warning signs of labour. Counseling for breast feeding as well as contraceptive advice must also be included in the care of antenatal patients.

In our study, mean age of the study population was 30 years, majority of them belonged to poor socioeconomic group, they

were unemployed and had got education up to secondary level. Majority of them were multigravidas and only a minority were grand multiparas (patients having more than five viable pregnancies). This fact has also been observed in other surveys that women with high parity tend to seek advice and care less frequently.[7, 8]

In Pakistan, only 30% patients utilize antenatal care services, while 70% do not. Only one third of deliveries take place in hospitals. Only 25% patients are counselled about warning signs of pregnancy complications and less than half receive any post natal care.[9]

It has been emphasized in different studies that quality care has improved maternal and perinatal outcomes worldwide.[10,11] About 88- 98% of all maternal deaths could be avoided by proper care and handling during pregnancy.[12,13]Awareness should be created for proper utilization of services.[14] In this study, all pregnant women were attended by doctors. This is contrary to findings in another study conducted at a public sector hospital of Hyderabad (Sindh), most of the women reported that they received care from lady health visitors (LHV).[14]Although 100% patients were attended by doctors in our study, but their actual performance in taking care of women and their education regarding various health related issues was not up to the desired level. Less than one third patients received advice about antenatal exercises, care of episiotomy and problems/ warning signs of labour. Need for hospital delivery was discussed with half of the patients. The need for proper training of medical and paramedical staff for effective delivery of available services has also been emphasized in other studies.[14,15] In addition to history taking, examination and advice of appropriate investigations, improvement of women's perception and counseling about standard antenatal care is also desirable.[15] This involves giving information/ education about complications of pregnancy, antenatal exercises, immunization, lactation and advice about family planning. Information should also be given about care of episiotomy. Specific psychological problems in pregnancy and puerperium must also be addressed. Good antenatal care also means hospital delivery especially in high risk patients. Dietary advice for a pregnant and lactating mother must also be part and parcel of optimal care. Medical and paramedical staff needs to be trained about the various educational needs of the patients and factors influencing patient satisfaction in order to improve quality of health care.[10,16]

Most of our patients expressed their dissatisfaction about prolonged waiting time, inappropriate attitude of hospital staff and availability of medicines. Among pregnant women, long waiting time, spending time during visit, inadequate supply of medicine and attitude of medical and paramedical staff were seen to be main areas of dissatisfaction in another study.[17] Need for up grading the existing facilities as well as adequate training of medical and para medical staff to improve delivery of the available facilities has also been emphasized in different studies.[14, 18]

## Conclusion

Our study concluded that adequate antenatal care does not mean merely establishment or improvement of health centers or antenatal clinics, adequate supply of medicines and reducing waiting time, but it also involves education of pregnant

women about good antenatal care and different health related issues. Medical and Para medical staff needs to be trained for improving counseling skills, so that patients receive the available services and education in a more effective manner.

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