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**2 Editorial**  
*Ahmad Husari*

**Original Contribution / Clinical Investigation**

- 3 Biomedical Research: The Level of exposure and participation of Interns and Resident Doctors in a Nigerian Tertiary Institution - An exploratory study**  
*Chidi Oliver Ihemedu, Babatunde Ishola Awokola, Charles Oluwole Omolase*
- 8 Preoperative Anxiety and Postoperative Nausea and Vomiting in Children: Is There an Association?**  
*Raga Ahmed Ali Musaid*
- 12 Hysteroscopy Findings in Failed IVF and their Influence on Pregnancy Outcome**  
*Ahmed Al Zboone, Mahmoud Alkhateeb*
- 17 Serum Lipids and Fasting Glucose Levels in Patients with Cholelithiasis**  
*Basma Fadhil, Amina Hamed Alobaidi, Hamid Hindi Aljubori*

**Models and Systems of Care**

- 22 AFP Surveillance: Review of Mohmand Agency FATA**  
*Hamzullah Khan, Sarfaraz Khan Afridi, Obaid ul Islam, Khalid Khan, Nazish Farooq*

**Community Care**

- 27 Reasons For Non-Attendance at an Eye Clinic in a Nigerian Community**  
*C.O. Omolase, O.O. Komolafe, B.O. Omolase, O.T. Ogunleye, O.A. Sotiloye, A.K. Akinwalere*

# From the Editor



Ahmad Husari (*Chief Editor*)  
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This is the last issue this year and the editorial office and the publishing team wish to send all the readers and the authors season's greeting and wish all a happy New Year.

A paper from Yemen attempted to explore the potential association between preoperative anxiety and post operative nausea and vomiting. Anxiety of children was assessed in the preoperative holding area and during the induction of anesthesia. The incidence of nausea and vomiting was documented in the pediatric wards and 24 hours postoperatively. Thirty-three children (65%) reported nausea and 21 children (41%) developed vomiting in the post operative period. Children who vomited post operatively were less anxious in the preoperative area on the day of the surgery. No differences were found in characteristics such as age, sex, weight, trait anxiety, state anxiety, and those who did not have anxiety. This indicated that preoperative anxiety does not predict the occurrence of nausea and vomiting. The authors concluded that children's anxiety in the preoperative holding area has no predictive value for the occurrence of PONV in the postoperative recovery room or 24 hours in pediatric ward.

A cross-sectional study paper from Nigeria attempted to assess the level of exposure and participation of medical interns and resident doctors on bio-medical research and documentation and to identify possible associated factors. The questionnaire was pre-tested at another institution for validation. The selected subjects consisted of Medical Interns (N=23, 22.1%), Junior Registrars (N=61, 58.7%) and Senior Registrars (N=20, 19.2%). Article publication in a journal has been done by 7% (N=8) of respondents (p value of 0.0003). The authors concluded that poor attention has been shown towards bio-medical research amongst resident doctors and militating factors must be addressed by all and sundry

A case controlled study prospectively studied 220 term singleton pregnancies, at the department of obstetrics and gynecology in Kings Hussein medical city, Jordan, during the period from January 2009 to January 2010. The aim of this study was to assess the clinical significance of reduced amniotic fluid volume in low risk term singleton pregnancies. There was no statistically significant difference between the two groups regarding the CTG changes, the cesarean section rates, operative vaginal deliveries, meconium stained liquor or admissions to NICU. The authors concluded that the presence of reduced amniotic fluid index in low risk term pregnancies does not carry a poor prognostic significance.

A simple descriptive non-randomized study of 245 patients was conducted at King Hussein medical center. The objective was to identify and analyze the abnormal hysteroscopic findings in women with failed IVF, and its effect on pregnancy outcome.

Uterine cavity was normal in 75 % of the cases, while sixty one (25%) patients showed abnormal hysteroscopic findings of the cervical canal and uterine cavity (endometrium). The authors concluded that patients with recurrent IVF embryo transfer failures should be reevaluated using hysteroscopy prior to further commencing IVF-embryo transfer cycles. Hysteroscopy is part of first-line exams in infertile woman regardless of age.

A paper from Nigeria looked at the reasons for non-attendance of eye clinic by patients. This study was conducted over a period of six months between February and July, 2011 at the Eye Clinic of Federal Medical Centre, Owo, Ondo State, Nigeria. Ninety respondents comprising 38(42.2%) males and 52(57.8%) females were interviewed. The authors found that prominent reasons why respondents missed their eye clinic appointment included the fact that they were out of town on their clinic day, forgetfulness and financial constraint. Patients should be adequately enlightened on the importance of compliance with their clinic appointment.

A paper from Iraq was done to find out the possible relationship between serum lipids, and altered glucose tolerance in cholelithiasis which may be indicative of metabolic syndrome. A total 140 patients were taken for the study, among which 108 were female patients and 32 were males in the age group of 30-70 years. There was a non significant difference in total cholesterol, and LDL cholesterol, while there was a highly significant difference in triglycerides (p=0.001) and VLDL (p=0.003) between patients and control groups. The authors concluded that Triglyceride and BMI are major risk factors for cholelithiasis in their study population, where cholelithiasis is a common disorder. Cholelithiasis may be a risk factor for development of metabolic syndrome.

A retrospective analysis of the cases reported in 2011 from Pakistan attempt to determine the status of the AFP surveillance system at Mohmand agency FATA to improve the sensitivity of the system in 2012. A total of 25 cases were reported in 2011 in Mohmand agency, as AFP cases. The authors concluded that there is a weak surveillance system for AFP and being a part of FATA and its security volatile situation, all makes it more suitable for the polio virus to circulate. There is low level of awareness and stigma associated with Polio vaccines which is alarming for public health workers. The cross reported cases ratio is more which shows its weak catch up.

# Biomedical Research: The Level of exposure and participation of Interns and Resident Doctors in a Nigerian Tertiary Institution - An exploratory study

## ABSTRACT

**Aim:** To assess the level of exposure and participation of medical interns and resident doctors on bio-medical research and documentation and to identify possible associated factors.

**Methods:** This cross-sectional study was carried out at Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, south-west, Nigeria. Sample subjects were selected by simple random sampling from the sample frame of 350, following which a minimum sample size of 102 subjects was estimated using the Abramson winpepi program software 2004. The questionnaire was pre-tested at another institution (University College Hospital, Ibadan) for validation. Data collection was with the aid of semi-structured questionnaire. Data obtained was analyzed using the SPSS v16 and cross tabulation of attendants results were done with Microsoft excel 2007 and Chi-square test at statistical significance of  $p < 0.05$ .

**Result:** 120 questionnaires were administered out of which only 104 were returned during the period of this study. The selected subjects consisted of Medical Interns (N=23, 22.1%), Junior Registrars (N=61, 58.7%) and Senior Registrars (N=20, 19.2%). Article publication in journal has been done by 7% (N=8) of respondents ( $p$  value of 0.0003). Proficiency in data analysis was positively attested to by 25% of respondents (N=26) and several factors were listed to militate against the interest and participation in biomedical research.

**Conclusion:** Poor attention has been shown towards bio-medical research amongst resident doctors and militating factors must be addressed by all and sundry.

**Key words:** Bio-medical Research, Exposure, Medical interns, Nigeria, Resident doctors.

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### Introduction

Biomedical research is the pursuit of answers to medical questions. (1) These investigations lead to discoveries which in turn lead to development of new preventive measures, therapy and cure for both human and veterinary health. (1) Training on research skills and experience of research early in one's career has been associated with continued professional academic work and may help inform residents' career decision. (2)

The introduction of compulsory medical research work to the medical students' curriculum in most Nigerian tertiary institution has significantly increased the level of awareness to medical research. These research works are often done by the final year students to initiate the drive to biomedical research as physicians. However, there has been a noticed stagnation to further exposure to biomedical research amongst the majority until perhaps at part II dissertation for those in residency training or at final exams for other postgraduate programs.

The motto of medical education is to prepare physicians to meet the challenges of practice by fulfilling their roles as clinicians, educators and clinical researchers.(3) Several anecdotal factors have been identified as a bane to the involvement in biomedical research amongst physicians-in-training and such may include; stressful residency program especially as a junior resident, lack of research grants, discouragement from trainers regarding practical research works as misplaced priorities, just to mention a few.

According to Aslam et al(4), the major reasons for poor research activity in Pakistan were poor research training and awareness. He acknowledged the positive attitudes of residents towards research; however, they were deficient practically in terms of reading and writing literature.(4) Health research has a low priority in the developing world in all disciplines of science and technology. India and Pakistan combined have 208 researchers per million citizens, (5,6) as compared to 4,526 researchers per million citizens in the United States. (7)

Thus, the need to enhance the participation in biomedical research in Nigeria, a developing nation, has informed this study to identify the level of exposure and participation of medical interns and residents to biomedical research and to identify its proponents and drawbacks in a Nigerian tertiary institution.

### Methodology

This cross-sectional study was carried out between May and August 2010 at the Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife. It is a tertiary institution affiliated to the Obafemi Awolowo University and located in the heart of the Ile-Ife, Osun state, South-West, Nigeria. The institution was established in the early 70's as a state hospital before it was transformed to a tertiary institution in November 1975 which included the training of physicians.

There were about 2,950 health workers in the institution as at May 2010, with about 350 physicians-in-training and

this was comprised of medical interns otherwise called House Officers and resident doctors in the institution. The sample subjects were selected by simple random sampling from the sample frame following which the sample size was estimated using the Abramson winpepi program software 2004. It consisted of a population frame of 350, a minimum acceptable difference of 0.08; assumed proportion of 0.65, confidence interval of 95% and probability value of < 0.05, and estimated loss of 5%, thus, assuming a minimum sample size of 102 subjects. Data collection was with the use of semi-structured self administered questionnaire which was designed in 3 sections. The first section included the bio-data of respondents, the second section assessed the level of exposure and participation in bio-medical research and the last section was the open ended space for opinions on factors responsible for their responses if any?

The questionnaire was pre-tested amongst 35 registrars at a pre-part 1 update course for family physicians at the University College Hospital, Ibadan, Oyo state, Nigeria. This was to validate the questionnaire and compare responses. The Pre-test group was not included in the selected sample subjects.

In the distribution of the research questionnaire, no preference was attached to any specialty as respondents were selected from all specialties. The data collected was entered into the SPSS statistical software and cross tabulation of attendants' results were done with Microsoft Excel 2007 and Chi-square test and statistical significance was set at  $p \leq 0.05$ .

### Result

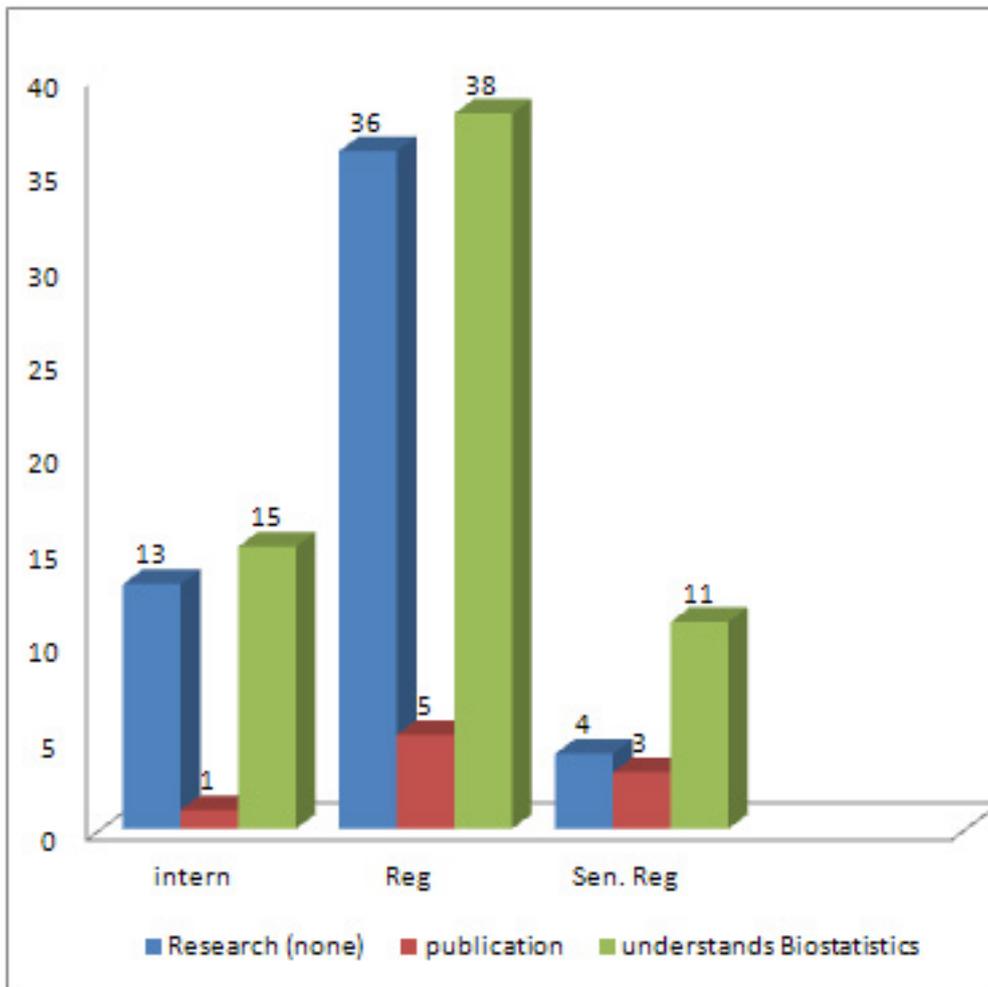
One hundred and twenty questionnaires were distributed of which one hundred and four questionnaires were returned during the period of this study giving a response rate of 86.7%. This excluded the pre-test group of 40 respondents. The study respondents were comprised of Medical Interns (N=23, 22.1%), Junior Registrars (N=61, 58.7%) and Senior Registrars (N=20, 19.2%). The ages of the respondents ranged between twenty seven and fifty one (27-51), mean age of 32.15 years  $\pm$  3.282. The

respondents comprised males (N=75, 71.9%) and females (N=29, 28.1%). The subjects were predominantly from the Yoruba tribe (N=76, 73.1%), the Ibo tribe (N=14, 13.5%); no Hausa respondent and N=14 (13.5%) were from the other tribes. 82.5% of respondents were Christians while 16.5% were Muslims and other religion was 1%.

**Knowledge, exposure and participation:** All the respondents were aware of biomedical research and the majority 82% (N= 84) had their first exposure at Medical Schools, 12% (N=13) were first exposed as interns while the remaining 6% (N=7) were first exposed as residents. (P-value of 0.099).

About 50% of respondents (N= 52) have not been involved in any bio-medical research as a medical doctor either as an author or co-author (p-value 0.029). 63% of the group who have participated in research i.e. 50% (N= 33) have participated only in 1 (one) bio-medical research and 21% (N=11) have written a scientific article. Article publication in either a local or an international journal have been done by 15% (N=8) of respondents who have participated in research (p value of 0.0003). About 60% of the entire respondents (N= 62) have general knowledge of bio-medical statistics but average proficiency in data analysis was positively attested to by 25% of total respondents (N=26) but excellent proficiency only by 6 respondents giving a p-value of 0.01 which was statistically significant. Detailed information is as shown in Figure 1 and 2, opposite page.

**Factors affecting Bio-medical research:** 97% (N=100) of respondents indicated that bio-medical research is yet to receive adequate attention in Nigeria and several factors highlighted for low exposure and conduct of bio-medical research were; stressful medical activities which is synonymous to lack of time, discouragement directly or indirectly from senior colleagues, poor knowledge of biomedical statistics and documentation, high financial involvement, lack of research grants from institutions, stress of publication, suboptimal drive and challenge due to substandard environment and government as well as lack of political



Interns= Medical Interns,  
Reg= Registrars,  
Sen. Reg = Senior registrars

Figure 1: Graph showing level of participation to bio-medical research

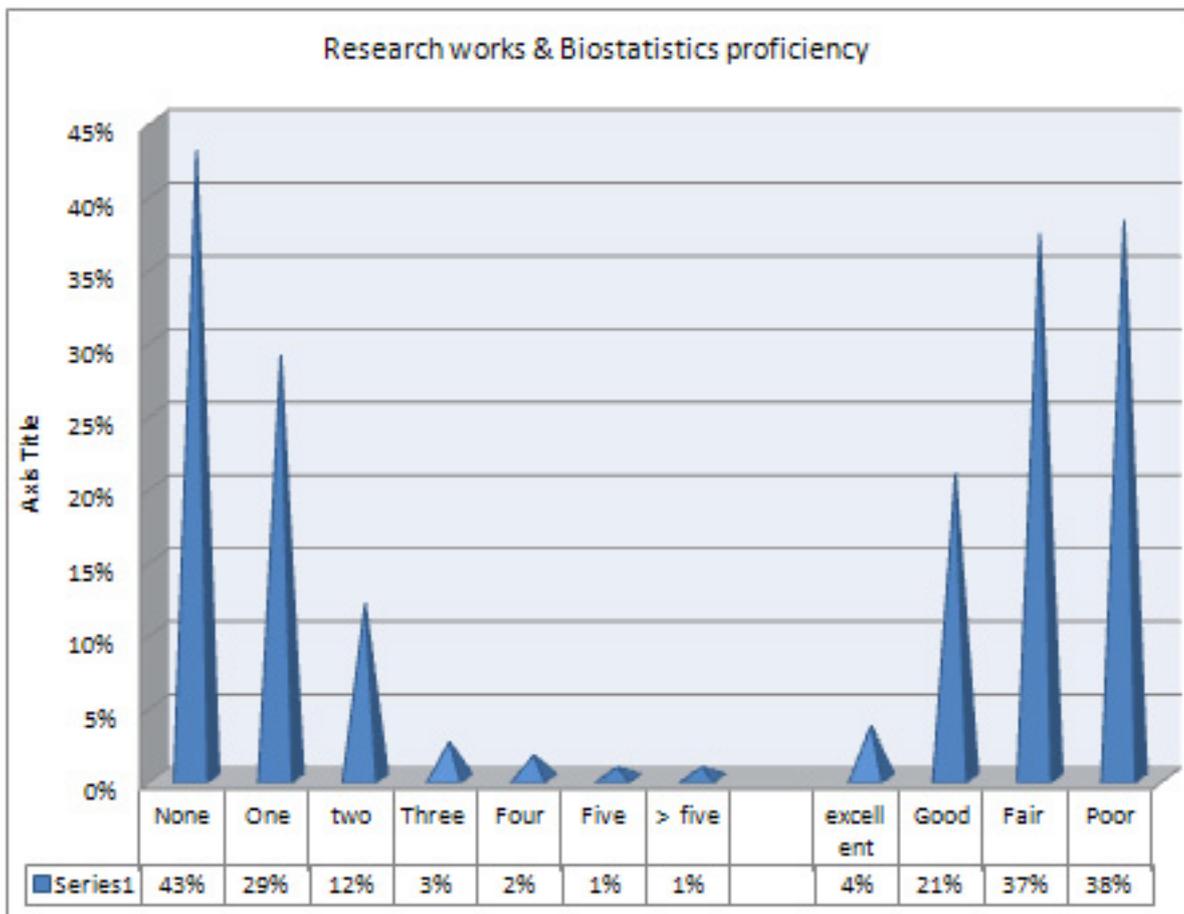


Figure 2: Chart showing the extent of research involvement and their proficiency in biostatistics

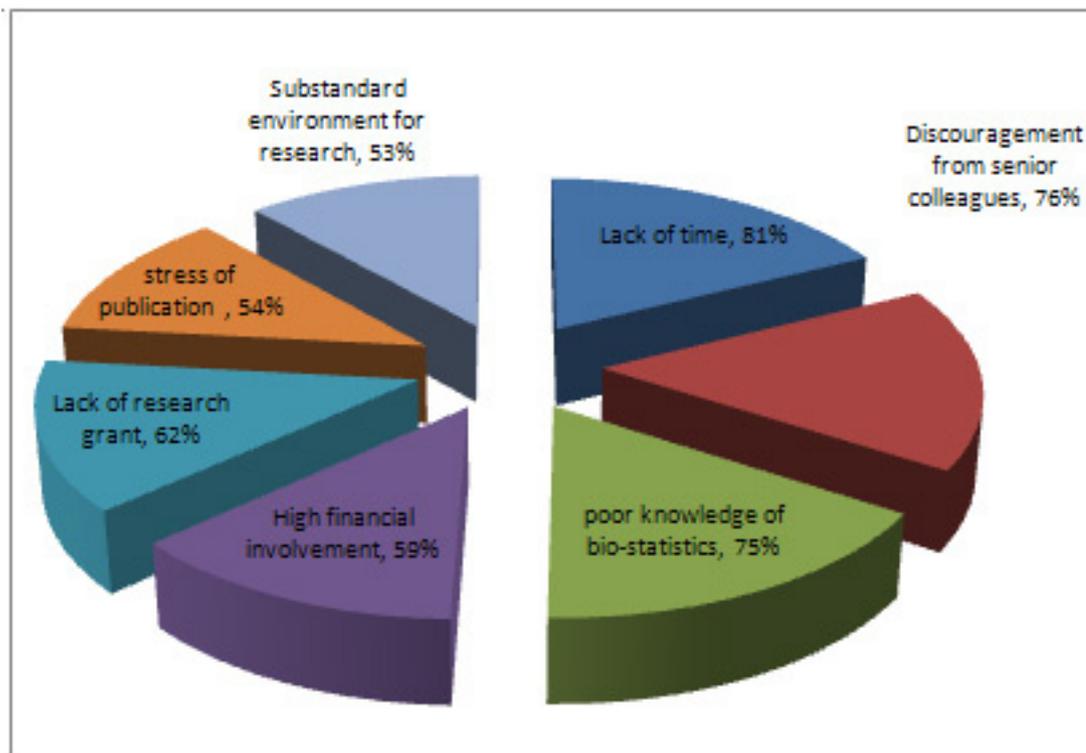


Figure 3: Factors affecting Bio-medical research

will, amongst others. Details are as shown in Figure 3 below. 90% (N=94) of respondents agreed that biomedical statistics should be made an intensive course in medical school training (p value 0.00001) and 66% (N=69) approved bio-medical research as part of the criteria for the completion of the internship program.

### Discussion

Having conducted a verbal interview among some hospital consultants in some Nigerian tertiary hospitals about their early research experiences; showed how appalling that some of them as newly appointed specialists (consultants) and lecturers with exertion, contend with appropriate documentation of a research proposal; this would have been avoided with ease if research was not a sine qua non to their aggrandizement especially for those in the university system. The hurdle of research and its documentation experienced by this group was however attributed to low exposure and participation in bio-medical research as medical internists and residents. A similar event is likely to happen to the present residents in training when they are probably appointed as consultants having reviewed the results above. The respondents were more males than females with a ratio 3:1 and this is in

tandem with the ratio of the entire interns and residents. Respondents were majorly from the Yoruba speaking tribe and predominantly Christians. This may be attributed to the location of the study as indicated above. Although all respondents were aware of biomedical research and more than 80% had early exposure as medical students (although intensity of exposure was not indicated), but only 50% have been involved in research work and the majority have only participated in one research with only 11 respondents as first author. It was not surprising that the majority of researchers amongst the residents as first authors are Senior Registrars, with only about three Junior Registrars. This is statistically significant and similar to the 55.6% (104 out of 226) of respondents who have participated in bio-medical research, though a relatively higher percentage (32.6%) as first authors in a Pakistan study by Hassan Khan et al.(3)

Low article publication was expected since only few participated in research work. Proficiency in bio-medical statistics was reported to be equally very low as 25% of respondents were on the average proficiency but only 6 (6%) were very vast with statistics. The hurdle of data management has further discouraged the idea of research by

residents. Understanding bio-medical statistics demands time and keen interest in view of the fact that one needs to read as many published articles as possible. A recent study published in the Journal of the American Medical Association shows that many doctors don't understand all of the information, especially statistical data, in the articles they read.(8) They further suggested that a habit of reading published articles and research participation breaks the barrier.(8)

Intensification of journal clubs and frequent surgical and medical audits among residents has been shown by Kellum JA et al and Akhund S et al (9,10) to amplify the interest, understanding of biomedical statistics and participation in biomedical research.

Time was the major factor associated for low participation in medical research as indicated by residents and this is also similar to study done by Hassan Khan et al.(3) who showed that 46% of residents reported that lack of time adversely affected their participation in medical research, 20% was adduced to lack of funding and infrastructure respectively and the others included poor mentorship and lack of future benefits. It suffices

to say that gender disparity was not implicated to participation in research as no respondents adduced gender discrimination to be a drawback.

Introducing medical research as an intensive course in medical schools would exponentially increase the participation in medical research and improve the dexterity of students (future doctors) on medical bio-statistics which may in turn benefit the students and institution in terms of number of publications made.

In Germany, for example, medical students authored 28% of the publications of one institution, including first authorship in 7.8% of papers.(1) Nothing can be more motivating for students than to have their articles published. Even if the experience of doing research as a student does not lead to a career in academic medicine, research experience can help improve students' skills in searching and critically appraising the medical literature, independent learning, and writing research papers. (11, 12) Such exposure to research as a student can also help to identify future careers, establish important contacts, and secure better residency positions.(13)

Medical internship may be a tasking one year program, especially when there are few Doctors for a tight work schedule. However, making medical research and documentation a criterion for completion of program as suggested by 66% of respondents would enhance participation as interns would somehow adjust their tight schedules to fit into medical research. This would also ensure similar benefits to all groups as shown above amongst the medical students. It suffices to say that participation in research is a critical way to support an important public good. Consequently, all have a duty to participate. (14) it was appalling to find similar results as the pretest group, some of whom were from Ghana and Benin republic, as such this lack of participation is an endemic problem not only in Nigerian universities but in Africa at large.

The main limitation of this study was the fact that we were unable to show if there exists any relationship between medical specialization with bio-medical research. Future researchers are therefore encouraged on this.

### Conclusion

All the respondents were aware of biomedical research but only half of them had participated in biomedical research. The factors that majorly affected participation in biomedical research included time constraint, discouragement by senior colleagues' and lack of knowledge in bio-statistics.

### Recommendations

- 1) Residency training in Nigeria should be restructured and more emphasis should be made on biomedical research.
- 2) Doctors should be trained in biostatistics so that they can be more proficient.
- 3) Senior colleagues should encourage their junior ones in the act of biomedical research.
- 4) Management of hospitals should encourage different Departments to form Journal Clubs so as to stimulate the interest of Doctors in biomedical research.

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# Preoperative Anxiety and Postoperative Nausea and Vomiting in Children: Is There an Association?

## ABSTRACT

**Objective:** The objective of this study to explore the potential association between preoperative anxiety and post operative nausea and vomiting.

**Methods :** 51 um premedicated children 5- 16 years old undergoing out patient surgery and standarized general anesthesia. Anxiety of children assessed in the preoperative holding area and during the induction of the anesthesia.

The incidence of nausea and vomiting was documented in the pediatric wards and 24 hours post-operatively.

**Result:** Thirty-three children (65%) reported nausea and 21 children (41%) developed vomiting in the post operative period. Children who vomited in the post operative period were less anxious in the preoperative area on the day of the surgery. No differences were found in characteristics such as age, sex, weight, trait anxiety, state anxiety, and those who did not have anxiety. This indicated that preoperative anxiety does not predict the occurrence of nausea and vomiting.

**Conclusion :** We conclude that children's anxiety in the preoperative holding area has no predictive value for the occurrence of PONV in the postoperative recovery room or after 24 hours in the pediatric ward.

**Key words:** Preoperative Anxiety, pre .and post. operative, nausea and vomiting

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### Introduction

General anesthesia using volatile anesthetics is associated with an average incidence of postoperative nausea and vomiting (PONV) ranging between 20% and 30%.<sup>(1)</sup> PONV is thought to be multifactorial in origin, involving anesthetic, surgical, and individual risk factors.<sup>(2)</sup>

Some factors are influenced and controlled by the anesthetist like premedication, type of the anesthesia, intraoperative anesthetic dugs, postoperative management, antiemetic drugs and others such as hypovolemia and gastric distension<sup>(3)</sup>. Postoperative nausea and vomiting (PONV) is a common problem in patients undergoing general anesthesia and surgery.<sup>(4)</sup> Despite dramatic changes in anesthesia practice, the incidence of PONV has remained constant for the past 30 years.<sup>(5)</sup> PONV not only delays patient discharge from ambulatory surgical centers, it is also the leading cause for unanticipated hospital admissions.<sup>(6)</sup> Thus, it is important to identify patients who are at increased risk of developing PONV to modify anesthetic management in the hope that we can decrease the incidence of this side effect. Several risks factors have been previously identified as contributing to an increased risk of developing PONV. <sup>(7)</sup> These risk factors include age, sex, obesity, surgical procedure, and history of motion sickness.)

Several review articles appearing in American and British literature indicate that increased anxiety before undergoing anesthesia and surgery is a risk factor for the development of PONV.<sup>(9.10.11,12)</sup> However, there are at present, no scientific data correlating preoperative anxiety with PONV in children or adults. Furthermore, several scientific reports indicate no association between preoperative anxiety in children and adults and the amount of gastric residual volume.<sup>(13)</sup> That is, the gastric residual volume of children who are anxious preoperatively is not higher when compared with the gastric residual volume of children who are calm preoperatively. Thus, one might not expect a higher incidence of PONV in highly anxious children, because their gastric residual volume is not reported to be significantly higher.<sup>(14)</sup>

Considering the lack of scientific evidence to support or disprove the relationship between PONV and anxiety, we decided to examine whether there is an association between preoperative anxiety level and the incidence of PONV in children undergoing anesthesia.

## Methods

This cross-sectional cohort study was conducted at Al-Gamhorea Teaching hospital, Aden Yemen between January 2010 -December 2010 . The study population consisted of 51 children; 5-16 years old, ASA physical status I and II, who were scheduled to undergo general anesthesia for elective lower abdominal surgery. Those with a history of previous PONV were excluded from the study. The protocol was approved by the hospital, and the parents of patients provided informed written consent.

Preoperatively, we evaluated anxiety by State-Trait Anxiety Inventory for Children (STAI); the STAI-state (Shorter-term anxiety) and the STAI-trait (Relatively longer-term anxiety).(15)

No preoperative sedative medication was administered before anesthesia.

Anesthesia was induced in all subjects by using by face mask with O<sub>2</sub>/N<sub>2</sub>O in a ratio of 1: 2 L flow.

Halothane was started with a concentration of 1%, then, increased every three breaths to a maximum of 5%. Vecuronium 0.1 mg/kg and 2-4 ug/kg of fentanyl, were administered to facilitate tracheal intubation. Anesthesia was maintained with O<sub>2</sub>/N<sub>2</sub>O in a ratio of 1:2 and halothane. No caudal block was performed on any of the subjects. All patients received 0.05 mg/kg of neostigmine and 0.01mg/kg of atropine to reverse the residual effect of muscle relaxant.

After extubation patients were moved to the pediatric ward to be assessed for the presence and absence of nausea and vomiting for 24 hours by a nurse who was not aware of the study.

Characteristics	n = 51
<b>Age (yr)</b>	
Range	5–16
Mean± SD	8.4± 2.9
<b>Weight (kg)</b>	
Range	15–76
Mean	32.1 ± 13.9
<b>Sex</b>	
Boys	% 80
Girls	% 20
<b>Surgical procedure</b>	
Herniorrhaphy	80%
Hydrocelectomy	14 %
Orchiopexy	6 %

Table 1: Baseline and Demographic Data

All data were analyzed with SPSS version 13.0

## Results

Fifty one patients were included in this study (n = 51); 41 (80%) were boys and 10 (20%) were girls. Surgical procedures included herniorrhaphy (80%), hydrocelectomy (14%), and orchiopexy (6%). The baseline characteristics are summarized in Table 1. Rescue therapy in the form of parental presence during the induction of anesthesia was used for 15 children (29%). Observed anxiety during the induction of anesthesia was not different between children who were accompanied by a parent and children who were not accompanied by a parent.

Thirty-three children (65%) reported nausea and 21 children (41%) developed vomiting in the post operative period. No differences were found in characteristics such as age, sex, weight, trait anxiety, state anxiety, between children who vomited and those who did not. (Table 2 - top of page 10).

Similarly, there were no differences in state anxiety ( $32 \pm 5$  vs  $32 \pm 5$ ,  $P = ns$ ) or trait anxiety ( $34 \pm 5$  vs  $37 \pm 7$ ,  $P = ns$ ) between the children who were nauseated in pediatric ward and those who were not. In contrast, children who vomited post operatively were less anxious in the preoperative area on the day of the surgery ( $30 \pm 3$  vs  $33 \pm 5$ ,  $P = 0.02$ ), and had lower trait anxiety

( $33 \pm 5$  vs  $38 \pm 7$ ,  $P = 0.04$ ) as compared with children who did not vomit. When other characteristics were compared between the two groups, it was found that the group who vomited was also older ( $9.5 \pm 3.2$  vs  $7.8 \pm 2.6$  yr,  $P = 0.04$ ).

A multivariate backward conditional logistic regression model was constructed, in which the dependent variable was the presence or absence of vomiting in the post operative department, and the independent variables included state anxiety of the child, age, and sex of the child, and the administration of opioids (Fentanyl) to the child in the pediatric ward. The overall model was not significant ( $P = 0.29$ ), and none of the independent variables remained in the equation of the model. Thus, controlling for age, sex, and opioids administration, state anxiety was not a predictor for vomiting on post operative department.

A similar model, in which the dependent variable was the presence or absence of vomiting in the postoperative department and the independent variables included trait anxiety of the child, age and sex of the child, and the administration of opioids in the pediatric ward revealed that the overall model is not significant ( $P = 0.33$ ) and that controlling for other variables, trait anxiety is not a predictor for vomiting in the postoperative department.

Characteristic	Vomit (n 21)	No vomit (n 30)
Age ( yr)	7.7 ± 3.0	8.8 ± 2.8
Weight (Kg)	28.7± 14.1	34.5 ±13.4
Boys	37 %	63%
Girls	60%	40%
Post operative anxiety ( STAI)	13 ± 5	13±5
STAI. S	32 ±4	32 ±5
STAI . T	37±7	36 ±7
Preoperative Fentanyl (ug/kg)	3.3 ± 0.9	3.6 ±1.4
Post operative Fentanyl (u//kg)	0.06 ± 0.5	0.79 ± 0.9

Data are mean ±SD, n, or median (range) .State-Trait Anxiety Inventory for Children (STAI) S. state . T. Trait

**Table 2: Characteristics of patients as a Function of Postoperative Vomiting in the pediatric ward**

Table 2 shows the incidence of reported nausea and vomiting more in girls than boys, (60% and 37% respectively) but still this is not statistically significant.

Post operative fentanyl to reduce pain was administered for 21 patients (0.06± 0.5) where they showed vomiting, and for 30 patients (0.79± 0.9) who did not show vomiting post operatively.

## Discussion

This study suggests that children's anxiety in the preoperative holding area has no predictive value for the occurrence of PONV in the post operative period and pediatric ward.

These findings are in contrast to previous literature suggesting that increased anxiety during the preoperative period is associated with increased incidence of PONV. (16- 17) The data that supports the suggested association between preoperative anxiety and increased incidence of PONV comes from a survey conducted by Quinn et al(18) who questioned patients about their experience during the first 24 hours after anesthesia and surgery. Among the 21 questions asked, four were relevant to the issue of PONV. The investigators concluded that preoperative anxiety was associated with an increased incidence of nausea, not vomiting.(19) This study, however, had multiple methodological flaws, including the absence of a valid tool to measure anxiety and no standardization of the anesthetic technique or the surgical procedure. Interestingly, Eger(20) suggested that excessive air swallowing in the anxious patient could

increase vomiting. In our study, children who exhibited extreme anxiety during the induction of anesthesia (which presumably will result in excessive air swallowing) did not manifest increased incidence of PONV.

We found the incidence of PONV higher when compared with previous reports, which can be attributed to several factors. First, we queried all children post operatively for 24 hours about nausea and vomiting symptoms. This is in contrast to other studies that did not directly ask subjects at regular time intervals about symptoms and relied on spontaneous information. A previous study by Selby et al(21) indicates the need to carefully assess symptoms of PONV in young children, rather than to rely merely on spontaneous information. That study reported a 35% incidence of postoperative vomiting, which is similar to the rate of vomiting we reported, 41%. Also, caudal anesthesia was not part of our study protocol, and thus, pain was managed solely with IV opioids. This may have resulted in higher opioid use and less-than-optimal pain control, leading to an increased incidence of PONV.

The etiology of PONV is complex and has many contributory factors. Thus, to establish an association between preoperative anxiety and PONV, it is essential to try to isolate preoperative anxiety from other etiologic factors. We controlled for both the surgical procedure and anesthetic management throughout the perioperative period. We did not, however, control for the issue of opioid administration. That is, because

opioid administration is associated with an increased incidence of PONV; ideally opioids should not have been part of the anesthetic protocol for this study.

We found that preoperative anxiety has no predictive value for PONV in the post operative period and pediatric ward.

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# Hysteroscopy Findings in Failed IVF and their Influence on Pregnancy Outcome

## ABSTRACT

**Objective:** To identify and analyze the abnormal hysteroscopic findings in women with failed IVF, and their effect on pregnancy outcome.

**Methods and Materials:** A simple, descriptive, non-randomized study of 245 patients was conducted at King Hussein medical center. All patients with failed IVF were referred to routine hysteroscopy in our hysteroscopic unit. The hysteroscopic finding was identified and recorded. The patients' ages ranged from 20 to 38 years and duration of infertility ranged from 5-10 years.

**Results:** Uterine cavity was normal in 75 % of the cases, while sixty one (25%) patients showed abnormal hysteroscopic findings of the cervical canal and uterine cavity (endometrium). The abnormal hysteroscopic findings seen were: intra-mural myoma: 26 cases, endometrial polyp: 19 cases, isthmic abnormalities were present in 8% (5 cases), endometrial hyperplasia in 3 cases, intrauterine adhesion (synechiae): 4 cases, and septate uterus in 4 cases.

**Conclusion:** Patients with recurrent IVF embryo transfer failures should be reevaluated using hysteroscopy prior to further commencing IVF-embryo transfer cycles. Hysteroscopy is part of first-line exams in infertile woman regardless of age.

**Keywords:** Hysteroscopy, Failed in vitro fertilization (IVF), pregnancy outcome.

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## Introduction

The successful pregnancy outcome of patients undergoing ovarian stimulation for in vitro fertilization (IVF) or related advanced reproductive technologies depends on several factors. Among these, embryo quality and intra uterine environment plays a major role for the achievement and further continuation of pregnancy. It has been reported that an abnormal uterine finding occurs in approximately 50% of infertile women(1). Due to this high prevalence, evaluation of uterine cavity is recommended to screen for fibroids, polyps, adhesions, and uterine mullerian abnormalities. These abnormalities are commonly considered to have a negative impact on pregnancy outcome and can be a contributing cause of subfertility and recurrent implantation failure(2). Uterine evaluation is usually accomplished with the help of hysterosalpingogram (HSG) or hysteroscopy (HSC)(3).

Hysteroscopy is the gold standard procedure for uterine cavity exploration(4). However, the World Health Organization (WHO) recommends hysterosalpingography (HSG) alone for management of infertile women(5). The explanation for this discrepancy is that HSG provides information on tubal patency or blockage. Office hysteroscopy is only recommended by the WHO when clinical or complementary exams (ultrasound, HSG) suggest intrauterine abnormality(6) or after in vitro fertilization (IVF) failure(7). Nevertheless, many specialists feel that hysteroscopy is a more accurate tool because of the high false-positive and false negative rates of intra uterine

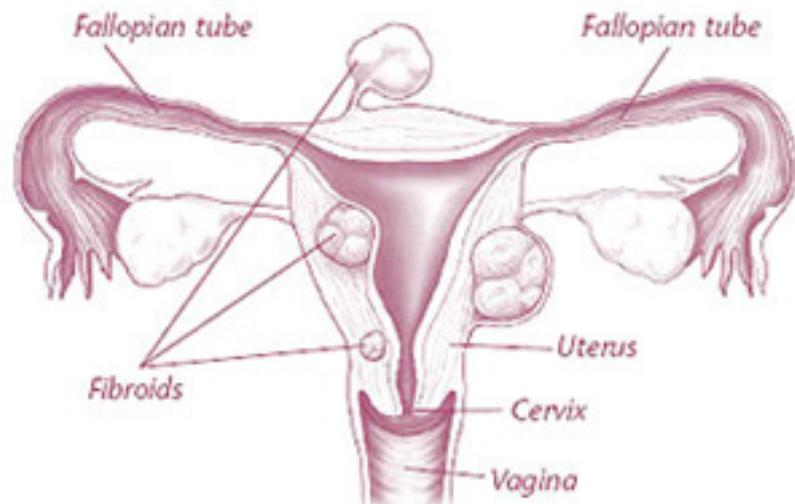
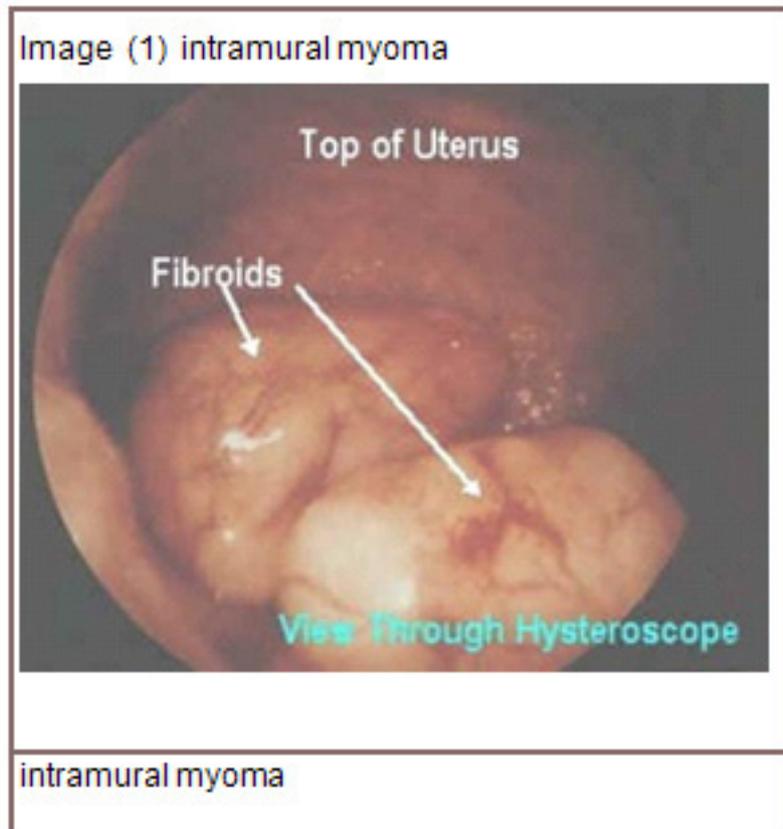
abnormality with HSG(8). This explains why many specialists use hysteroscopy as a first-line routine exam for infertility patients regardless of guidelines.

Historically and till today, most the clinicians prefer HSG as a first line approach to evaluate the intrauterine pathology in infertile patients, but it has been proven to have certain drawbacks. Studies by Wang et al. and Golan et al. reported HSG has a false positive rate of 15.6% and false negative rate of 35.4%(9,10). Hysteroscopic evaluation of uterine cavity for women with infertility has recently become a routine procedure(11). Hysteroscopy also offers great assistance for the interpretation of uncertain findings from other diagnostic methods. Further, it enables direct visualization of the cervical canal and uterine cavity, and increases the precision and accuracy in the diagnosis of intrauterine conditions(12). The main objective of the study is to identify and analyze the abnormal hysteroscopic findings in women with failed IVF, and its effect on pregnancy outcome in patients scheduled to undergo IVF/other ART procedures by diagnosing and treating intra uterine abnormalities using hysteroscopy.

### Methods and Materials

A simple, descriptive, non-randomized study of 245 patients was conducted in King Hussein medical center between June 2009 and July 2010. Patient criteria for inclusion in the prospective observational arm of the study were: infertility, female age of 38 years or younger, normal uterine cavity on hysterosalpingogram that was performed within 12 months before the couple's first IVF attempt, history of 2 consecutive implantation failures despite the transfer of at least 1 good quality embryo derived from fresh IVF cycles or from 1 fresh IVF and its subsequent frozen/thaw cycle, performance of hysteroscopy after the second implantation failure, decision for a new fresh IVF cycle, suitability for IVF/intracytoplasmic sperm injection (ICSI) treatment, and completion of the new fresh IVF cycle with performance of embryo transfer.

Hysteroscopy was carried out at King Hussein medical center in the middle



*A fibroid is a benign growth that may form inside and sometimes outside the uterus.*

of Amman in Jordan in theater under general anesthesia. Informed consent was also taken from them prior to the study. All hysteroscopies were performed in early proliferative phase using 1.9 mm miniature Karl Storz hysteroscope which has a 30° view with a 3 mm Bettocchi continuous flow sheath. The flow sheath has a maximum 5 mm diameter with an incorporated 5 Fr working channel. Associated mechanical instruments used were grasping forceps with teeth and scissors.

Uterine distention was accomplished with glycine and 80 mmHg constant intrauterine pressure was maintained using an electronic pump (hysteromat). At the end of the procedure, a sample of endometrium was taken for histological evaluation by aspiration using a 4 mm cannula. The patients were discharged after 15-60 minutes of the procedure and no further complications were observed.

Findings	N(245) women	%
Normal	184 women	75
Abnormal	61 women	25

Table 1: Normal and abnormal findings of uterine cavity

N	Percentage	Abnormal Hysteroscopic findings
26	42%	Intramural myoma
19	31%	Endometrial polyp
5	8%	Isthmic abnormalities
4	7%	Intrauterine adhesion
4	7%	Uterine septum
3	5%	Endometrial thickening

Table 2: Abnormal hysteroscopic findings

## Results

Uterine cavity was normal in 75 % of the cases, while sixty one (25%) patients showed abnormal hysteroscopic finding of the cervical canal and uterine cavity (endometrium) in most cases of failed IVF as shown in Table 1. Rates of abnormal findings increased more than 35-40 % after 40 years, and risk of abnormal finding was multiplied by a factor of 1.2 every 5 years. Table 2 showed abnormal hysteroscopic findings of the cervical canal and uterine cavity (endometrium): intramural myoma: 26 cases IMAGE (1), endometrial polyp: 19 cases, isthmic abnormalities were present in 8% (5 cases), intrauterine adhesion (IUA) synechiae 4 cases, septate uterus 4 cases and endometrial hyperplasia in 3 cases. We found that first-line office hysteroscopy for infertility shows abnormal findings in 35% of women.

## Discussion

Hysteroscopy remains the gold standard for the evaluation of the uterine cavity and for the detection and treatment of intrauterine lesions(13). It also constitutes an important diagnostic step in the treatment of infertility(14). All

the range of cavity pathology can be diagnosed with the application of the technique; treatment can be applied immediately and of most importance, biopsy specimens can be sent for histological examination. Hysteroscopic procedures are highly appreciated mainly for their minimal invasiveness, suitability for office gynecology, cost effectiveness and safety(15).

Patients were referred from many hospitals and private clinics, with no homogeneity in infertility investigations prior to hysteroscopy. Finally, the absence of video recording did not allow control of findings by a different operator. No possibility of re-evaluation of the findings represents an important weakness of this study.

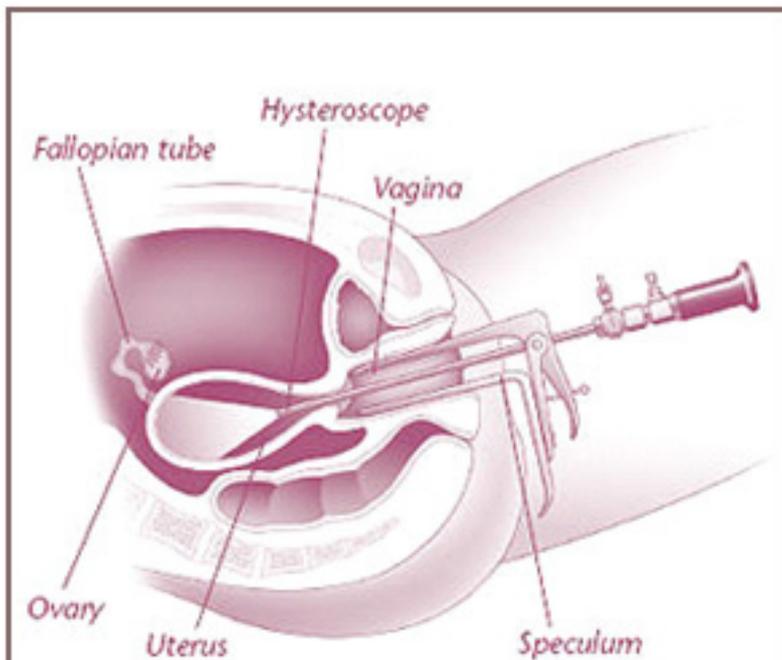
However, experience of the single operator who performed all hysteroscopies and the use of a standard report to record abnormal findings, limit the impact of such a bias.

The previously published data show large ranges of abnormal finding rates from one study to another (7.62% to 29.9%)(16,17), while our data showed

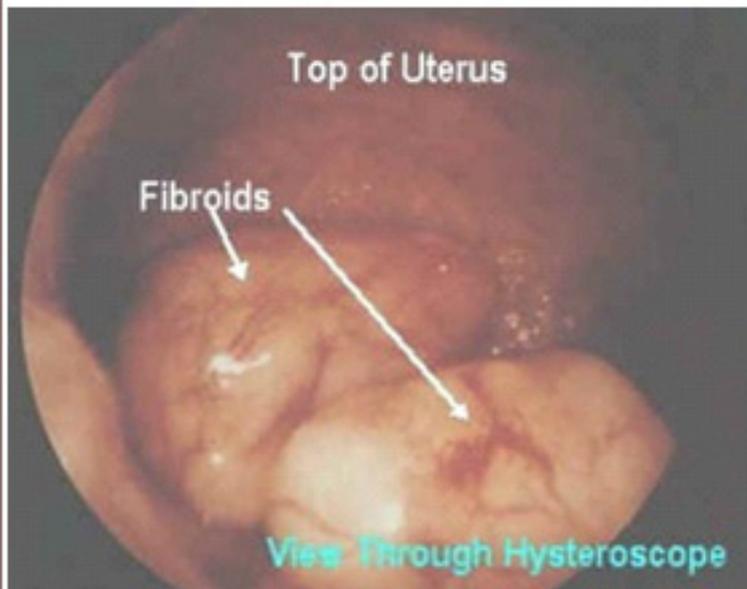
that the incidence of abnormal findings was 25%. These differences could be explained by the type of hysteroscopic distension medium and/or hysteroscopic technique used, modifying the surgeon's perception of intrauterine filling defects(17). Many studies describe the incidence of abnormal findings with hysteroscopy in infertile women or prior to IVF, but none give the proportion of these women who could benefit from an adapted treatment based on hysteroscopic findings. Treatments for some abnormalities are suspected beneficial in infertile women(18).

Moreover, some authors reported better accuracy of hysteroscopy compared to hysterosalpingography in detection of fertility impairing abnormalities within the uterine cavity(19). The complication in our study group had not occurred. However, a multicenter study carried out by the American Association of Gynecologic Laparoscopists reported a complication rate of approximately 3%(20), whereas Cayuela et al reported a complication rate of more than 5%(21)

It is not clear yet if abnormal hysteroscopic findings, by guiding



During hysteroscopy, a thin, lighted tube is inserted into the uterus to view its lining. Some conditions also can be treated with instruments passed through the hysteroscope.



**Above:**

This is a view through a hysteroscope during office hysteroscopy of the inside of a uterus with two fibroids (myomas) on the back wall. The upper portion of the photograph shows the top of the uterus, which is normal. Fibroids like this can cause severe cramping (dysmenorrhea), heavy menstrual periods (menorrhagia) and bleeding between periods (metrorrhagia) This was quickly and accurately diagnosed by hysteroscopy.

infertility treatments, increase pregnancy rates. In our population we found abnormal hysteroscopic findings in 35% of the infertile women, and 75% of these abnormalities could be related to infertility and could benefit from a specific treatment. Oliveira et al suggest evaluation of endometrial integrity by hysteroscopy is highly valuable and should be applied to all such cases, because the incidence of pathologic findings on hysteroscopy is high in patients with repeated failures of IVF-ET(22).

### Conclusion

Hysteroscopy should be part of first-line exams in infertile woman regardless of age. Patients with recurrent IVF embryo transfer failures should also be reevaluated using hysteroscopy prior to further commencing IVF-embryo transfer cycles in order to increase the clinical pregnancy outcome.

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# Serum Lipids and Fasting Glucose Levels in Patients with Cholelithiasis

## ABSTRACT

**Background:** Gallstone disease is one of the most common and most expensive to treat, of digestive disorders that need admission to hospital. In addition to sex, age, and family history, several metabolic diseases are associated with a high risk of CGD, including obesity and type 2 diabetes mellitus, abnormalities that are considered key constituents of the metabolic syndrome (MS).

**Objective:** To find out the possible relationship between serum lipids, and altered glucose tolerance in cholelithiasis which may be indicative of metabolic syndrome.

**Patients and Methods:** A total 140 patients were taken for the study, among which 108 were female patients and 32 were males, in the age group of 30-70 years. Plasma glucose, serum total cholesterol, HDL-cholesterol, and triglycerides levels were estimated. VLDL and LDL-cholesterol were calculated by Friedwalds Formula.

**Results:** There was a non significant difference in total cholesterol, and LDL cholesterol, while there was a highly significant difference in triglycerides ( $p=0.001$ ) and VLDL ( $p=0.003$ ) between patients and control groups. In addition, there was a significant increase in HDL cholesterol ( $p=0.001$ ) in cholelithiasis patients as compared to control subjects. Furthermore, fasting blood sugar mean value was significantly lower in cholelithiasis than in controls.

**Conclusion:** Triglyceride and BMI are major risk factors for cholelithiasis in our study population, where cholelithiasis is a common disorder. Cholelithiasis may be a risk factor for development of metabolic syndrome.

**Key words:** Cholelithiasis, oral glucose tolerance test, lipid profile, metabolic syndrome.

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## Introduction

Gallstone disease is one of the most common and most expensive to treat of digestive disorders that need admission to hospital [1]. In addition to sex, age, and family history, several metabolic diseases are associated with a high risk of CGD, including obesity and type 2 diabetes mellitus, abnormalities that are considered key constituents of the metabolic syndrome (MS) [2]. Unphysiological biliary super saturation from hyper secretion of cholesterol, gallbladder hypo motility and the accumulation of mucin gel contribute to the formation of cholesterol gallstones [3] therefore for cholesterol stones to develop, there must be an oversaturation of bile with cholesterol; there is a relationship between the metabolic pathway of plasmatic cholesterol with bile cholesterol and bile acid proportion. Bile is the principal way of excreting body cholesterol; therefore, an association between plasma lipid concentrations and GD has been suggested [4]. Hence, the present study is being undertaken to find out the possible relationship between serum lipids, and altered fasting glucose level in cholelithiasis which may be indicative of metabolic syndrome.

## Materials and Methods

The study was carried out on (140) patients who underwent cholecystectomy for gallstone disease from October, 2011 to May 2012 in Azady Teaching Hospital in Kirkuk City, and Tikrit Teaching Hospital, Tikrit. Study population age range was from (30-70) years, of whom (32) were male and (108) were female. A hundred subjects of age, sex and BMI matched controls were included in the study.

Fasting venous blood samples were collected under strict aseptic precautions with informed consent of the patients and control subjects. Plasma glucose was estimated.[5] Serum total cholesterol, HDL cholesterol and Triglycerides were estimated by enzymatic method [6]. VLDL levels and LDL cholesterol was calculated by Friedewald formula [7].

Variables	Controls (N=100 )	Patients (N=140)	P value
Age (years)(Mean± SD)	42.60±11.80	45.61±12.18	NS
BMI	26.11±1.86	28.08±2.99	0.000
Total cholesterol mmol/L (Mean± SD)	4.77±1.48	4.90±1.02	NS
LDL cholesterol mmol/L (Mean± SD)	3.03±1.24	3.12±1.04	NS
HDL cholesterol mmol/L (Mean± SD)	1.04±0.26	1.20±0.41	0.001
Triglycerides (mmol/L Mean± SD)	1.63±0.97	1.30±0.52	0.001
Fasting blood glucose mmol/L(Mean ± SD)	5.78±2.16	5.04±1.61	0.002

Table 1. Mean of lipid profile in patients with cholelithiasis

Variable		R value [ P value]		
		Age	BMI	Fasting blood Sugar
Cholesterol	Patient	0.38 [0.000]	0.15 [NS]	0.37 [0.000]
	Control	0.51 [0.000]	0.71 [0.000]	0.83 [0.000]
Triglyceride	Patient	0.27 [0.001]	-0.13 [NS]	0.20 [0.02]
	Control	0.50 [0.000]	0.74 [0.000]	0.82 [0.000]
HDL	Patient	-0.09 [NS]	0.15 [NS]	-0.25 [0.03]
	Control	-0.38 [0.000]	-0.47 [0.000]	-0.55 [0.000]
LDL	Patient	0.33 [0.000]	0.13 [NS]	0.40 [0.000]
	Control	0.48 [0.000]	0.64 [0.000]	0.75 [0.000]

Table 2: Correlation of lipid profile with age, BMI and fasting blood sugar in patients with cholelithiasis

## Results

As shown in Table 1, total cholesterol mean serum level was 4.90 mmol/l in patients with cholelithiasis, while it was 4.77 mmol/l in the control group. LDL mean serum level was 3.12 mmol/l in patients compared to 3.03 mmol/l in controls. Triglyceride mean serum value was lower in the patients group (1.30 mmol/l) as compared to control group (1.63 mmol/l). However, HDL mean

serum value was higher in the patients group (1.20 mmol/l) than that of controls (1.04 mmol/l).

There was a non significant difference in age between the patients group and control. However, BMI mean value was significantly ( $p=0.000$ ) different in patients with cholelithiasis from that in controls. Furthermore, there was a non significant increase in total cholesterol

( $p=0.42$ ), and LDL cholesterol ( $p=0.50$ ) and a highly significant (increase?) in triglycerides ( $p=0.001$ ) and VLDL ( $p=0.003$ ). In addition, there was a significant decrease in HDL cholesterol ( $p=0.001$ ) in cholelithiasis patients as compared to control subjects.

Fasting glucose was lower in patients with cholelithiasis (5.04 mmol/l) as compared to matched controls

Variables	Gallstone with Diabetes (N=48)	Non diabetic Patients with gallstone (N=108)	P value
BMI	27.14	28.04	NS
Total cholesterol mmol/L (Mean ± SD)	4.95	4.67	NS
LDL cholesterol mmol/L (Mean ± SD)	3.30	2.87	0.008
HDL cholesterol mmol/L (Mean ± SD)	1.05	1.25	0.002
Triglycerides (mmol/L Mean ± SD)	1.39	1.23	NS
Fasting blood glucose mmol/L (Mean ± SD)	5.87	4.30	0.000

Table 3: Comparison of mean fasting blood sugar and lipid profile in diabetic and non diabetic subjects with gallstone

(5.78 mmol/l), and the difference was significant ( $p=0.002$ ). Fasting glucose levels in patients with cholelithiasis were significantly correlated to total cholesterol ( $R=0.37$ ;  $p=0.000$ ), LDL ( $R=0.40$ ;  $p=0.000$ ), HDL ( $R=0.25$ ;  $p=0.03$ ) and triglyceride ( $R=0.20$ ;  $p=0.02$ ). Table 2.

When patients with gallstone were grouped according to whether are diabetics or not (Table 3), total cholesterol mean serum value was higher in diabetic (4.95 mmol/l) than in non-diabetic patients (4.67 mmol/l), but the difference was not significant. In addition, triglyceride was not significantly higher in the diabetic group (1.39 mmol/l) than in non-diabetic patients (1.23 mmol/l) with gallstone. However, LDL was significantly higher in diabetic patients (3.30;  $p=0.000$ ) than in non-diabetic patients (2.87 mmol/l) with gallstone. Furthermore, HDL serum mean value was significantly lower in diabetic patients (1.05 mmol/l,  $p=0.002$ ) than that in non-diabetic patients (1.25 mmol/l) with gallstone.

### Discussion

The diseased gall bladder is one of the commonest specimens submitted to the surgical pathology laboratory in Salahuldean and in Iraq. The present study indicated that obesity is associated with a linear increase in gall stone formation as BMI mean value was highly significantly ( $p=0.000$ ) higher in patients with cholelithiasis as compared to controls. This finding was consistent with that reported by others [8]. Energy intake has been directly associated to cholelithiasis risk as it contributes to obesity development [9-12]. Obesity is a well known risk factor for gallstone primarily acting by increasing cholesterol synthesis, biliary cholesterol secretion, and cholesterol super saturation [13].

This mechanism of gallstone pathogenesis can be prevented by selection of a diet program. Reported studies suggested that high intake of energy, proteins, carbohydrates, refined sugar and calcium may increase the risk of gallstone formation, whereas a high intake of dietary fiber, and vitamin C may protect against gall stone formation

[8-14]. The present study finding and that reported on the effect of vitamin C in prevention of gallstone formation may suggest that oxidative stress may play a role in the pathogenesis of cholelithiasis.

In an animal model vitamin C deficiency reduces cholesterol 7  $\alpha$ -hydroxylase activity, leading to cholesterol super saturation of bile and formation of gallstone [15]. In addition, Gustafsson et al [16] in an experimental study in patients with gallstones and supplemented with vitamin C, induced changes in bile composition and prolongation of nucleation time, suggesting that vitamin C supplementation may also influence the condition of cholesterol formation in humans. Walcher et al [17] in a recently reported study suggested that regular vitamin C supplementation might exert a protective effect on the development of gallstone. Epidemiological studies have shown that insoluble fiber intake is inversely associated with gall bladder disease. [9,13,14,18]

Previous work [19] showed no significant correlation between

gallstones and diabetes mellitus in a Danish population. Our results supported this by showing that gallstone patients (both males and females) had a mean fasting blood glucose within the normal range. However this mean was significantly higher (for both sexes) than that of the control group. Although a single measurement of the fasting blood glucose is not enough to confirm the diagnosis of diabetes mellitus or impaired glucose tolerance, it has been suggested that it may be used for screening and giving a crude incidence of diabetes mellitus [20]. Thus the observations from our study indicate a need for further detailed work on the pattern of glucose tolerance in patients with gallstones, given that our results showed a high (yet within normal range) fasting blood glucose in the patient group. It is conceivable that people with impaired glucose tolerance (as opposed to diabetic patients) may have a higher incidence of gallstones but this needs to be confirmed by further work.

In this study, the relationship was found between triglyceride concentration, total cholesterol, LDL and gall bladder disease, which is consistent with the findings reported by others [8,21-27]. However, some investigators reported a positive association between gallstone and serum triglyceride levels, and others found no such association [28-30]. HDL with significant increase in patients with gallstone as compared to matched controls, is a finding consistent with that reported by Rao et al [30].

High serum HDL levels attenuated the gallstone risk related to high BMI in the male subpopulation [31]. Some studies [31, 32] suggested that low serum HDL concentrations were associated with the risk of gallstone, however, the present study did not agree with their finding as HDL levels were higher in patients with gallstone. In this study high LDL levels were associated with the risk of gallstone, a finding consistent with that reported by others [19,26] and not in agreement with another [31].

This study has some limitations. Firstly, the present study is cross sectional. Re-assessment of cohort studies may be useful to further explore the role on interactions with respect to

gallstone formation and well designed intervention studies are needed to investigate the protective effects of diet versus physical activity on the gallstone risk, especially on individuals who are overweight. Secondly, the number of subjects in the diabetics group is low, thus a large study population scale study is warranted.

In conclusion, triglyceride and BMI are major risk factors for cholelithiasis in our study population, where cholelithiasis is a common disorder. Cholelithiasis may be a risk factor for development of metabolic syndrome.

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# AFP Surveillance: Review of Mohmand Agency FATA

## ABSTRACT

**Objectives:** To determine the status of the AFP (Acute Flaccid Paralysis) surveillance system at Mohmand agency FATA (Federally Administered Tribal Areas) in an effort to improve the sensitivity of the system in 2012.

**Methodology:** This is a retrospective analysis of the cases reported in 2011. The relevant information was recorded from the Rec files of these cases in accordance to the objectives of the study.

**Results:** A total of 25 cases were reported in 2011 in Mohmand agency as AFP cases. Eleven were females (44%) and 14 (56%) were males. The age range of these patients was from 6 months to 56 months of age. Mean age with SD was 37.12+33 months. Four cases were confirmed polio type 1 wild type cases. The frequency of cases reported from various tehsils were: safi (36%), Pindialy and ekka ghund, Halimzai 16%, Prang ghar and ambar 4%, and Khweze/baizai 8%. Fourteen (56% cases) reported as urgent cases. The majority of the cases (48%) were discarded and lost to follow up, 205 cases were diagnosed as traumatic neuritis, 4% as Guillain BBarre syndrome, and 8% as meningitis. 16 cases were cross reported from other agencies and the remaining from the agency itself. Ghallani AHQ Hospital, RHC Ekka ghund and Mechany BHU are the main diagnostic and referral centers for AFP in the agency.

**Conclusion:** We have at times a weak surveillance system for AFP and being a part of FATA and its volatile security situation, makes it easier for the polio virus to circulate. There is low level of awareness and stigma associated with Polio vaccines which is alarming for public health workers. The cross reported cases ratio is higher which shows its weak catch up.

**Key Words:** AFP (Acute Flaccid Paralysis), Surveillance, Mohmand FATA (Federally Administered Tribal Areas)

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### Introduction

In 1988, the World Health Organization, together with Rotary International, UNICEF, and the U.S. Centers for Disease Control and Prevention passed the Global Polio Eradication Initiative, with the goal of eradicating polio by the year 2001. However, in 2011 incidence rates of the disease were dramatically reduced, and after a large reduction again in the early months of 2012, hopes for eliminating polio have been rekindled. India is the newest country to successfully eradicate Polio.

Acute Flaccid Paralysis (AFP) surveillance was introduced into Pakistan in 1995, and by 1998, staff in all provinces were trained in AFP surveillance and were sending monthly case reports to the Expanded Program on Immunization (EPI) office. AFP surveillance was strengthened through surveillance assessments in many districts and introduction of computerized case line listings at the provincial and national levels. The poliovirus laboratory at the National Institutes of Health in Islamabad serves as both the National Poliomyelitis Laboratory and the WHO Regional Reference Laboratory for Poliomyelitis; it performs primary poliovirus isolation from stool specimens and intratypic differentiation of poliovirus(2).

To monitor AFP surveillance performance, a reported non-polio AFP rate of greater than or equal to 1 per 100,000 population aged less than 15 years is used to indicate a sensitive AFP surveillance system.(1)

To the end of June 2011, 241 cases globally have been reported (216 wild poliovirus type 1 and 25 wild polio type 3). This compares with 456 cases reported to the end of May in 2010 (399 type 1 and 57 type 3). Cases have been reported in the four endemic countries, Pakistan, Afghanistan, Nigeria and India, as well as in the Democratic Republic of Congo, Chad, Angola, Mali, Cote. Over 80% of all cases seen this year come from three countries: Chad, the Democratic Republic of the Congo and Pakistan. In India, only 1 case of wild poliovirus has been reported(4).

The situation in Pakistan is complex. The lowest number of cases reported in one year was 32 in 2007. In the first six months of 2011 there were 69 cases (compared with 37 in the same period in 2010). The remaining focus lies in three parts of Pakistan (Balochistan, Karachi and FATA)(5). At end of 2011 the WHO recorded a total of 650 cases worldwide. 310 of these were considered to be part of outbreaks. 16 countries recorded cases. Pakistan had the greatest number (198)(6).

The present study was designed to determine the status of the AFP surveillance system at Mohmand agency FATA in an effort to improve the sensitivity of the system in 2012.

**Research Methodology**

**Design:** Retrospective study,

**Sampling:** 25 AFP cases,

**Duration of study:** Jan to Dec 2011.

**Inclusion criteria** were all AFP cases reported from the agency or cross reported from other districts/agencies for Mohmand agency.

**Exclusion criteria** was age above 15 years or flaccid cases of duration more than 60 days after paralysis developed.

**Procedure and techniques:** The rec files of all the AFPs were collected and analyzed for various information to be collected. The relevant information was recorded from these cases in accordance to the objectives of the study.

**Data Analysis:** Data was entered into the MS Excel program and analyzed for purposeful information.

**Results**

A total of 25 cases were reported in 2011 in Mohmand agency as AFP cases. Eleven were females (44%) and 14 (56%) were males (Table 1).

Sex	No	Percentage
Females	11	44
Males	14	56
Grand Total	25	100

Table 1: Gender wise ratio of AFP cases

The age range of these patients was from 6 months to 56 months of age. Mean age with SD was 37.12+33 months.

The frequency of cases reported from various tehsils were: safi (36%), Pindialy and ekka ghund, Halimzai 16%, Prang ghar and ambar4%, and Khweze/baizai 8% (Table 2).

Tehsil	No of AFP cases Reported	Percentage (%)
Ambar	1	4
Halimzai	4	16
Pindialy	4	16
Pran Ghar	1	4
Safi	9	36
Khweze Baizai	2	8
Ekka ghund	4	16
Grand Total	25	100

Table 2: Tehsil data of AFP cases of Mohmand agency 2011

Fourteen (56% cases) reported as urgent cases (Table 3). Four cases were confirmed polio type 1 wild type cases (Table 4).

AFP CASE	URGENT	ORDINARY	Percentage
25	14	11	56

Table 3: Urgent AFP cases: Mohmand agency 2011

Classification of Cases	No	Percentage
Compoundcases	2	8
Confirmed Polio	4	16
DISCARDED (NVI and EV)	19	76
Grand Total	25	100

Table 4: Cases classification at NIH Laboratory

Map shows the Distribution of the AFP and confirmed polio cases in various tehsils of the Mohmand agency (Figure 1).

## AFP & confirmed polio cases Distribution By Tehsil 2011

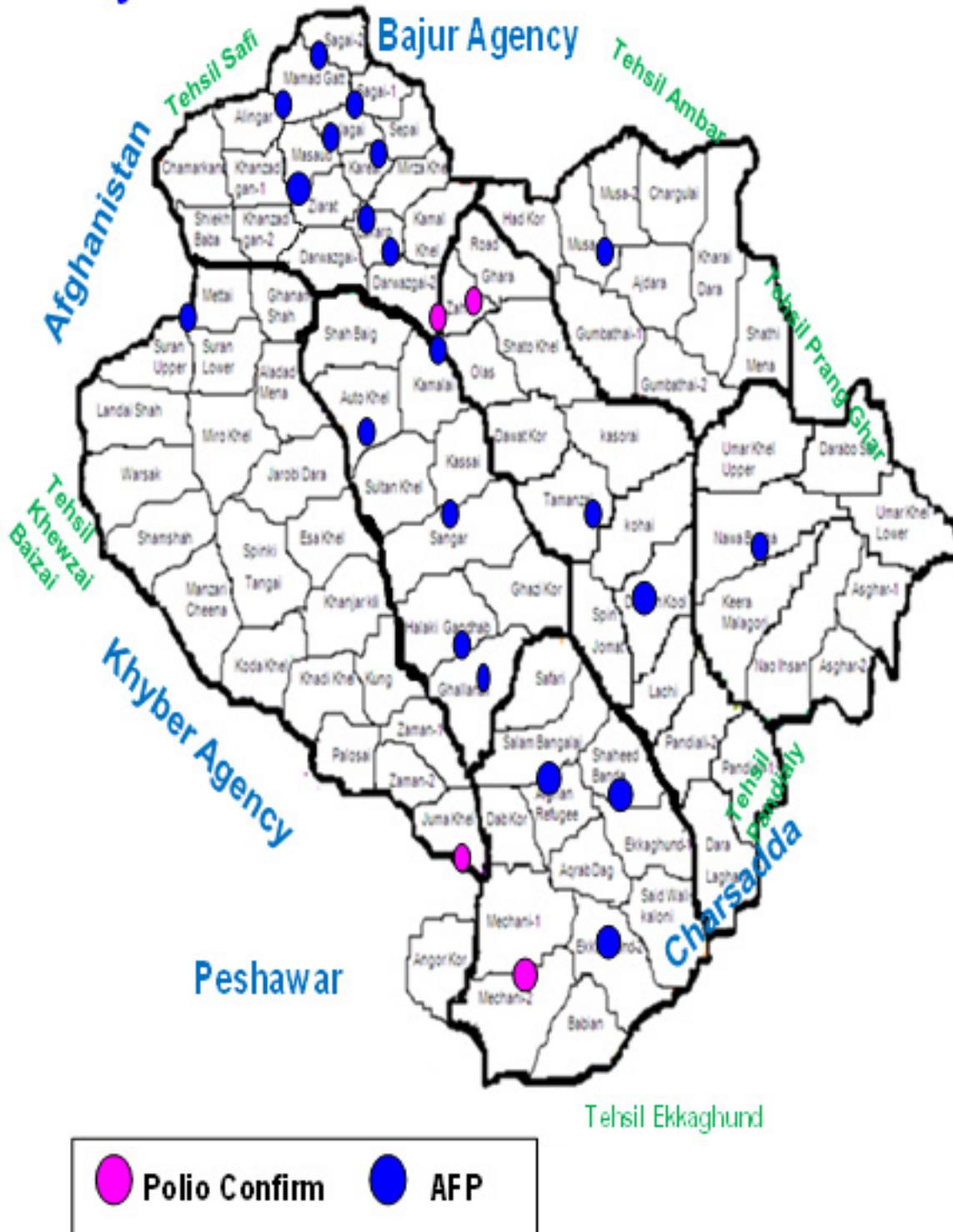


Figure 1

The majority of the cases (28%) were discarded and lost to follow up; 20% of cases diagnosed as traumatic neuritis and enteroviruses, 4% as Guillain BBaré syndrome, and 8% as meningitis; 20% of cases had enteroviruses in their stool specimen. (Table 5 - next page).

16 cases were cross reported from other agencies and the remaining from the agency itself. Ghallani AHQ Hospital, RHC Ekka ghund and Mechany BHU are the main diagnostic and referral centers for AFP in the agency.

Final Diagnosis of AFP Cases	No	Percentages
Waiting for classification (Lost to follow up)	7	28
Enteroviruses	5	20
Confirmed Polio	4	16
Arthralgia	1	4
GBS	1	4
Meningitis	2	8
Traumatic neuritis	5	20
Grand Total	25	100

Table 5: Differential Diagnosis of AFP cases

**Discussion**

Up to the 3rd of April (2012) four countries have reported cases: Pakistan 15, Nigeria 17, Afghanistan 5 and Chad 3 (total 40). In the same period in 2011 there were 86 cases(6). As of the 5th of June 2012, the total number of reported cases worldwide stands at 67, compared to 195 at this point in 2011. Pakistan has a strong decline in cases, 21 compared to 49 at this point in 2011. Afghanistan doubles its cases, which pass from 4 at this point in 2011 to 8 in 2012. Nigeria had a very big surge of polio in the first part of 2012, with 39 cases as of the 5th of June of this year (2012), compared to only 10 confirmed infections at this point in the preceding year(6).

In our study there were 11 (46%) females and 14 males (56%); male to female ratio was 1.3:1.dose children. And nearly one third of these children were zero. in another study from Malaysia it was noted that thirty-four children with AFP were admitted in hospital in the last three years with the highest number (14) in 1998. The majority of children belonged to the age group 5-9 years with a male female ratio of 1.3:1. Nearly one third of the cases were either partially vaccinated or not vaccinated at all.(7).

In the present study 4 cases (16%) out of 25 AFP reported were polio confirmed cases. Another study included monthly visits, educational activities, etc. At the result of this study, 64 AFP cases (22 of them poliomyelitis) were reported.(8)

NPEV (Non polio enteric viruses) were isolated from 20 of the samplings received from Mohmand agency in the Laboratory. NPEV are a dominant cause of AFP and different serotypes of NPEV are randomly distributed in Pakistan. The untypable isolates need further characterization and analysis in order to determine their association with clinical presentation of cases. Saeed M et al reported that NPEV-associated AFP were found to be 62%. The paralysis was found asymmetrical in 67% of cases; the progression of paralysis to peak within 4 days was found in 72% cases and residual paralysis after 60 days of paralysis onset was observed in 39% cases associated with NPEV9. Our NPEV ratio is less than the findings of the authors cited above(9).

In the present study 4% of all non AFP cases were Guillian Barré syndrome (GBS) of all non polio AFP cases. In a study from Latin America GBS were reported as representing 52% of all non-polio AFP cases. This study confirmed that with the disappearance of polio, GBS arises as the most common cause of AFP.(10) A local study also reported that out of 74 patients who presented with AFP, 36 were male and 38 were female. Guillain Barré syndrome and enteroviral encephalopathy were the two leading causes of acute flaccid paralysis (11).

Traumatic neuritis was recorded in 20% of cases, while Alcalá H reported that out of 246 children, 42 had poliomyelitis (17%); 156 had Guillain-Barré syndrome (GBS) (63.4%); 16 had traumatic neuritis of the sciatic nerve

secondary to IM injections (TNC) (6.5%); five had transverse myelitis (2%); the rest (27) had other diseases misdiagnosed as polio (10.9%)(12).

In January 2012, completion of polio eradication was declared a programmatic emergency for global public health by the Executive Board of the World Health Organization (WHO). Despite major progress since the launch of the Global Polio Eradication Initiative (GPEI) in 1988, circulation of indigenous wild poliovirus (WPV) continues in three countries (Afghanistan, Nigeria, and Pakistan). Although progress toward polio eradication was substantial in 2011, persistent WPV circulation in 2012, particularly in Nigeria and Pakistan, poses an ongoing threat to eradication efforts, underscoring the need for emergency measures by polio-affected countries and those at risk for outbreaks after importation.

**Conclusion**

We have at times a weak surveillance system for AFP and being a part of FATA and its volatile security situation, all makes it more easy for the polio virus to circulate. There is a low level of awareness and stigma associated with Polio vaccines which is alarming for public health workers. The cross reported cases ratio is higher, which shows its weak catch up. We need to increase the network of the AFP reporting sites. We also need to improve our zero reporting or passive surveillance system which is not

functioning at this time. Furthermore a community surveillance system needs to be established. And last but not least, the stigma needs to be reduced through awareness and social mobilization.

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# Reasons For Non-Attendance at an Eye Clinic in a Nigerian Community

## ABSTRACT

**Aim:** This study aimed at determining the reasons for non-attendance of eye clinic by patients.

**Methods:** This study was conducted over a period of six months between February and July, 2011 at the Eye Clinic of Federal Medical Centre, Owo, Ondo State, Nigeria. Ethical clearance was obtained from the Ethical Review Committee of the hospital prior to carrying out this study. Informed consent was obtained from each of the respondents.

**Results:** Ninety respondents comprising 38(42.2%) males and 52(57.8%) females were interviewed. The suggested format of reminders were text messages; 30(48.4%) and phone calls; 29(46.8%). The main reasons for non - attendance of the eye clinic were the fact that respondents were out of town; 19(21.1%), forgetfulness; 17(18.9%) and financial constraint; 7(7.8%).

**Conclusion:** Prominent reasons why respondents missed their eye clinic appointment included the fact that they were out of town on their clinic day, forgetfulness and financial constraints. Patients should be adequately enlightened on the importance of compliance with their clinic appointment.

**Key words:** Reasons, non-attendance, eye clinic, Nigeria

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### Introduction

Non-attendance of clinic appointments adversely affects management of patients as hospital clerks waste time in a bid to prepare for patients who eventually fail to show up.(1) The patients who need urgent attention may have to wait for a longer time due to time wasted by health workers trying to prepare for a high unanticipated turnout of unscheduled patients.(1) Thus this leads to inefficiency in the health system.(2) Non-attendance of clinic appointments also results in non-utilization of allocated health resources.(3) This could pose a major challenge in a resource challenged environment like ours. Previous studies have identified different reasons for failed clinic appointments and these include forgetfulness, financial constraint, transportation problem, illness, administrative errors, long waiting time and the impression that appointments are not important.(2,4-7)

Missed appointments constitute a major barrier to effective health care.(8) Continuity of care has the benefit of reducing emergency department visits,(9-12) decrease in likelihood of hospitalization,(13,14) enhanced patients' satisfaction(15) and use of preventive health services.(16) Thus there is reduction in total cost of health care due to optimal utilization of available resources.(17) It behoves on health care providers to evolve strategies that can improve patients' compliance with their clinic appointments. It has been reported that land line or cellular phone reminders may reduce clinics' non-attendance.(7) Thus appropriately utilized computer generated telephone messages may provide an inexpensive and effective means to improve clinic attendance.

The patients who fail to comply with their clinic appointment 'waste' a slot resulting in sub-optimal use of clinic time thus contributing to prolonged waiting time.(18) This study became imperative in our eye centre in view of the concern expressed about the high rate of missed clinic appointments. It was observed that unbooked patients constituted a significant proportion of those that were seen and this put the eye care providers under undue pressure.

In order to maximize out-patient efficiency and resources, it is essential to reduce the number of non-attenders.(18) In view of the importance of patients' compliance with clinic follow up appointment in efficient eye care services, this study aimed at identifying the reasons for non-attendance of the eye clinic at Federal Medical Centre, Owo. It is hoped that the findings of this study shall be helpful in evolving strategies to reduce non-attendance of the eye clinic by patients to the barest minimum .

## Methodology

This study was conducted over a period of six months between February and July, 2011 at the Eye Clinic of Federal Medical Centre, Owo, Ondo State, Nigeria. Ethical clearance was obtained from the Ethical Review Committee of the hospital prior to carrying out this study. Informed consent was obtained from each of the respondents. For the purpose of this study, non-attending patients had attended a previous clinic appointment but failed to attend a subsequent scheduled clinic appointment in order to be enrolled in this study. Clinic appointments records, kept by Medical Records Officers in Department of Ophthalmology of the hospital were used to identify those patients who missed their appointments at the eye clinic. A modification of the questionnaire used by Ngwenye et al (1) among diabetics in South Africa was used. The questionnaire was modified to suit the aim of this study and also to conform with the socio-cultural peculiarities of the study environment. The respondents were interviewed by the authors. The information obtained with the aid of the study instrument included the bio-data of the respondents, awareness of missed clinic appointment,

patients' perception of the services rendered at the eye clinic, patients' views on importance of compliance with clinic appointments and reasons for missed clinic appointments.

The data obtained was collated and analyzed with SPSS 15.0.1 statistical software version.

## Results

Ninety consenting participants were enrolled in this study. The mean age of the respondents was 47±22 years with a mode of 16 years. The respondents comprised 38 males (42.2%) and 52 females (57.8%). The ethnicity of the respondents revealed that most of them: 79(87.8%) were Yorubas, 4(4.4%) were Ibos and the other ethnic groups accounted for the remaining 7 (7.8%). Few respondents: 24(26.7%) were single, 58(64.4%) were married, 7(7.8%) were widowed and the remaining 1(1.1%) were divorced.

**The majority of the respondents:** 77 (85.6%) were Christians and the remaining 13(14.4%) were Muslims. The occupation of the respondents is as detailed in Table 1 (opposite page).

**Fulfilment of respondents' expectations in the eye clinic:** Most respondents: 58(64.4%) had their expectation fulfilled often, 28(31.1%) had their expectation fulfilled occasionally, and 1(1.1%) had their expectation fulfilled rarely and never.

**Few respondents:** 29 (32.2%) wrote their clinic appointment date in their diaries or saved it in the mobile phone/organizer, while most respondents; 61(67.8%) did not. As shown in Table 2, most respondents: 41(45.6%) were reminded of the clinic appointment by their relatives.

**Modes of transportation:** Half of the respondents : 45(50%)were transported by commercial vehicle, 23(25.6%) were transported by private vehicle, 21 (23.3%) by motor cycle and 1 respondent (1.1%) trekked to the eye clinic.

**Time it took participants to get to the eye clinic:** It took 69 (76.7%) respondents less than one hour, 18(20%)

respondents 1-2 hours and the remaining 3 (3.3%) more than 2 hours.

**Few respondents:** 13(14.4%) sought alternative orthodox eye care and the majority; 77(85.6%) did not.

**The majority of the respondents:** 80(88.9%) were aware that they missed their eye clinic appointment while the remaining: 10(11.1%) were not aware.

**Most respondents:** 62 (74.7%) requested a reminder and few; 21(25.3%) did not.

As shown in Figure 1 (page 30) the suggested format of reminder were: Phone call; 29(46.8%), text messages; 30(48.4%), surface mail; 1(1.6%), diary; 1(1.6%) and appointment card; 1(1.6%). The reasons for non attendance of eye clinic is as detailed in Table 3 (page 31).

## Discussion

It is not surprising that most respondents were of the Yoruba ethnic stock in view of the fact that the study community is a Yoruba community. As expected Christianity being the most predominant religion in the community was also the most predominant in our study population.

Non-attendance rate varies from one clinic to the other. A review by Oppenheim et al reported that missed appointments rates ranged from 19% to 52% in a large variety of health care settings.(19) A study carried out by King et al in Liverpool, UK among patients attending an Ophthalmic out-patient Department reported an overall non-attendance rate of 12.6%.(18) In another study carried out in Glasgow at Paediatric Ophthalmology out patients, a total of 633(81%) patients attended their first appointment.(20) Carpenter et al reported a non-attendance rate of 31.4% for new patients in a Psychiatric clinic.(21) Davies reported an overall non-attendance rate of 12-15% for clinics in general.(22)

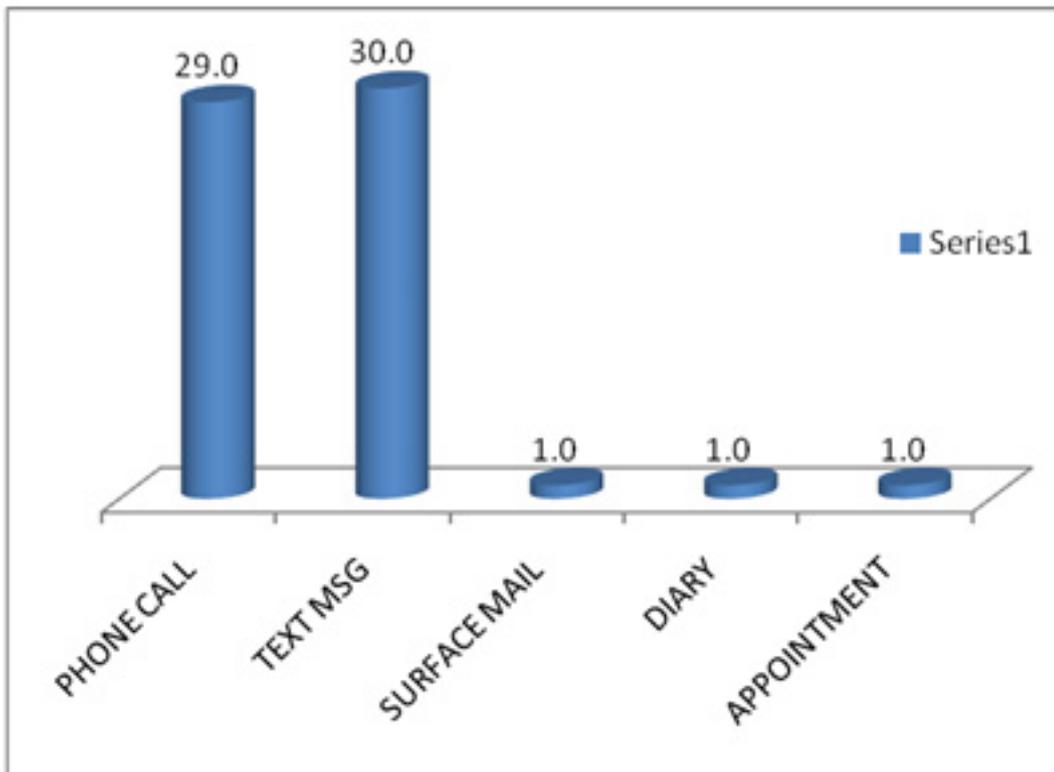
Only a few respondents wrote down their clinic appointment in this study. This may have contributed to their missing their clinic appointment, especially in those whose reason for

Occupation	Frequency	Percentage (%)
Trading	23	25.6
Schooling	22	24.4
Pensioner	13	14.4
Civil servant	12	13.3
Applicant	6	6.7
Farming	5	5.6
Artisan	4	4.4
Clergy	2	2.2
Lecturer	2	2.2
Banking	1	1.1
<b>Total</b>	<b>90</b>	<b>100</b>

Table 1: Occupation of the respondents

Persons	Frequency	Percentage (%)
Relatives	41	45.6
Self	39	43.3
Colleagues	5	5.6
Health worker	4	4.4
Tenant	1	1.1
<b>Total</b>	<b>90</b>	<b>100</b>

Table 2: Persons who reminded respondents about their clinic appointment



N = 62

Figure 1: Suggested format of reminder

missing their clinic appointment was forgetfulness. It is however surprising that in spite of the fact that the expectations of most of our respondents were met during their previous clinic appointments, they still missed their appointment. This finding may however be a pointer to the fact that multiple factors influence attendance of clinic by patients. Failure to comply with eye clinic attendance is a major challenge to eye care providers and patients in view of the fact that the patients may miss the opportunity to have detailed eye examination and treatment which may lead to serious eye complications culminating in loss of vision. Prominent among the reasons identified for missed eye clinic appointments were being out of town on the clinic day, forgetfulness and financial constraint. Our findings were consistent with some other studies (1,4,5,7) in which forgetfulness played a significant role in missed clinic appointments.

Frankel et al used questionnaires to determine patients' reasons for non-attendance of clinic.(23) The most common excuses were: being on holidays, unable to get off work and the hospital altering appointments.(23) In a study carried out in Uganda by Whitworth et al, 31% of those referred to the eye clinic did not attend.(24) The

most common reasons given by the non-attendees were too busy (29%) and unwilling to buy spectacles (17%). (24) In a study carried out by Potamitis et al in UK, of 5248 appointments made during the study period, 521 were not kept (9.9%).(25) Few(27.3%) of the non-attendances could be described as clerical error while 17.9% were due to patients failing to remember their appointment.(25)

However, in view of the fact that reasons given by respondents varied widely, coupled with the fact that policy formulators may not be able to address some of them, it is advised that patients who could not come on their proposed clinic appointment should reschedule such clinic appointments to a time that may be more convenient for themselves. Implementation of the National Health Insurance Scheme would go a long way in reducing the adverse effect of financial constraint on compliance with eye clinic appointments. Most of our respondents requested a reminder as this measure they believed would improve their compliance with clinic attendance. Potamitis et al in their study stated that a better organized booking system and a simple reminder could potentially prevent at least 40% of non-attendances.(25)

The suggested modes of reminder by our respondents included phone call and text messages. This suggestion can be easily addressed by the hospital authorities as mobile phones are readily available in Nigeria. Medical Records officers should obtain the phone numbers of patients at the point of registration in the clinic. The information obtained should be updated periodically to ensure that correct mobile phone numbers of patients are in the database of the hospital. Withdrawal of services by health workers was identified as the reason for non-attendance of clinic by some of the respondents. This brings to the fore the need for all concerned to address the issue of industrial disharmony in the health sector so that it does not negatively affect the care of patients.

### Conclusion

Prominent reasons why respondents missed their eye clinic appointment included the fact that they were out of town on their clinic day, forgetfulness and financial constraint. Most respondents advocated for the need for reminder mainly through telephone calls and text messages.

Reasons	Frequency	Percentage (%)
Out of town	19	21.1
Forgetfulness	17	18.9
Financial constraint	7	7.8
Pressing engagement	7	7.8
Could not leave work	6	6.4
Got date mixed up	6	6.4
Withdrawal of services	5	5.6
Lost card	4	4.4
Illness	4	4.4
Don't see the need	4	4.4
Baby sitting	2	2.2
Could not read appointment card	1	1.1
Anxiety	1	1.1
Lack of escort	1	1.1
Self medication	1	1.1
Clashed with another clinic	1	1.1
Exam	1	1.1
Public holiday	1	1.1
Afraid of surgery	1	1.1
No reason	1	1.1
<b>Total</b>	<b>90</b>	<b>100</b>

Table 3: Reasons for non attendance of eye clinic

### Recommendations

- 1) Patients should be adequately enlightened on the importance of compliance with their clinic appointment through health education.
- 2) Reminders should be sent to patients prior to the date of their clinic appointment.
- 3) Patients who cannot attend their clinic as scheduled should be encouraged to re-schedule such appointments.

### Acknowledgement

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# Does reduced liquor volume carry any prognostic significance in normal term pregnancies?

## ABSTRACT

**Objectives:** To study the clinical significance of reduced amniotic fluid volume in low risk term singleton pregnancies.

**Materials and Methods:** In this case controlled study we prospectively studied 220 term singleton pregnancies, at the Department of Obstetrics and Gynecology in Kings Hussein medical city, Jordan, during the period from January 2009 to January 2010. The study group of 110 women was those with amniotic fluid index equal to or lower than 5 cm, while the control group was 110 women with normal AFI. Outcome measures were: cardiotocographic changes, Apgar score, need of cesarean section, admission to NICU and perinatal mortality.

**Results:** There was no statistically significant difference between the two groups regarding the CTG changes, the cesarean section rates, operative vaginal deliveries, meconium stained liquor or admissions to NICU.

**Conclusion:** The presence of reduced amniotic fluid index in low risk term pregnancies does not carry a poor prognostic significance.

**Key words:** term low risk pregnancy, reduced amniotic fluid index, perinatal outcome

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### Introduction

Estimation of amniotic fluid volume is an integral part of antenatal fetal surveillance, and in some centers is a heavily weighted parameter. (1)

Oligohydramnios is present in 1-5% of all term pregnancies, and is defined as an amniotic fluid index (AFI) measured by ultrasound of 5 or lower according to the criteria of Phelan et al.(2)

The presence of reduced amniotic fluid index at term pregnancy may be regarded by many general obstetricians as an ominous sign that may horrify both the patient and the obstetrician regarding the poor prognosis on the fetus.

As oligohydramnios has been circumstantially associated with a variety of ominous pregnancy outcomes such as perinatal death, fetal distress in labor, and poor infant condition at birth, obstetricians have increasingly resorted to induction of labor or antepartum testing of fetal health in pregnancies complicated by decreased amniotic fluid volume. (3)

Such widespread application of sonogram-derived estimates of amniotic fluid volume inevitably raises concerns that such information might provoke unnecessary interventions, and has been associated with higher rates of cesarean delivery.

In this study we will remove the veil and answer the question that is asked too frequently by many treating obstetricians as to whether the presence of AFI <5cm does have any detrimental effects on obstetric outcomes.

This is a very important educational study for both general physicians and specialist obstetricians who have such a finding in their clinics as they are highly encouraged to counsel their patients according to the results of this and other studies.

## Materials and Methods

This is a prospective case controlled study which was conducted at our obstetrical department at King Hussein medical city, Jordan, during the period from January 2009 to January 2010. There were two groups for the study : the control group (110 women) who had a normal amniotic fluid index (between 5 to 20cm) and the study group (110 women) who had amniotic fluid index = or <5 cm.

Inclusion criteria in both groups were normal singleton term pregnancy with intact membranes and with fetuses who had normal anomaly scans.

Exclusion criteria included : any medical diseases in pregnancy like hypertension or diabetes mellitus or heart diseases, any suspected intrauterine growth abnormality, any suspected fetal anomaly, past perinatal losses or recurrent missed abortions, or previous cesarean sections. Both groups had similar maternal ages, with the range between 20 to 35 years of age.

On admission to labor room both groups were matched, the amniotic fluid index was calculated using the four quarter technique and outcome measures including CTG changes, Apgar score, need of cesarean section, admission to NICU and perinatal mortality were recorded.

## Results

After enrolling the 220 term pregnant women in the study, during labor we found from cardiotocographic features that both groups had no significant deference in fetal heart rate abnormalities, as shown in Table 1.

There was no statistical difference in mode of delivery, whether normal vaginal or cesarean section or operative vaginal delivery as shown in Table 2.

Chart 1 shows that there was no significant difference in the indications for cesarean delivery.

Mean birth weight of babies in both groups was similar, 2600+<sub>-</sub>150 gm in the study group and 2520 +<sub>-</sub>200 gm in the control group. No NICU admissions were observed in both groups.

## Discussion

The volume of AF normally decreases at the end of gestation from causes that remain poorly understood, although it has been suggested that impaired placental function and decreasing renal blood flow may be involved. Oligohydramnios has classically been associated with increased fetal morbidity and mortality within the context of high risk pregnancies and postdate pregnancies, however, oligohydramnios as an isolated finding and appears to be a poor predictor of adverse perinatal outcome in low risk pregnancies. (4, 5)

Supporting our findings are those of Kreiser et al who evaluated 150 low-risk patients and found no increase in poor perinatal outcome in cases of isolated oligohydramnios.

Our study and those of Zhang et al in 2004 and P. Venturini et al in 2005 found that the rate of CS as well as that of vaginal deliveries within 12 and 24 hours was not influenced by the reduction of amniotic fluid volume at term. (7, 8)

Only old studies by Rutherford et al and Sarno et al, noted a significantly higher risk of cesarean delivery for fetal distress and low Apgar scores for those parturients with an AFI 5.0 cm than for those with an AFI >5.0 cm, and these findings are contradicted by recent studies.(9,10)

The finding of meconium in amniotic fluid may be an indication of fetal compromise, but it was lower in our study group compared to the control group ( 2 VS 4), which may support the idea that low AFI is not associated with adverse neonatal outcomes.

As the fetal outcome is an important factor in oligohydramnios, there were no admissions to NICU or perinatal mortality in our study group. So, the infants in the isolated oligohydramnios group had no difference in outcome as compared to the control group infants.

These findings are supported by William J. Ott, who, in his study, found that the NICU admissions were lower

in the low amniotic fluid index study group compared to the control group of normal AFI (6.7% Vs11.8%). (11)

The findings of our prospective study suggest that isolated oligohydramnios does not indicate a compromised fetus. Such findings are supported by A. Locatelli et al 2004, who found that reduction in amniotic fluid volume per se does not identify a population at higher risk for adverse obstetric outcome.(12)

Similarly, a study done by Chauhan et al. [14] also suggested that oligohydramnios (defined either as intrapartum AFI 5 cm) did not confer increased risk for fetal distress or adverse neonatal outcome as compared to normal intrapartum AFI. (13)

Some studies recommend induction of labor in term pregnancy with oligohydramnios in low-risk gestations, even in the absence of obstetric risk factors.

Based on our findings and those of Zhang J et al who showed that induction of labor in low risk women with low AFI has not been shown to improve perinatal outcome based on our findings, we do not suggest induction of labor in low risk patients with low AFI < 5cm.

Our study suggests that the finding of oligohydramnios, in the absence of other pregnancy complications such as intrauterine growth restriction, fetal anomalies, hypertension, or postdatism, may not be an indication for elective intervention and that the fetus in such a pregnancy is not at higher risk for adverse outcome. (14)

## Conclusion

Cases of low risk term pregnancies with low amniotic fluid index have no significant adverse neonatal or maternal outcomes.

	AFI < 5 cm	Normal AFI	P value
Normal basal FHR	108	106	0.31
Acceleration	108	102	0.5
Deceleration	12	2	0.05
Beat to Beat variability	104	108	0.17

P value > 0.05 not significant

Table 1: Fetal heart rate abnormalities

	AFI < 5 cm	Normal AFI	P value*
Normal vaginal delivery	82	80	0.81
Operative vaginal delivery	8	8	0.81
Cesarean section	84	80	0.83

\*P value not significant

Table 2: Type of delivery

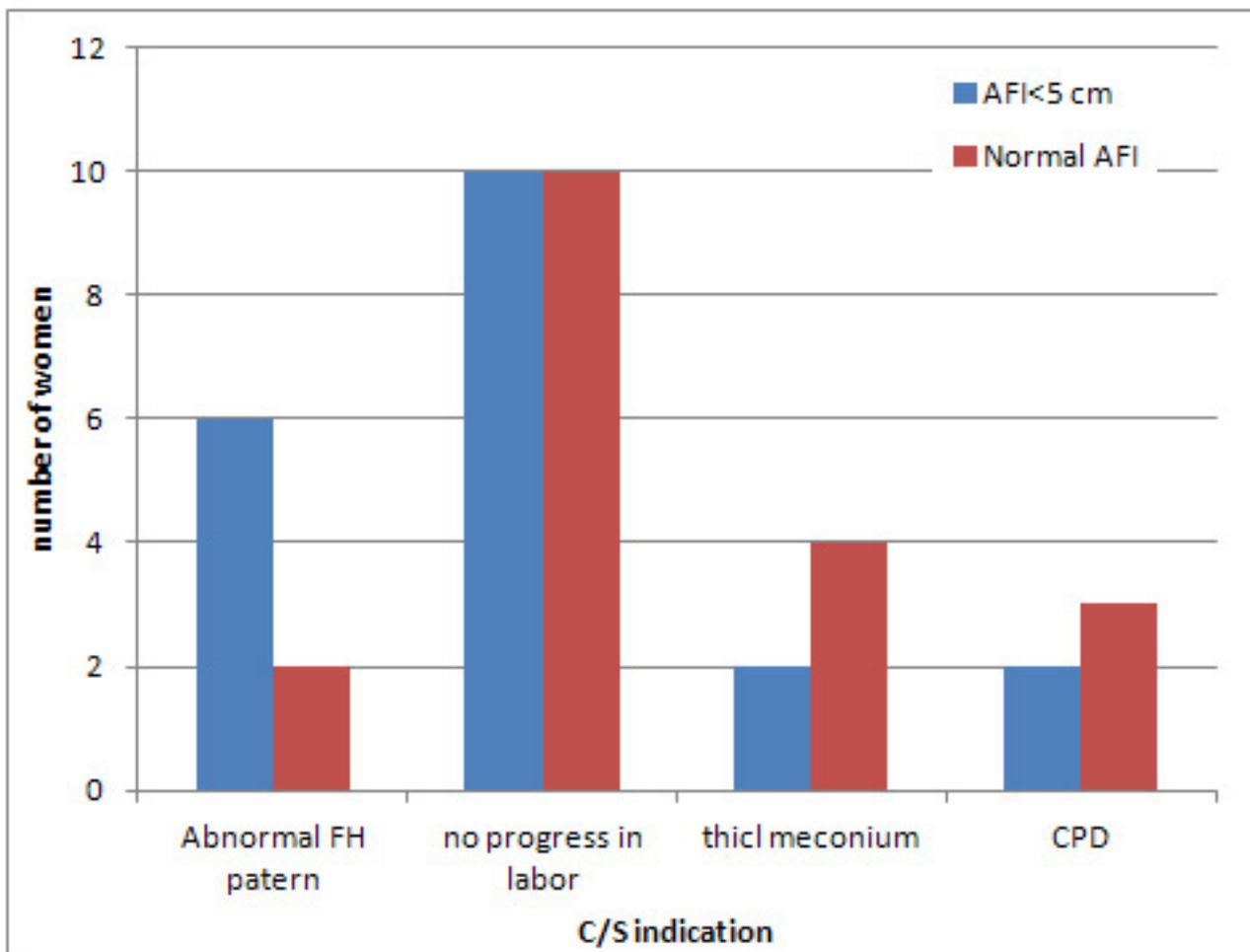


Chart 1: Cesarean section indication

## Recommendations

We recommend that further randomized prospective studies are encouraged to clarify the role of isolated oligohydramnios in low-risk term pregnancies. Meanwhile there is no need to hurry for labor induction in isolated low AFI in term low risk pregnant women.

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