



# World Family Medicine Journal

*incorporating the Middle East Journal of Family Medicine*

ISSN 1839-0188

January 2013 - Volume 11, Issue 1

## From the Editor

This is the first issue of the World Family Medicine journal for 2013. We are grateful for our authors, reviewers, editorial board and the publishing house for all the achievement of the journal during last year where the readership statistics have improved drastically. We look forward this year for more positive steps to put the journal as one of the leaders in the field.

A cross sectional survey from Saudi Arabia looked at the knowledge attitude and practice regarding diabetes and diabetic retinopathy among final year medical students. Diabetes Mellitus is a global public health problem. The morbidity caused by its ocular complication has placed this disease as the fourth leading cause of world blindness. The study concluded in Al Hasa region of Saudi Arabia and various studies conducted in different places have unfortunately shown inadequate knowledge, attitude and practice among the general practitioners and the medical students about diabetes and diabetic retinopathy. This study was conducted to assess the knowledge, attitude and practice of final year students and the interns of King Faisal University Medical College, Al Hasa regarding diabetes and diabetic retinopathy. As future primary care physicians, they are at the frontline of diabetes and diabetic retinopathy management. Their present curriculum does not emphasize these topics. Understanding their baseline Knowledge, Attitude and Practice will allow the medical education department to re-examine their curriculum and design one that is more appropriately targeted to the needs of the diabetic community.

A paper from Sultanat Oman looked at Multidimensional approaches to reduce the rising caesarean section rate in Nizwa hospital. Rising caesarean section rate is a concerning trend for the future of Oman. A retrospective analysis of the rising rates of caesarean section was done from year 2006 up to 2011 and the main indications and complications for caesarean section in year 2011 were analysed. A rising trend of caesarean section has been observed in the last six years as the rate has increased from 15.1% in 2006 to 18.9% in 2011. The authors concluded that a multilevel, multidisciplinary approach and strategies are needed to change the system that would help the midwives, obstetricians and various working groups together to achieve a common goal of developing care to reduce caesarean sections in Oman.

A paper from Nigeria aimed at assessing the knowledge of Nigerian Ophthalmologists about computer vision syndrome. This study was conducted during the annual congress and scientific conference of Ophthalmological Society of Nigeria in 2010. One hundred and forty respondents selected by simple random sampling were asked to participate in this study by filling in a structured questionnaire. A total of 102 filled questionnaires were retrieved out of 140 administered, giving a response rate of 73%. The respondents comprised of 64(62.7%) males and 38(37.3%) females. The majority of the respondents were aware of computer vision syndrome and had fair knowledge of its symptoms and treatment.

A paper from Abia State looked the benefit of supervision in Primary Health Centres. This is often not achieved in developing countries including Nigeria. Traditionally, supervision emphasizes inspection of facilities without regard to facilitation. Supervisors blame individuals rather than look for root causes in deficient processes. For this reason, traditional supervision has tended not to 'empower' staff to engage in problem solving and/or in taking initiatives in improving service quality and access. There is need to change focus of supervision from inspecting facilities and gathering service statistics to concentrating on performance of clinical tasks and resolution of problems

Dr Khashashneh reports on congenital chyloous ascites. Diagnosis was confirmed by abdominal puncture and ascetic fluids were taken. The etiology of most cases of chyloous ascites remains unknown, but it may be congenital or acquired. Congenital chyloous ascites is primarily related to inadequate lymph drainage as a result of maldevelopment and may occur from different causes including genitourinary, gastrointestinal, infections, and metabolic and malignancy. Here we describe an infant with congenital chyloous ascites who improved after total parenteral nutrition (TPN) and somatostatin administration, who was managed in the Neonatal intensive care unit at Prince Rashid Hospital, Irbid, Jordan. The baby needed treatment by octerotide after other forms of conservative therapy proved ineffective.

A paper from Jordan aimed to determine the effect of cholesterol and Chol:HDL ratio in ischemic heart disease patients presented to the emergency department at Queen Alia

Hospital (Jordan) with chief complaint of chest pain. This study was done in Queen Alia Military Hospital. Blood specimens were collected from 509 patients who were also smokers and hypertensive. Results were compared with the control group who had no past history of any illness and normal vital signs. The mean value of Cholesterol:HDL ratio in males and females in CHD: IHD group was greater than that of the healthy individuals. The authors concluded that the total triglyceride and LDL\_cholesterol may be of value to identify people at risk. Lipid levels may be affected by diet, exercise, smoking and certain medications.

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# Multidimensional approaches to reduce rising caesarean section rate in Nizwa hospital

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## Abstract

**Background:** Rising caesarean section rate is a concerning trend for the future of Oman. Every woman wants to have a vaginal birth with short labour, no, or little pain relief and an intact perineum. Care during labour was different in olden days. The rate has gone up steadily since the introduction of a lot of technology during child-birth. Caesarean section carries increased risk for the mother and baby. The present work is aimed at studying the various reasons for this rising rate and measures to reduce the caesarean section rates.

**Methods:** A retrospective analysis of the rising rates of caesarean section was done from year 2006 up to 2011 and the main indications and complications for caesarean section in year 2011 were analysed.

**Results:** A rising trend of caesarean section has been observed in the last six years as the rate has increased from 15.1% in 2006 to 18.9% in 2011. The main indications for caesarean section in descending order have been fetal distress, malpresentation, followed by a large group which included maternal request, macrosomia > 4kgs, abnormal placentation followed by repeat caesarean section and non-progress of labour. There were many maternal complications observed in this group, like wound infections, anaesthetic complications and a few cases of exploratory laparotomy.

**Conclusion:** Multilevel, multidisciplinary approach and strategies are needed to change the system that would help the midwives, obstetricians and various working groups together to achieve a

common goal of developing care to reduce caesarean sections in Oman.

**Key words:** caesarean section, rising rate, litigation, electronic fetal monitoring, fetal distress, health system.

## Introduction

World Health Organization states that no additional benefits are associated with a caesarean section rate above 10-15%[1]. Caesarean section is a major surgery and increases the short and long term adverse effects for mother and baby[2-3]. A high caesarean section rate does not confer additional benefits but has resource implications for health services [4-5]. Increased caesarean section rates are largely due to fear of litigation, whether consultants are involved or not in the decision making, health insurance system, change in women's preferences (CSMR- caesarean section on maternal request), increased use of electronic fetal monitoring, increased proportion of breech deliveries by caesarean section, lack of education and lack of antenatal care, rising maternal age at first pregnancy and rising rate of multiple births. Premature and wrong decisions may increase the maternal and fetal morbidity and mortality. It is a double edged sword which saves lives on one hand and endangers on the other.

## Material and Methods

Rising rates of Caesarean section in Nizwa hospital in the last 6 years were compared, to ascertain the latest trend. The main indications and complications encountered during these procedures were also analyzed for the year 2011. Hospital records of the Department of Obstetrics and Gynaecology was used to collect the statistics.

## Results

The rising trend of caesarean section (Figure 1). The main indications and complications in the year 2011 are shown in Figures 2 and 3 (next page).

- 1. Wound infection** = klebsiella -5, E.coli -5, Staphylococcus aureus-9, Acinetobacter spp-2, Enterococcus species- 1, Pseudomonas aeruginosa -1.
- 2. Anaesthetic complications** = spinal headache -5, lung collapse & consolidation-4, delayed recovery-1, respiratory distress- 1, reintubation after LSCS-1, difficult intubation- 1.
- 3. Exploratory laparotomy** = wound haematoma- 1, broad ligament haematoma -2, rupture uterus- 1.

- 4. Urinary tract injury** = VVF- 1, persistent haematuria- 1.
- 5. Neurological complications** = foot drop- 1, urinary retention- 1.
- 6. Neonatal complications** = fracture femur (green stick fracture)- 1.
- 7. Maternal death** = SCD (Post LSCS)-1.

## Discussion

Many countries have recognized high caesarean section rate as a major public problem and are trying to introduce measures to reduce it. Various interventions adopted in our hospital are the same as those worldwide, like development of audit and feedback, consultant or senior level second opinion, quality improvement by one to one nursing care, electronic monitoring of fetal heart, promoting VBAC (vaginal birth after caesarean section), encouraging labour management based on clinical guidelines, developing midwifery teams along with multifaceted interventions and provisions of prenatal and labour care [6]. Educating obstetricians to change their attitudes towards caesarean section complications and improving their skills in performing vaginal delivery is addressed as

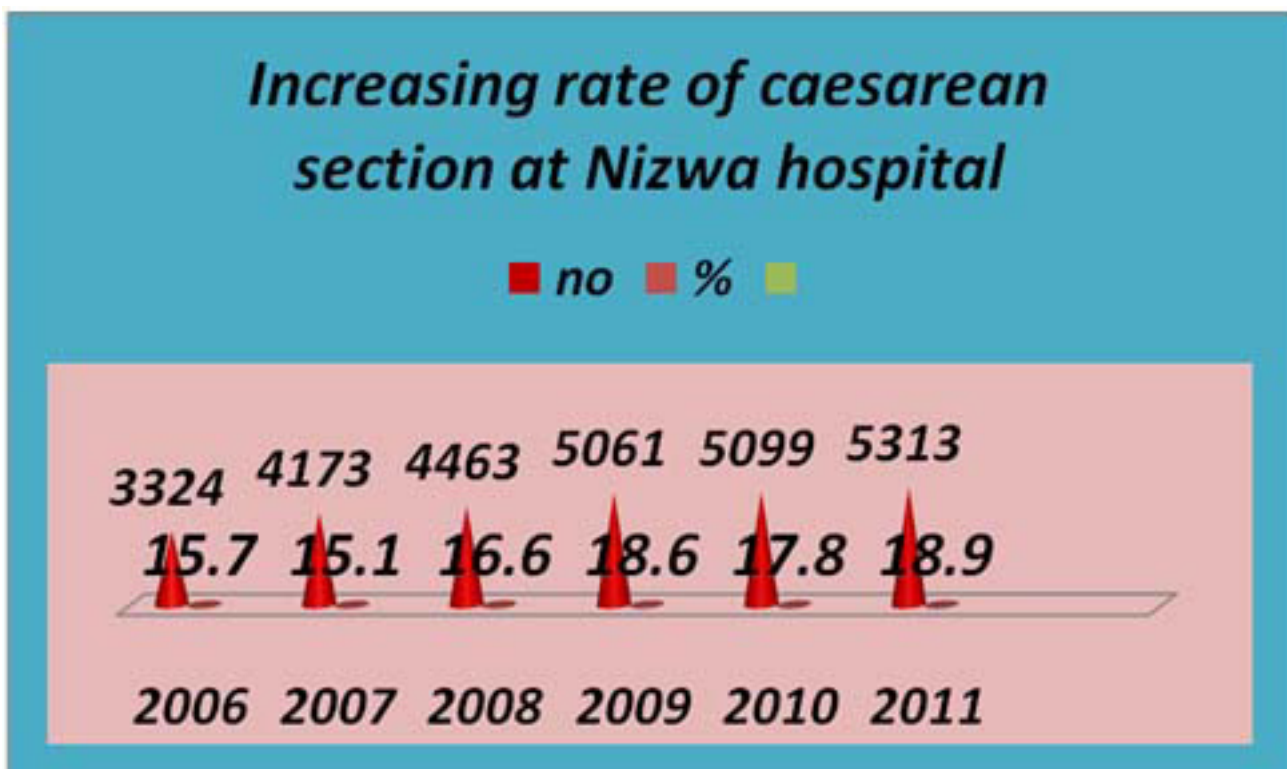


Figure 1: Rising Caesarean Section Rate In Nizwa Hospital

## Indications for Caesarean section 2011 Nizwa hospital.

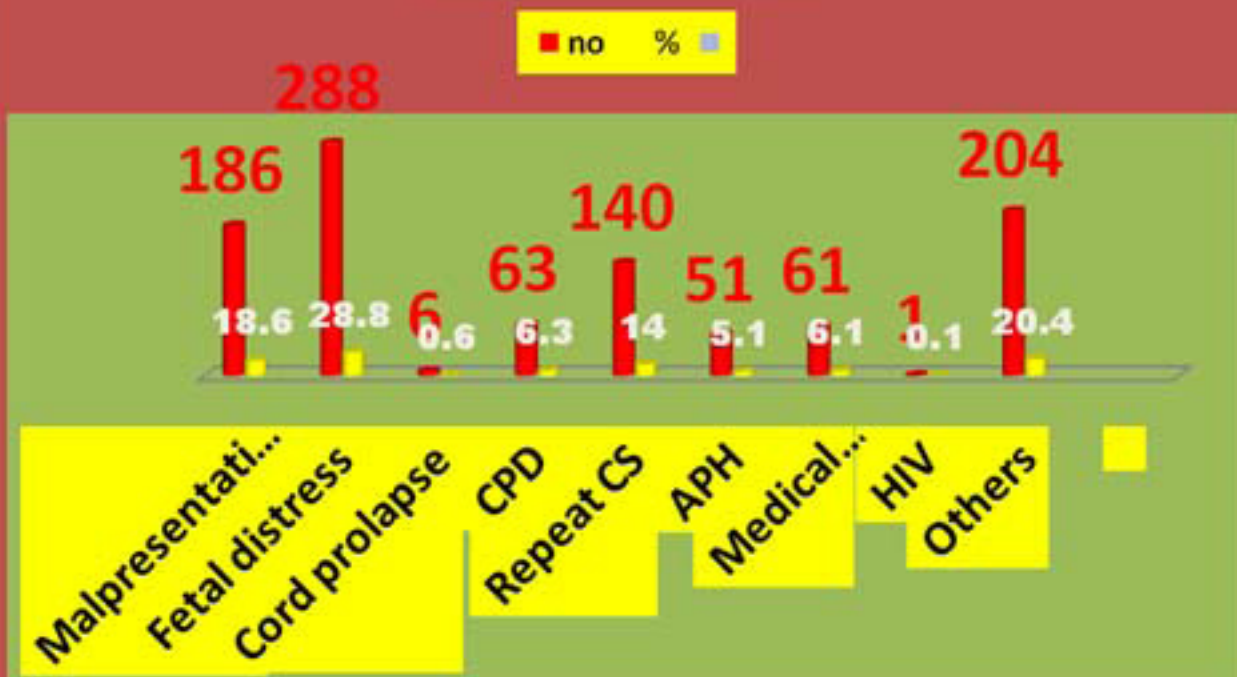


Figure 2: Indications for Caesarean Sections Year - 2011

## "2011" Caesarean section Complications Nizwa Hospital



Figure 3: "2011" Caesarean section complications, Nizwa hospital

reported in other studies [7]. Choosing the best delivery technique depends on the physician's judgment.

The various complications noted in our study correlate with other studies [8] where high health care risks, long term postpartum morbidity with high wound infection rate and high neonatal complications are reported. Elective caesarean section may result in iatrogenic preterm birth, prolonged hospitalization and may have a negative effect on breast feeding [9]. Various measures to be introduced to reduce caesarean section rate in our hospital are:

1. Ongoing continuing education relating best practices for health care professionals relating to caesarean section.
2. Explore the root causes of these rising rates, identify potential solutions and assess properly the implications for the safety of childbirth in this country.
3. Adopt mother friendly hospital initiation where childbirth preparation classes with labour regulation standards and a behavior change in health care providers is initiated.
4. Organization of a national committee promoting physiologic labour in the country.

The barriers of reducing caesarean section are summarized in Figure 4 (below).

Obstetricians and midwives are considered the two main arms of the delivery process. Frequent joint meetings and cooperation between the two will improve the ideal birthing process to a large extent. The policies, laws and payments in the healthcare system affect the behavior of health professionals. Economic issues are considered one of the most important barriers faced by specialists. Regarding legal issues obstetricians are blamed unless the opposite is proved. The family and the child can lodge complaints against the deliverer years after the labour. Developing a legal guideline on delivery problems, establishing a legal consulting company for guiding physicians and midwives in the medical council and rewriting on call laws are among the few solutions arising in this respect. Autonomy has given health care facilities in Oman a total independent liability for improving the health care system. Services should be improved at primary level to strengthen antenatal care and avoid unnecessary operative deliveries for problems like hypertension and diabetes. CSMR

(caesarean section on maternal request) should be avoided by explaining to the mothers about possible complications like anaesthetic risks, injuries to genitourinary system, and risks of haemorrhage. Explore, discuss and record the specific reasons for this request. Changing the educational curriculum of midwives, obstetric residency programs, postgraduate training and development of guidelines for outpatient obstetrical emergencies and change in medico-legal and financial issues may help in reducing caesarean section rates [10].

### Conclusion

Mother's unawareness is as harmful as the physician's unwillingness to do a vaginal delivery. Health care providers have an ethical duty to society to allocate health resources wisely for which there is a clear evidence of a net benefit to health. Health education of mothers and families promoting vaginal delivery, highlighting the benefits and reducing fears of natural birth is important. Legal system has to be improved to increase specialist's motivation for performing vaginal delivery.

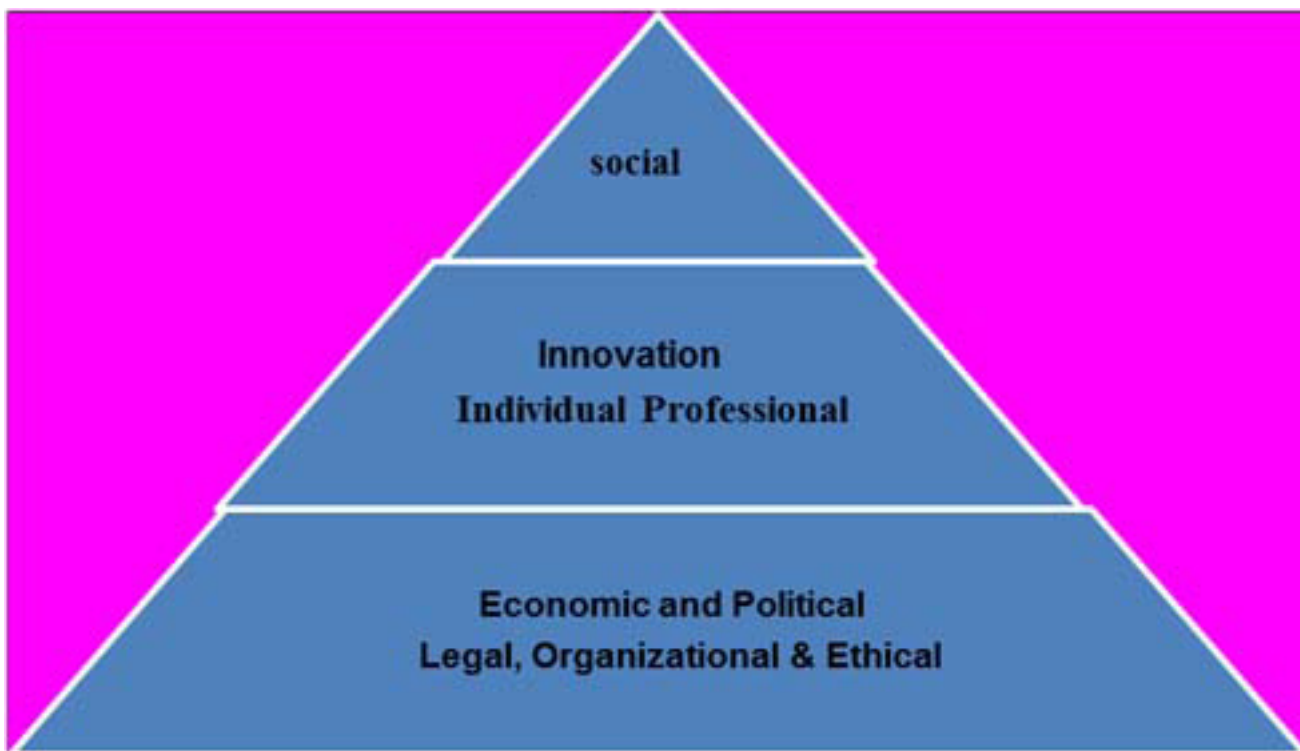


Figure 4: Barriers of reducing caesarean section rate in Nizwa hospital, Oman

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# The effect of cholesterol and Chol: HDL ratio in Ischemic Heart Disease

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## Introduction

The aim of our study is to determine the effect of cholesterol and Chol:HDL ratio in ischemic heart disease patients who presented to the emergency department in Queen Alia Hospital (Jordan) with the chief complaint of chest pain. Blood samples were taken from all patients included in the study, in the emergency department.

Serum lipids are important determinants of cardiovascular disease and related to morbidity. The high heritability of circulating lipid level is well established, and earlier studies of individuals with extreme lipid value or families with Mendelian forms of dyslipidemias have exposed the involvement of numerous genes and respective protein in lipid metabolism.(1,2)

Several clinical trials have demonstrated that elevated serum low- density lipoprotein (LDL-C) cholesterol is associated with increased risk of coronary heart disease (CHD), and that lowering serum LDL-cholesterol levels reduces the likelihood of new coronary events and associated mortality (3,4).

Serum lipids are important determinants of cardiovascular disease and related morbidity. The high heritability of circulating lipid level is well established and earlier studies of individuals with extreme lipid value or families with Mendelian forms of dyslipidemias have exposed the involvement of numerous genes and respective protein in lipid metabolism.(5,6)

Low plasma HDL- cholesterol concentration is encountered in clinical practice as part of mixed hyperlipidemia, or as an isolated abnormality. Low HDL cholesterol is common among patients with premature coronary artery disease. (7)

## Abstract

**Objective:** The aim of our study is to determine the effect of cholesterol and Chol:HDL ratio in ischemic heart disease patients who presented to the emergency department at Queen Alia Hospital (Jordan) with a chief complaint of chest pain.

**Material and Method:** This study was done in Queen Alia Military Hospital. Blood specimens were collected from (509) patients who were also smokers and hypertensive, and we compared these results with the control group who had no past history of any illness and normal vital signs. Serum total cholesterol, triglyceride HDL-C were analyzed by enzymatic method (ANC-ROCHE) using Hitachi auto analyzer.

**Results:** The mean value of Cholesterol: HDL ratio in males and females in CHD: IHD group is greater than that of the healthy individuals.

Our study showed that, the mean value of chol: HDL ratio in males or females in the CHD/I.H.D group

is greater than that of the healthy individuals.

**Conclusion:** The total triglyceride and LDL cholesterol may be of value to identify people at risk. Lipid levels may be affected by diet, exercise, smoking and certain medications.

**Keywords:** Ischemic heart disease (IHD) Chronic heart disease (CHD)

The cardio protective effect of HDL-cholesterol is supported by both observational and experimental studies (8). Although the favorable effect of lowering elevated plasma low-density lipoprotein (LDL)-cholesterol has been well emphasized, the therapeutic benefits of raising low HDL-C has only recently been demonstrated in clinical trials.(9,10)

Elevated total cholesterol and LDL-cholesterol have well established as risk factors for coronary heart disease (CHD). Several large clinical trials have demonstrated that lipid lowering decreases the incidence and mortality that results from CHD.

Many experts believe that other lipid disorders may play a significant role in the atherogenic process, including elevated triglyceride levels alone or in association with low level of HDL-cholesterol .(11)

LDL-cholesterol accounts for approximately 70% of cholesterol in the blood and is the primary target of intervention in the guidelines of the national cholesterol education program (NCEP).(12)

The total cholesterol to HDL ratio is a practical way to express its role in relation to CHD. The usefulness of cholesterol ratio was tested by the Prospective Cardiovascular Munster Trial (PROCAM) with more than 18,000 participants of both sexes aged between 17-65 years, which was found to be a good predictor of the incidence of MI.(13,14).

## Results

Table 1 (opposite page) shows the demographic data obtained for the patient and control group, regarding age, sex, cholesterol, TG, HDL-cholesterol, LDL-cholesterol. As can be seen, the mean value of lipid profile was greater than that of the healthy individuals, however the mean value of chol :HDL ratio in males or females in the CHD/IHD group is greater than that of the healthy individuals.

In IHD patients who were on treatment, the mean value of HDL-

cholesterol in females is higher than that in males, but the chol:HDL ratio is vice versa. Also 75% have LDL-C  $\leq$  150 and 57.4% have HDL-C  $\leq$  35 mg/dl.

Table 2 shows the calculated percentage of cholesterol, T.G: HDL ratio and control group. Value of cholesterol (>250mg/dl) in female is greater than that in males but the cholesterol : HDL-ratio (>6) is vice versa.

All individuals in the healthy group have CHD and IHD risk < 20% but other patients have risks of > 20%.

## Material and Method

This study was conducted on 509 individuals of C.H.D and IHD, smokers and hypertensives, and 20 healthy individuals (140 m, 50f), at Queen Alia military hospital patients with normal vital signs and no past history of illness. In all 509 patients included in the study had C.H.D and I.H.D (200m, 119f) and were studied at the clinic for 7 months. Patient files were studied for age, sex, blood pressure and smoking habits and most patients had a history of hypertension and their systolic blood pressure range of 150-170 prior to treatment.

Blood specimens were collected from these individuals, serum total cholesterol, triglyceride, and HDL-C were done by enzymatic method using Hitachi analyzer.

## Discussion

A survey in Baan Paew District, Samusaleorn province, Thailand found that among 387 villagers whose ages ranged from 40-69 years, 13.2% had serum LDL-cholesterol level of 100 mg/dl or less. According to Framinghams experience (18) they would have a very low CHD risk (1%) for 10 years, however 11.37% had LDL-cholesterol level above 190 mg/dl and 4.13% had triglyceride level of 400mg/dl or more. In contrast, our study indicated 37% had LDL-C level above 150mg/dl. These latter groups need tight diet control, exercise and possibly medications to lower lipid levels in order to lessen CHD and IHD risk.

Based on the NCEP 1999 (16) guidelines for atherosclerotic primary prevention 16.8% had lipid level in the desirable range and were at low risk for atherosclerosis, significantly, males had serum lipid within the gold standard range more than females . In our study, 13% had lipid levels at low risk for atherosclerosis, significantly; females had serum lipid within the control range more than males.

Wilai and Donpichit's study (22) shows that serum total cholesterol level less than 200mg/dl had high specificity, up to 97.5% for serum LDL-C level of 130mg/dl or less, the same as Framinghams (20) risk factor categories of serum total cholesterol. In our study, the mean value of cholesterol in males and females is greater or approximately equal in the ratio but in I.H.D patients, vice versa. In contrast, our study shows that serum total cholesterol level less than 200mg/dl had specificity, up to 46%, for serum LDL-cholesterol level of 120mg/dl and 67% level of 150mg/dl.

The increased level of cholesterol, HDL-C and chol: HDL ratio had been associated with increased risk of CHD and I.H.D. There was a significant difference in the value of these risk factor found in either males or females, with established CHD, I.H.D and values found in samples from controls.

The concentration level of chol:HDL ratio found in healthy controls are approximately not variable while concentration of HDL-C, cholesterol are variable and different from other studies depending on the genetic inheritance of the population studies (region) and habits.

If we look at the relationship between HDL-C and CHD, I.H.D population than the ratio of cholesterol alone or HDL-C alone, among racial groups, cholesterol holds up as a risk factor, HDL-C does not, but the ratio of cholesterol to HDL-C does.

Assman and Procan studies (5) found that the ratio of total serum

CHD	Male (30-70 years)	cholesterol	Triglyceride	HDL-cholesterol	LDL-cholesterol	Chol:HDL ratio
			292.5-(174-411)	390 (71-2272)	35.3(24-78.5)	147 (47-246)
	Females 30-70 years	293.5(203-384)	216(170-791)	32.1(27.4-66.7)	190.2(60-320)	6.2(3.6-8.3)
Healthy Group	Male (20-50 years)	185(145-220)	120(55-170)	50(36-72)	115(50-160)	4.0(2.1-5.1)
	Females (22-45)	180(140-210)	110(60-165)	52(40-75)	122(80-156) (30-70)Years	3.1(2.1-5.5)
I.H.D	I.H.D Males (30-80) years	206(113-307)	263(111-472)	33(20-53)	111(52-238)	6.5(2.9-10.3)
	I.H.D females (30-80 years)	2209114-323)	281(103-486)	47(24-70)	150(57-240)	6.8(2.7-11)

Distribution of lipid profile and chol: HDL ratio among CHD, I.H.D patient and general group.

Table 1

Patient	Cholesterol <150mg/dl		Cholesterol >250mg/dl		Chol:HDL ratio <6.0		Chol:HDL ratio >6.0	
	Males	Females	Males	Females	Males	Females	Males	Females
Healthy individual	11.9%	17.6%	6.7%	11.5%	92%	82.4%	8%	17.6%
CHD	9.5%	20%	13.3%	50.1%	25.1%	42.7%	59.7%	41.3%
I.H.D	73.5%	67.9%	21.6%	32.1%	31%	21%	22%	23%

Table 2

cholesterol to HDL-C of about 6.0 will identify nearly 70% of the people at risk of CHD destined to have CHD.

As shown in this study, the mean value of TC:HDL ratio of 6.0 will identify the people at risk of CHD, I.H.D. Our study indicated dietary treatment for cholesterol > 250mg/dl and ratio > 5.0 in both sexes. Exercise increased serum HDL-C relacing LDL-C. Males who drank alcoholic beverages and ethyl alcohol, 66.7%, had rising HDL-C levels (15).

### Conclusion

The total triglyceride and LDL\_ cholesterol may be of value to identify people at risk.

Lipid level may be affected by diet, exercise, smoking and certain medications.

Also it is useful to the clinician when combined with detailed knowledge of the patient's other risk factors.

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# The knowledge attitude and practice regarding diabetes and diabetic retinopathy among the final year medical students of King Faisal University Medical College of Al Hasa region of Saudi Arabia: A cross sectional survey

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## Introduction

Diabetes Mellitus is a global public health problem.[1] The magnitude of this disease is growing day by day and it is estimated that their number will increase more than double by 2025 from its existing number of 177 million.[2] The morbidity caused by its ocular complications has placed this disease as the fourth leading cause of world blindness.[3] At present there are 4 million blind due to diabetic retinopathy [4] (Vision 2020) which is expected to increase enormously in the coming years with the increase of diabetic cases. Fortunately the visual loss and the blindness due to diabetic retinopathy can be prevented or at least delayed with early detection and timely intervention. Effective management of diabetic retinopathy needs a multilevel approach and participation of the community, paramedical personnel, medical practitioners and medical students. Their knowledge

- referred to as their understanding of diabetes and diabetic retinopathy, their attitude - referred to as their feelings and any preconceived ideas towards diabetes and diabetic retinopathy and their practice - referred to as the ways in which they demonstrate their knowledge and attitude through their actions have a very important role in increasing awareness of the disease prevention and health promotion among the diabetic population. The recently concluded study in Al Hasa region of Saudi Arabia[5] and various studies conducted in different places, have unfortunately shown inadequate knowledge, attitude and practice among the general practitioners and the medical students about diabetes and diabetic retinopathy. To the best of our knowledge no study regarding knowledge, attitude and practice of medical students on diabetes and diabetic retinopathy has been conducted in Saudi Arabia.

This study was conducted to assess the knowledge, attitude and practice of final year students and the interns of King Faisal University Medical College, Al Hasa regarding diabetes and diabetic retinopathy. As future primary care physicians, they are at the frontline of diabetes and diabetic retinopathy management. Their present curriculum does not emphasize these topics. Understanding their baseline Knowledge, Attitude and Practice will allow the medical education department to re examine their curriculum and design one that is more appropriately targeted to the needs of the diabetic community.

## Material and Method

This cross sectional descriptive study was conducted in the month of May 2012. The study population consisted of 6th year students of King Faisal University Medical College of Al Hasa district of Saudi Arabia. We included all 96 students in the 6th year of the

MBBS course in our study population.

A consent letter from the King Faisal University research cell was obtained before starting this research. The participants were assured that the outcome would not be used for performance appraisal of the individuals. To maintain the confidentiality the students sent the completed questionnaires directly to the principal investigators, and the first page of the questionnaire containing the name of the physician was immediately removed. The questionnaires were sent to all the participants. The questionnaire, consisting of 22 questions, was designed to collect information on the demographic and professional data of the study population (4 questions), current knowledge (10 questions), attitude toward diabetic and diabetic retinopathy patients (5 questions) and practices (3 questions) while dealing with patients suffering from diabetes and diabetic retinopathy. Each correct answer of knowledge and attitude questions was awarded 5 marks while 25 marks were allotted to correct answers of the practice section (total 100 marks). Each wrong answer was given 0 marks. The knowledge and practice section contained an open ended question to avoid guessing while a 5-point Likert type scale was used to measure the degree of respondents in the attitude section. However, in some, a close-ended (yes or no) type was also used. 'Agree' and 'strongly agree' options of the answers were grouped under "yes" and 'neutral', 'disagree' and 'strongly disagree' options were grouped under "no." The questionnaire was designed by the authors and was validated by the chief of the ophthalmology department of King Faisal University Medical College Al Hasa. The participants were requested to complete the answers without consulting materials, textbooks or fellow staff. They were given 30 minutes to do so. The answered questionnaires were then returned to the principal investigators directly. The data were entered into the personal computer using SPSS, Version 17. Descriptive statistics for

all variables was performed after scrutinizing the data. A P-value of  $<0.05$  was considered as statistically significant.

## Results

### Basic Characteristics of the Study Participants

All 96 students of 6th year of MBBS were distributed the questionnaires, and 73 students returned the questionnaires after proper answering. Twenty students did not return the questionnaires while three students refused, giving a response rate of 76%. The number of female students was higher than that of male students: 43 (58.9%) and 30 (41.1%), respectively [Table 1]. The average age was  $23.85 \pm 0.861$  years (range, 23-27 years). The source of information of the students about diabetes and diabetic retinopathy was the medical college education (43.8%), internet (13.7%), journal and CME (8.2%) and combination of books with other sources (34.2%). When asked about any course taken by the students regarding how to educate the public regarding diabetes and diabetic retinopathy, only 21 (29%) of them said that they received a course of such type in the last one year.

### Diabetic-Related KAPs of the GPs

The mean of the overall KAP score for all the respondents was  $64.75 \pm 11.17$  (maximum, 100). The knowledge score was  $34.90 \pm 6.95$  (maximum, 50), attitude score was  $16.64 \pm 4.17$  (maximum, 25) and practice score was  $13.19 \pm 3.8$  (maximum, 25).

The mean overall KAP score for female students ( $64.18$ ,  $P = 0.02$ ) was lower than that of the male students ( $65.30$ ,  $P = 0.02$ ). The male students scored better in the knowledge ( $35.83$  Vs  $34.05$ ,  $p=.018$ ) and practice ( $13.63$  Vs  $12.95$ ,  $p=.045$ ) category while the attitude score of female students ( $17.16$  vs.  $15.83$ ,  $p=.020$ ) was significantly higher than the male students. Table 2 shows the KAP scores by sex.

### Knowledge pattern:

Table 3 presents response to students' knowledge questions

regarding diabetes mellitus and diabetic retinopathy. Almost all of the students knew the symptoms, causes and complications of diabetes mellitus. More than seventy percent of the students ( $n=52$ ) were not aware of the prevalence of diabetes mellitus in Saudi Arabia and about forty percent ( $n=28$ ) did not know the risk factors for diabetic retinopathy. When asked about the follow up of diabetic patients for diabetic retinopathy screening, more than fifty percent ( $n=42$ ) answered correctly.

Almost two thirds of the students correctly knew the treatment and specific risk factors of diabetic retinopathy but the same was not true with the knowledge of relationship of duration of diabetes with diabetic retinopathy. Only forty six percent of students ( $n=34$ ) knew that the chance of getting diabetic retinopathy among diabetic patients after 20 years was almost 100 percent. However ninety percent of the students ( $n=65$ ) knew the correct target level of Hb1AC for good glycaemic control.

### Attitude pattern:

Regarding attitude towards diabetic and diabetic retinopathy patients, 36% ( $n= 26$ ) of the students agreed that diabetes is more common among the uneducated people than the educated people. Almost all students (96%,  $n=70$ ) agreed that all diabetic patients must be referred to an ophthalmologist for routine ophthalmological examination for the detection of diabetic retinopathy. More than fifty percent ( $n=42$ ) of the students disagreed with the statement that "as long as diabetes is kept under control, there is no need to worry about diabetic complications". The same was true with the statement that "if the diabetic is treated early on, diabetic retinopathy can be prevented" where 54% of the students agreed. When stated that "patients with diabetes often waste their time and money in eye check ups as most of the time eyes of the diabetics are normal" most of the students strongly disagreed (93%,  $n= 68$ ) with this statement [Table 4].

Variables	N	%
Gender		
Male	30	58.9
Female	43	41.1
Mean age	23.85 ± 0.861 years	
Education about diabetes and diabetic retinopathy		
The source of information about diabetes and diabetic retinopathy		
Medical college education	32	43.8
Internet	10	13.7
Journal and CME	6	8.2
Combination of books with other sources	25	34.2
Course taken by the students regarding how to educate the public regarding diabetes and diabetic retinopathy		
Yes	21	28.8
No	62	71.2

Table 1: Demographic data and education about diabetes and diabetic retinopathy of the medical students

Variables	Mean [SD]			
	Knowledge (Maximum 50)	Attitude (Maximum 25)	Practice (Maximum 25)	Total (Maximum 100)
Gender				
Male	35.83 (6.4)	15.83 (4.1)	13.63 (3.7)	65.30 (10.6)
Female	34.05 (7.3)	17.16 (4.0)	12.95 (3.9)	64.18 (11.6)

Table 2: Knowledge, attitude and practice scores for 6th Year Medical Students by sex

Statements	No	%
Symptoms of diabetes Mellitus	73	100
Main causes of diabetes Mellitus	68	93.2
Parts of the body effected by Diabetes Mellitus	67	91.8
Prevalence of Diabetes in Saudi Arabia	21	28.8
Which diabetic patients are at greatest risk for diabetic retinopathy?	45	61.6
How often would you advise follow up for diabetic patients for ophthalmic exam?	42	57.5
What is the treatment for a patient with diabetic retinopathy?	51	69.9
Acceptable target range for Hb1Ac for most of the diabetic patients	65	89
Specific risk factors for onset and progression of diabetic retinopathy	54	74
The percentage of patients with diabetes having some level of retinopathy after 20 years of disease	34	46.6

Table 3: No./percentage of correct knowledge of epidemiology, diagnosis and treatment of diabetes mellitus and diabetic retinopathy among the 6th year Medical students

#### Practice pattern:

Tables 5 summarizes the medical students practice for diabetes and diabetic retinopathy management. As far as the medical practice is concerned 66% (n=48) of the students correctly mentioned that both type 1 (after 5 years of

diagnosis) and type 2 diabetes (at the time of diagnosis) patients should be referred to the ophthalmologist for routine eye screening exam for the detection of diabetic retinopathy and almost all of them (99%, n=72) followed the guidelines laid down by American Diabetic Association for

advice to the patients with diabetes. When asked as to what should be the angle of insulin injection, 90% of the students mentioned that it should be 45 degrees instead of 90 degrees.



Statement	Response in No/Percentage		
	Agree	Undecided	Disagree
	No.(%)	No.(%)	No.(%)
More uneducated people have diabetes than those who are educated	28(35.6)	16(21.9)	31(42.5)
All diabetic cases must be referred to the ophthalmologist for routine eye exam	70(95.9)	1(1.4)	2(2.7)
As long as the diabetes is kept under control, there is no need to worry about diabetic complications	31(42.5)	6(8.2)	36(49.3)
If the diabetic is treated early on, diabetic retinopathy can be prevented or delayed	39(53.4)	15(20.5)	19(28.1)
Patients with diabetes often waste time and money in eye check up as most of the time eyes of diabetics are normal	5(6.8)	10(13.7)	58(79.5)

Table 4: Evaluation of Medical students' attitude on diabetes mellitus and diabetic retinopathy management

Questions	N (%)
When will you refer the diabetic patients to the ophthalmologist (according to the type)	48(65.9)
What advice do you give to the patient with diabetes?	72(98.6)
What should be the angle of insulin injection	8 (10%)

Table 5: No./percentage of correct answers to questions related to medical students' practice

## Discussion

Diabetes mellitus and diabetic retinopathy are major public health problems worldwide. This research was aimed at assessing the knowledge, attitude and practice of the final year medical students towards the diabetic and diabetic retinopathy patients. The mean of the overall KAP score for all the respondents was  $64.75 \pm 11.17$  (maximum, 100), which was average standard for the evaluation of medical students. A similar study conducted in Pakistan has found the highest KAP score of more than 70% among the medical students of the clinical group [6].

The present study revealed that most of the medical students were not aware of the prevalence of diabetes in Saudi Arabia and more than 40% of them did not know the risk factors for diabetic retinopathy. Given the increasing prevalence of diabetic retinopathy in Saudi Arabia [7] and the evidence that diabetic retinopathy is mostly diagnosed at the primary health care level where most of these medical students are supposed to work, it is mandatory for them to know the risk factors and the correct diagnostic criteria. In a recently concluded study conducted in the same area of Saudi Arabia researchers have found lack of knowledge of epidemiology of diabetes among the general practitioners. [54]

Attitude of the physician plays an important role in managing any disease especially the chronic diseases like diabetes and diabetic retinopathy. Improper attitude of the medical students who are the future physicians can be one of the barriers for proper diabetic and diabetic retinopathy management [8].

Although almost all of the students in this study strongly agreed that all diabetic patients must be referred to an ophthalmologist for routine ophthalmological examination for the detection of diabetic retinopathy many of them believed that 'as long as diabetes is kept under control, there is no need to worry about diabetic complications'. However

the fact is that all the diabetic patients whether controlled or uncontrolled should be screened for diabetic retinopathy and for other complications. The studies such as DCCT and UKPDS have proved that the complications of diabetes can be delayed but cannot be completely prevented by diabetic control [9].

Many students in our study believe in the myth that diabetes is more prevalent among the uneducated people. This highlights the confusion persisting among the medical students regarding practice towards diabetics. Most of the students in our study did not know the practice of accurate angle of insulin injection which is 90 degrees. Accurate angle of insulin injection is necessary for its proper action. Similar studies done in Pakistan and Saudi Arabia have also found the same confusion among the general practitioners [5,6].

## Conclusion

This survey highlights some of the lacuna in the teaching system of the medical students. The fresh medical graduates who are the future family physicians can be the most proficient health care providers to manage and screen for diabetes and diabetic retinopathy in the community. The success will depend on their solid knowledge, attitude and practice which can be taught by special attention on their training for diabetes and diabetic retinopathy during their teaching.

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# Making Supervision Supportive and Sustainable in Primary Health Care Services in Abia State, Nigeria

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## Introduction

Ideally, supervision takes place in all professional health care services rendered by professionals like doctors, pharmacists, nurses, social workers, laboratory technologists and others, but most times, the benefits of this supervision are not felt. For instance, supervisors are expected to encourage on the job learning to promote quality health care services, guarantee high standard teamwork (1,2), increase problem-solving techniques as well as improve health workers' job performances (3-6). Unlike traditional supervision where supervision takes place only when an external supervisor shows up at the health facility, supportive supervision should occur continuously as ongoing performance monitoring and quality improvement of the routine part of health workers' jobs (7-10). By this view, it may be safe to assume that supportive supervision is capable of promoting continuous improvement of clinical skills of health care workers.

Studies have emphasized that clinic supervisors can influence quality health care services at the clinics through their administrative roles and their technical support in guiding effective service provider-client interaction (11,12), as well as by listening sympathetically to staff problems and supporting them to address the problems (13,14). Supervisors also influence quality health care services by ensuring that resources are in place to guarantee adequate supply of drugs, maintenance of equipment, clinical procedures, ethics and standards in health work (15). This is necessary because an appropriate clinic schedule will assist the supervisors to plan contents of clinic visits in advance. The question is to what extent do supervisors in a developing country like Nigeria carry out their roles so as to encourage quality supervision?

## Abstract

**Introduction:** The benefit of supervision in Primary Health Centres is often not achieved in developing countries, including Nigeria. Traditionally, supervision emphasizes inspection of facilities without regard to facilitation. Supervisors blame individuals rather than look for root causes in deficient processes. For this reason, traditional supervision has tended not to 'empower' staff to engage in problem solving and/or in taking initiatives in improving service quality and access. There is need to change the focus of supervision from inspecting facilities and gathering service statistics to concentrating on performance of clinical tasks and resolution of problems.

This paper aims to use supportive supervision to provide a framework for identifying and improving deficient supervision processes that negatively affect primary health care services in the communities.

**Materials and method:** The information contained in this paper was based on work experience, interviews held with the 35 health workers in primary health centres, extensive literature reviewed on supervision and the reports from

health centres. The study encouraged effective supervision by providing training that emphasized self-assessment, peer assessment, and others as vital components of supportive supervision.

**Result:** The study identified several systemic problems plaguing effective supervision in primary health care centres. These problems were analysed as institutional and staff problems. They include lack of planning, training, defined priorities, shortage of resources (man, materials and finance), episodic visits by supervisors, lack of adherence to work ethics, poor interpersonal relationships between supervisors and supervisees and others. Among these problems identified, the most plaguing was lack of financial stability which resulted in poor motivation of staff as the majority of them, 33 (94.3%) complained of being owed two to three months salary arrears.

**Conclusion:** Categorizing the problems that negatively influenced supervision helped the researchers to highlight best practices and the underlying mechanisms for sustainable supportive supervision that are capable of upgrading the technical and clinical skills of supervisors.

**Key words:** clinical skills, primary health care, financial stability, resources, teamwork

The functions of a clinic supervisor include reviewing monthly reports, verifying clinic data, making suggestions on clinical procedures, checking and signing the clinic report to signify that the data have been checked for correctness before submission (16,17). Supervisors face numerous challenges in carrying out these functions, especially when they fail to establish mutual trust and confidence in their daily contacts with supervisees (18). The task of monitoring supervisees' accountability to clients and to the organization particularly when tardiness, absenteeism and output are checked, can pose problems for the supervisors especially when supervisors keep supervisees' personal issues outside of the workplace (19-22). The questions are: how can interpersonal conflicts between supervisors and supervisees be avoided in the work place? Would enhanced professional development encourage quality supervision? This study explored how most plaguing problems in primary health care centres can be resolved for the benefit of staff and clients. The study answered fascinating questions about the nature and purpose of supervision for practitioners in primary health care services in Abia State.

## Materials and Method

Work experience, extensive literature review on supervision as well as health centre reports were used to collect information for the study. Also interview with the 35 health workers of primary health centres was conducted. The study adopted self-assessment, peer assessment, and collective inputs as vital components of result-oriented and supportive supervision.

The study emphasized on the job training, (both formally and informally). It also encouraged one-on-one meeting, peer discussions, and meetings outside the work places as various ways health workers could review their performances against work standards. This strategy helped the researchers to establish a feasible mechanism for conducive supervision. Here, ten

days intensive trainings (workshops and seminars) were organized using two experienced but skilled staff members from the University. After the training, assessments of health workers' improvements and their adherence to standard treatment schedules were done. Data analysis was both qualitative and quantitative.

## Ethical consideration:

University Ethics Committee in colleges of medicine and health sciences approved the project work before it was started. Students on clinical exposures are usually assigned to some hospitals and health centers located in the rural areas where the students and health workers in the centers encounter several problems. These problems encountered are documented and forwarded to University authorities for possible solutions. The University sends the documented problems to University ethics committee for review and approval. If the document sent is approved, University then budgets and releases resources to the academics to carry out the research for possible solutions. In this research, the researchers were partly remunerated by the University for planning and undertaking the intervention.

## Results

Mechanism of supportive supervision The study identified and outlined three useful but inter-related mechanisms for supportive supervision. These three mechanisms which contain flexible and adaptable guidelines are self and peer supervision, External supervision, and internal supervision. The study showed how health care workers could utilize the mechanisms to ensure sustainability of supportive supervision. The mechanisms are shown in Figure 1 (opposite page).

In this mechanism, unlike in the traditional supervision where the external supervisors occupied the apex of the triangle as bosses, in the case of supportive supervision mechanism, the supervisees or the beneficiaries of clinical practices (medical students, nursing students, newly recruited health workers,

as well as the patients) occupied the apex of the triangle. Here they are expected to gain from the effective skills of the supervisors in a conducive atmosphere. The external and internal supervisors were left at the base of the triangle so that they can relate to one another on equal terms. This allowed free flow of information between the external and the internal supervisors. Making the internal and external supervisors remain at the base of the triangle encouraged free flow of information, ensured cordial relationships and also improved teamwork approach. This arrangement provided the supervisors the opportunity of planning and implementing strategies for solving the perennial problems of the health service centres.

The responses the health workers gave after using this mechanism showed that interactions between the supervisors and the supervisees improved and this positive relationship resulted in quality clinic supervision. Using the words from eight health workers, "it is mind elevating to note that the supervisors now feel concerned about the social problems of the workers. We are happy that it is no more the usual servant boss attitude where we are blamed and punished for the slightest mistake".

## Systemic problems of the health centres

From the responses obtained from the workers, two types of systemic problems, institutional and staff problems that plagued the primary health care services, were identified. The details of these two problems are enumerated in Table 1 (opposite page).

From Table 1, two common issues identified in both the institutional and staff problems in the primary health centres were financial instability 33 (94.3%) and poor staff remuneration 33 (94.3%) respectively. To minimize these systemic problems and improve on the quality of supervision as well as enhance staff job performances in primary health care centres, interventions were provided to the clinic staff. The results of the

Figure on mechanism of supportive supervision:

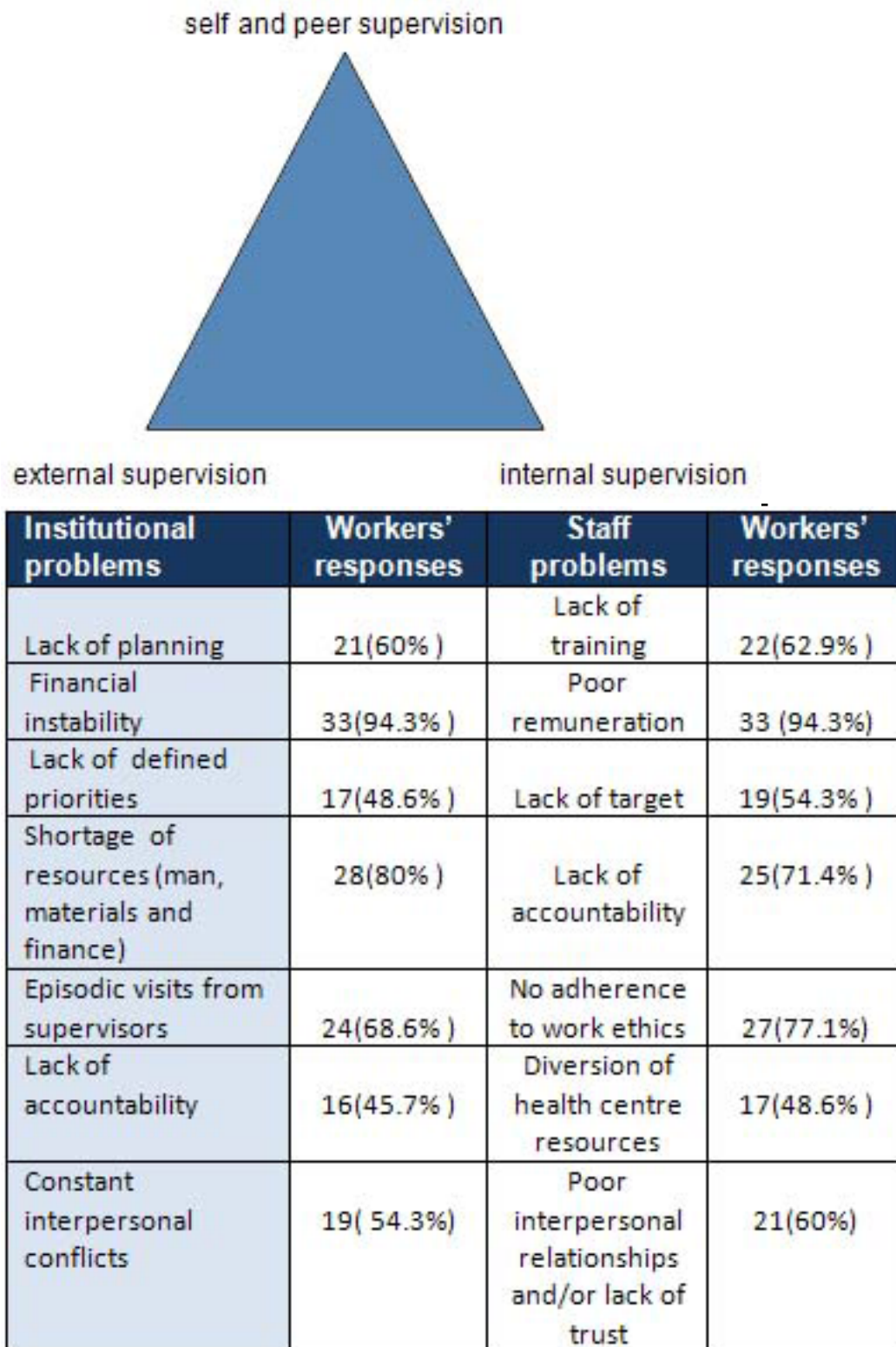


Table 1: Workers responses on Systemic problems plaguing primary health care services

checklist showed obvious discrepancies in staff adherence to work ethics. For instance, a good number of the health workers lacked skills in communication, team building, and facilitation. This caliber of staff was mainly workers with no relevant skills who were employed in the health centres

because of their political affiliations. Also, the finding showed that a good number of these staff with little or no professional skills administered some health programmes like immunization , HIV counseling, health education, and reproductive health services. This practice of employing staff on the basis of party

affiliation probably contributed to the poor implementation of some health programmes noted during the study. Following these findings, training was organized on certain aspects of health functions like feedback mechanism, history taking, disease classification, treatments and HIV counseling. The result of this training

Interventions given	Results obtained	Lessons learned
Introduction of checklists and guidelines for self assessment of quality performances in assigned health programmes.	Regular feedback from health workers, improvements in adherence to standard treatment schedules, history taking, disease classification, treatment and counseling.	Joint identification of opportunities for staff improvements, better communication and provision of information to patients.
Training workshops and seminars on facilitation, feedback mechanisms, team building and problem-solving skills	Improved staff facilitation, interpersonal relationships, problem-solving and analytical skills were developed. Better translation of institutional goals into services, increased job satisfaction and self-assessment among staff.	Better problem identification, increased coaching and mentoring among Service providers, increased staff desire for self improvement.
Introduction of strategies for data collection and analysis,	Improved skills on documentation, report writing, effective case presentation on standards of care, and management	Clearer methods to identify staff strengths and weaknesses, increased staff desire to provide more quality care, better patient care oriented approach, improved identification of quality health care indicators

Table 2: Interventions given, results obtained and lessons learned during the study

- limited locally appropriate and tested tools available for implementation
- insufficient time and resources available to the researchers
- some supervisors' unwillingness to reinforce good performances
- reluctance of some staff to adopt good practices,
- unwillingness of some supervisors to sustain new approach
- refusal of some staff to modify negative feelings against supervisors
- inability of researchers to isolate significant effects of intervention during field settings

**Table 3: Challenges faced in implementing supportive supervision**

showed some improvements in the extent of staff adherence to standard treatment schedules. Table 2 contains types of intervention provided, results noted and the lessons learned.

There were several challenges in the attempt to implement supportive supervision. Some of these challenges faced are contained in Table 3.

From this Table, it is obvious that more time is required to monitor and evaluate the extent to which some of these challenges noted may influence the sustainability of supportive supervision.

## Discussion

The fact that in this study, there was evidence of conflicts between the supervisors and the supervisees suggest that the health workers lacked skills in communication, team building, and facilitations. Moreover, the political drive that usually influenced employment of staff with little or no professional skill to administer health programmes, exaggerated their inefficiency and ineffectiveness in managing conflicts and health programmes in the work place. The study minimized constant conflicts experienced by supervisors and supervisees by focusing on effective communication between the supervisors and supervisees. Apart from technical roles of supervisors

like overseeing implementation of clinical and non-clinical tasks and others, there is the need for cordial relationships between supervisors and supervisees. Supervisors represent a link between staff and the larger health system. Negative relationships between supervisors and supervisees will demoralize the health workers and make benefits of supervision not easily achieved. Therefore, more facilitation than punitive approaches should be encouraged when deficiencies in job performances are noted in primary health care centers.

There were a series of emerging trends in clinical supervision during the study. Some of the trends addressed were administrative and referred to types of interaction and motivation available to health workers in health centres. Others referred to models of supervision where self-assessment, teamwork approach in problem-solving were emphasized to encourage monitoring and mentoring for a better and conducive environment during supervision. This view is supported by the literature 17 and 22 reviewed, which emphasized using teamwork, effective job performance and respect to achieve improved feedback between supervisors and supervisees.

The study noted that employment of staff with no relevant qualification,

and inadequate planning of health care programmes were some of the factors that gave rise to poor implementation of most health programmes in primary health care centres. For instance, a good number of the health programmes such as maternal and child health services, sex education, immunization programmes, HIV counseling, bore holes, market stalls and others which government spent huge amounts of resources to establish, were highly underutilized because most of them were politically motivated and as such, they are not the felt needs of the community members. This finding agrees with those of (3,8,12,13) that programs politically established scarcely achieve their desired objectives.

The fact that supportive supervision was introduced in various ways enabled the health workers to review their performances against existing health service guidelines. For instance, supportive supervision was introduced as a routine part of a health workers' job which took place on the job both formally and informally, in one-on-one meetings, in peer discussion, and in meetings outside the work place. This was done to encourage sustainable supervision in primary health centres by promoting teamwork, monitoring, mentoring, and effective communication between supervisors and supervisees. However, it was not

easy for the researchers to isolate the impacts of supportive supervision in the primary health care clinics.

Following this, there is the need to frequently evaluate and document supervision activities in primary health Centers.

In this study, implementing and institutionalizing supportive supervision as a problem solving approach using a teamwork approach presented enormous challenges for the researchers in some health centers, especially centers dominated with older supervisors who are used to traditional methods of inspection where punitive measures were used to repress supervisees. In such centres, introducing change from traditional methods of supervision was seen as fundamental organizational change. As a result, implementing supportive supervision in this study required expanding the locus of supervision to include that of peer and health workers themselves. Supportive supervision was redesigned to incorporate three simultaneous, complementary but overlapping techniques. These techniques included peer supervision that is, by health workers themselves and with each other; the second is external supervision, that is from outside the health facility and the third is internal supervision, which is within the health facility. In the meantime, external supervision was observed as the most resource intensive because it required more travel and using people with diverse skills and experiences compared to other methods.

The study noted that regular use of 'peer supervision' in the mechanisms of supportive supervision was cost-effective and this is expected to guarantee the sustainability of the mechanisms. This view is based on the fact that the adoption of peer supervision during intervention helped the researchers to highlight the likely factors and conditions that encouraged supportive supervision in primary health care centres. Also the technique of training and re-training supervisors in technical and clinical

skills enabled them to compete favourably in the increasing demands of supervision and this acted as a strength in the sustainability of supportive supervision. These trainings gave credence to professional development and enhanced the health workers' skills and performances on supportive supervision.

Generally, the workers demonstrated more concerns on being part of problem-solving in the health centers after the training than before the training. This was shown by the responses obtained from nine health workers. Using the words from these health workers:

*"now we feel happier because we have more autonomy than we had before. This autonomy has given us more confidence to support the clinic activities. Before, we used to go to the clinic to find faults with the supervisors but now, we will support them. This time that we are seen as relevant in the office, we shall make sure that the clinic has enough supplies. We shall help in maintaining health centre equipment and the keeping of good records of materials used. We shall help educate other staff as much as we can. We now feel liked, wanted and these feelings make us want to go to work regularly".*

The workers' concern to be part of problem-solving in the health center was a major strength to teamwork approach. As a result, there was improved documentation, clearer standards of care, and constructive feedback on strengths and weaknesses of each worker. The findings on improved communication and teamwork approach agree with that of 2, 8 and 15. From this finding, it is obvious that the supervisees will benefit more if supervision is seen as problem-solving measures than those of punitive.

The initial intervention of using a checklist helped the researchers to examine the feasibility of supportive supervision, as well as the knowledge base of the workers. This intervention also enabled the health

workers to self-assess their quality performances. The results obtained after this intervention showed obvious discrepancies in the rating of the workers on history taking, disease classification, treatments and counseling. However, results got after training showed improvements in the extent to which adherence to standard treatment schedules were done. For example, there were remarkable improvements in the health workers' manner of history taking, disease classification skills, better time management, problem-solving techniques, clinical updates, treatments, counseling and feedback mechanisms. There was also better problem identification, and increased coaching and mentoring among staff. Lessons learned after training revealed improved communication and provision of information to patients.

## Conclusions

The study showed that supervision can be improved within the resource constraints of a developing country like Nigeria. However, more work is needed to document the cost effectiveness of using peer review, self-assessment and internal and external supervision for supportive supervision. There is evidence from this study that with more funding, the sustainability of improved supervision practices, in supportive supervision could be successfully institutionalized. The key lesson from the study is that for successful quality and performance improvements in supervision to take place, there must be an enabling environment that will be conducive to expand, initiate and sustain the changes of the enabling environment including policies, leadership styles, organizational values and adequate resources would instigate to support the improved practices.

Therefore, enduring interventions capable of creating lasting positive changes in the mode of supervision in primary health care centers are needed.



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# Knowledge of computer vision syndrome among Nigerian Ophthalmologists: An exploratory study

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## Abstract

**Aim:** This study aimed at assessing the knowledge of Nigerian Ophthalmologists about computer vision syndrome.

**Methods:** This study was conducted during the annual congress and scientific conference of the Ophthalmological Society of Nigeria which took place at Sheraton Hotels and Towers, Abuja between 16th and 18th September, 2010. One hundred and forty respondents, selected by simple random sampling, were asked to participate in this study by filling in a structured questionnaire. Informed consent was obtained from the respondents. Information obtained from the respondents with the aid of questionnaire included their bio-data, usage of computer, knowledge about computer vision syndrome, its symptoms and treatment modalities. The data obtained was collated and analyzed with SPSS 15.0.1.

**Results:** A total of 102 filled questionnaires were retrieved out of 140 administered, giving a response rate of 73%. The respondents were comprised of 64 (62.7%) males and 38 (37.3%) females. The majority of the respondents; 27(26.5%) were consultants, 68(66.7%) were residents and 7(6.9%) were diplomates. Most respondents, 68 (66.7%) were aware of computer vision syndrome while the rest 33 (32.4%) were not aware. As detailed in Table 1, eye strain was identified as a symptom of computer vision syndrome by most respondents; 93 (91.2%). As shown in Table 2, 68 respondents agreed with the use of artificial tears in patients with computer vision syndrome.

**Conclusion:** The majority of the respondents were aware of computer vision syndrome and had fair knowledge of its symptoms and treatment.

**Key words:** Ophthalmologists, Computer Vision Syndrome, Nigeria.

## Introduction

Computers are one of the most interesting inventions of the 20th century. Use of computer has gradually become part of every day activities. It has been reported that since year 2000, 75% of daily activities of all jobs involve use of computers.(1) A computer is an electronic device used in various organizations for storing, processing and management of information.(2) Prior to the advent of computers, office work involved a range of different activities which needed different types of posture and vision thus leading to a natural break from each activity.(3) However with the use of computers all these activities were combined, thus there is no need for change in posture or vision of the computer user.(3) The use of computer certainly improved the quality of work but there are attendant ocular problems associated with prolonged use of computer. The increased use of computers has led to an increase in the number of computer users with ocular complaints. This entity has been grouped together as computer vision syndrome. It is a complex of eye and vision problems that are usually experienced during and also related to use of computers.(4) It has been reported that up to 90% of seventy million US workers who work on computers for more than three hours per day experience computer vision syndrome in some form.(4) Engaging in computer use for a prolonged period has been associated with reduced power of accommodation, removal of near point of convergence and deviation of phoria for near point.(5) These changes are likely to be transient.(6,7) Blehn et al divided computer vision syndrome into four main categories, namely asthenopic, ocular surface related, visual and extra-ocular.(1) Computer vision syndrome may be caused by poor lighting, glare, improper work station set-up, pre-existing visual problems which the person may be unaware of, or a combination of the factors.(8) Computer vision syndrome can lead to loss of visual acuity,(9) most especially from asthenopic symptoms.(10) It can also affect children and adults.

However some unique aspects of computer use by children make them more susceptible to computer vision syndrome.(11) Thompson reported that the prevalence of computer vision syndrome ranges from 25-93%.(12) It has also been reported that one out of six patients requiring eye examination have a computer related eye problem.(13)

Use of computer is now in vogue in Nigeria with the upsurge of information and communication technology(ICT).(1) In view of the attendant ocular complaints experienced by some computer users, this study was designed to assess the knowledge of Nigerian Ophthalmologists about computer vision syndrome. It is important for Ophthalmologists to be abreast of ocular and systemic features of the syndrome so that they can effectively manage affected patients. The authors are not aware of similar studies amongst Ophthalmologists in this part of the world. It is hoped that policy implication drawn from this study shall guide policy formulators in evolving strategies to promote the ocular health of computer users.

## Methods

This study was conducted during the annual congress and scientific conference of the Ophthalmological Society of Nigeria which took place at Sheraton Hotels and Towers, Abuja between 16th and 18th, 2010. Two hundred and twenty Nigerian Ophthalmologists and Ophthalmologists in training, attended the conference. One hundred and forty of them selected by simple random sampling were asked to participate in this study by filling out a structured questionnaire. Informed consent was obtained from the respondents. The questionnaire used in this study was a modified form of the study instrument used by Bali et al in a previous similar study in India.(14) The questionnaires were administered by some of the authors assisted by two research assistants. Information obtained from the respondents with the aid of questionnaire included their bio-data, usage of computer, knowledge about computer vision syndrome, its

symptoms and treatment modalities. The data obtained was collated and analyzed with SPSS 15.0.1. Relevant policy implication was then drawn from the ensuing findings.

## Results

A total of 102 filled questionnaire were retrieved out of 140 administered, giving a response rate of 73%. The respondents were comprised of 64 (62.7%) males and 38 (37.3%) females. The ages of the respondents ranged from 27 years to 60 years with a mean age of 38 years  $\pm$ 6years. The majority of the respondents, 27 (26.5%) were consultants, 68 (66.7%) were residents and 7 (6.9%) were diplomates. The respondents were comprised of 44 (43.1%) Yorubas, 17 (16.7%) Ibos, 10 (9.8%) Hausas while the remaining 29 (28.4%) belonged to the other ethnic groups. Two respondents (2%) were foreigners. Most respondents, 58 (56.9%) were Christians while the rest were Muslims, 44 (43.1%).

Use of computer: Most respondents, 98 (96%) were computer users while the remaining 4 (4%) were not.

Awareness of computer vision syndrome: Most respondents, 68 (66.7%) were aware while the rest, 33 (32.4%) were not aware. The cadre of the respondents did not significantly affect the level of awareness with a p value of 0.068.

Knowledge of duration of computer use prior to onset of computer vision syndrome: Few respondents, 8 (7.8%) knew that it can develop after three hours of computer use while the majority, 94 (92.2%) did not know.

The knowledge of the respondents about the symptoms of computer vision syndrome is as detailed in Table 1 (next page).

## Discussion

The age range of the respondents is in keeping with the dynamic workforce that they belong to and this is a big boost to eye care in Nigeria. It behoves on the relevant authorities in Nigeria to take advantage of this

Symptoms	Agree	Disagree	Don't Know
Eye strain	93(91.9%)	3(3.9%)	6(5.9%)
Headache	87(85.3%)	2(2%)	13 (12.7%)
Burning sensation	78(76.5%)	5(4.9%)	19(18.6%)
Watering eyes	74(74%)	6(6%)	20(20%)
Redness of the eyes	72(70.6%)	11(10.8%)	19(18.6%)
Neck pain	57(55.9%)	16(15.7%)	29(28.4%)
Photophobia	48(48%)	25(25%)	27(27%)
Blepharospasm	45(45%)	17(17%)	38(38%)
Coloured haloes around light	24(23.5%)	43(42.2%)	35(34.3%)
Shoulder pain	38(37.6%)	21(20.8%)	42(41.6%)
Mobile floaters	16(15.7%)	43(42.2%)	43(42.2%)
Flashes of light in the eyes	16(15.7%)	45(44.1%)	41(40.2%)

Table 1: Knowledge of respondents about symptoms of computer vision syndrome

workforce to uplift eye care in the country. The fact that we had more male respondents is not surprising as this finding could be related to the fact that there are more male Nigerian Ophthalmologists than females. Almost one-third of the respondents enrolled in this study did not return their filled questionnaire as this is likely due to the very tight schedule of participants during the conference. This fact may also explain why few of the respondents did not fill the questionnaire completely. The study population included all cadres of Doctors involved in ophthalmic practice in Nigeria thus helping to reduce cadre related bias in the findings of this study.

It is interesting to note that most of our respondents used computers regularly as this finding is in keeping with the fact that use of computer is now in vogue in Nigeria. Some

Doctors in the country go for structured training in application of computer software so as to improve their skills in computer use. The use of computers to access internet services may also have contributed to use of computers among our respondents. A previous study by Omolase et al among Nigerian Ophthalmologists revealed that 98% of the respondents had access to the internet.(15) It is quite encouraging that most of our respondents knew about computer vision syndrome as they are likely to be better prepared for the challenges of managing patients with computer vision syndrome. However our finding is lower than that of a similar study by Bali et al in India which reported that all their respondents knew about computer vision syndrome.(14) Few of our respondents knew that symptoms of computer vision syndrome could commence after three hours of

computer use. This finding could be a pointer to poor knowledge about computer vision syndrome among Nigerian Ophthalmologists. However this finding should be interpreted with caution as the relatively small sample size of this questionnaire based spot survey may not be representative of the knowledge base of Nigerian Ophthalmologists about computer syndrome. In view of this, further similar studies with a larger sample size should be carried out in Nigeria. This can be done by sending the study instrument to Nigerian Ophthalmologists probably through the internet. Most respondents identified asthenopic symptoms like eye strain and head ache as symptoms of computer vision syndrome. Other symptoms of computer vision syndrome identified by our respondents revolved around ocular surface related and extraocular symptoms. This finding is in tandem with that of Bali et al in

Treatment	Agree	Disagree	Don't know
I ask the patient to look away from the computer	79(80.6%)	2(2%)	17(17.3%)
I usually ask the patient to blink more often	70(70.7%)	10(10.1%)	19(19.2%)
Topical lubricant eye drops	68(68%)	12(12%)	20(20%)
Spectacles: bifocals/trifocal/progressive lenses	65(65.7%)	12(12.1%)	22(22.2%)
Analgesics	58(58%)	23(23%)	19(19%)
Oral NSAIDs	45(45%)	17(17%)	38(38%)
Topical NSAIDs	28 (28%)	43(43%)	29(29%)
Topical cycloplegics	10(10.1%)	60(60.6%)	29(29.3%)
Topical anaesthetics	2(2%)	63(63.6%)	34(34.3%)
Topical antibiotics	2(2%)	71(71.7%)	26(26.3%)

Table 2: Knowledge of respondents about treatment modalities of computer vision syndrome

in India.(14) The majority of our respondents reported that the main treatment of computer vision syndrome is use of artificial tears. Though this finding is encouraging, it is lower than 97.8 % reported in a study carried out in India.(14) It is likely that Indian based Ophthalmologists are more exposed to patients with computer vision syndrome than their Nigerian counterparts thus they could be better informed about this entity. The fact that most of our respondents knew about the usefulness of artificial tears in managing patients with computer vision syndrome is even more significant in view of reported exacerbated symptoms of pre-existing dry eyes in computer users.(16,17) The majority of our respondents advocated increased blinking in managing affected patients. It is has been reported that computer users have diminished blinking.(18,19) This may exacerbate symptoms of dry eye in predisposed individuals.(20-22)

### Conclusion

The majority of the respondents were aware of computer vision syndrome. The cadre of the respondents did not significantly affect the level of awareness. Most respondents had fair knowledge about the symptoms of computer vision syndrome and the treatment modalities.

### Recommendation

- 1) There is need for further similar studies with larger and more representative sample sizes.
- 2) The Ophthalmological society of Nigeria should work out a protocol for managing computer vision syndrome most especially in view of the fact that it is a diagnosis of exclusion.
- 3) Nigerian Ophthalmologists should be trained about computer vision syndrome probably during the annual conference of Ophthalmological Society of Nigeria so as to improve the knowledge base about this entity.

### Acknowledgement

The authors are grateful to the Ophthalmological Society of Nigeria. Special thanks to the respondents for graciously accepting to participate in this study at short notice in spite of their tight schedule during the conference. We hereby acknowledge the support of the Management of Federal Medical Centre, Owo, Ondo State, Nigeria

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# Congenital Chylous ascites

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## Introduction

Congenital Chylous ascites, an unusual disease in newborn, is defined as an accumulation of chyle in the peritoneal cavity due to lymph leakage from rupture of the intra-abdominal lymph vessels.(1)

Congenital ascites have different etiologies, including genitourinary, gastrointestinal, infectious, metabolic, malignant, and lymphatic abnormalities. (2, 3)

The most common cause of neonatal nonchylous ascites is urine from genitourinary tract, which accounts for more than 50% of cases. (2, 3, 4)

Congenital chylous ascites can be associated with malrotation of the small intestine. (5, 6)

Although the disease is rare in newborns the incidence is increasing due to aggressive surgeries as well as prolonged survival of cancer patients.

Paracentesis is one of the non-operative regimens of treatment to relieve abdominal distention. (7)

In this report we describe a case of congenital chylous ascites in a newborn that was managed in the Neonatal intensive care unit at Prince Rashid Hospital, Irbid, Jordan.

Treatments options and complications are discussed.

To our knowledge; this is the first reported case in North of Jordan.

## Case Presentation

Term baby girl with a birth weight of 2500 grams was born to a 37 year-old Gravida 5 Para 3 mother, by spontaneous vaginal delivery with Apgar scores of 3 at one minute, and 7 at five minutes. She had mild respiratory distress immediately after birth. The baby needed nasal oxygen at a rate of 1L/min to maintain her saturation. The initial abdomen ultrasound showed massive accumulation of peritoneal fluids, Figure 1 (next page).

Computed scanning of the abdomen and pelvis showed a big amount of peritoneal effusion.

Paracethesis was done and 120cc yellow clear peritoneal fluid was drained, Figure 2 (page 33).

Analysis of the peritoneal fluid contained low urea nitrogen and creatinine levels:

Total protein 3.6/dl, albumin 2.6g/dl, cholesterol 65 mg/dl, triglyceride 22 mg/dl, LDH 249 I U/L, glucose 66mg/dl, PH 7.8, specific gravity was 1014, and contained about 1000 white cells /mm<sup>3</sup> with more than 70% lymphocytes. Complete blood count was normal; her serum LDH was 880 total protein 4.8, albumin 3.2, cholesterol 110, triglycerides 112, liver, kidney function tests were normal. Serological test for

## Abstract

Chylous ascites, which is the accumulation of chyle in the peritoneal cavity, is an unusual entity in neonates and was recognized by abdominal ultrasonography in a full term newborn girl presenting with early transient respiratory distress syndrome, and severe abdominal distension. Diagnosis was confirmed by abdominal puncture and ascetic fluids were taken. The etiology of most cases of chylous ascites remains unknown. But it may be congenital or acquired. Congenital chylous ascites is primarily related to inadequate lymph drainage as a result of maldevelopment and may occur from different causes including genitourinary, gastrointestinal, infectious, and metabolic and malignancy. Here we describe an infant with congenital chylous ascites who improved after total parenteral nutrition (TPN) and somatostatin administration, who was managed in the Neonatal intensive care unit at Prince Rashid Hospital, Irbid, Jordan. The baby needed treatment by octerotide after other forms of conservative therapy proved ineffective

**Key words:** Chylous ascites, Newborn, Octerotide, Total Parenteral Nutrition (TPN).



**Figure 1: Abdominal Ultrasound showed massive ascites**

toxoplasmosis, rubella, cytomegalovirus were negative, and the inflammatory markers as well as peritoneal fluid culture were negative. Her thyroid function tests were normal. Chromosomal analysis consistent with Down's syndrome.

Fluids, electrolytes, and losses of proteins were replaced regularly. Total parenteral nutrition (TPN) was started and empiric antibiotics were given. Clinical status of the infant improved. Twenty four hours after commencing feeding, the drained fluid increased and showed a rather milky color Figure 3. Analysis of this fluid showed total protein of 2.6g/dl, albumin 1, 2.1g/dl, cholesterol 50 mg/dl, triglyceride 181mg/dl, and glucose 58mg. Ratio of peritoneal fluid's triglycerides to serum triglycerides was 181:112, which was more than 1.0, peritoneal fluids cholesterol to serum cholesterol was 50:110 which was less than 1.0, consistent with chyle. The infant was kept on Nothing per Oral and Total Parenteral Nutrient.. Restriction of feeding to

parenteral nutrition as well as ascites drainage, failed to reduce chylous flow so octerotide, was initiated at 40 microgram/kg/day, and was switched to the IV formulation at a dose of 4mcg/kg/hr continuous infusion for twenty one days .After twenty one days of IV therapy octerotide was discontinued. The infant was put on pregestimil as it contained more constituents of medium chain triglyceride formula. After one week of discontinuation of octerotide with no ascites noted.

Figure 4 (page 35) the baby was discharged home in good condition and returned to follow up in good general condition.

### Discussion

Congenital chylous ascites is an unusual and rare condition, and it is important to distinguish chylous and nonchylous ascites for management plans. The most common cause of neonatal nonchylous ascites is urinary oozing, which leads to elevated

urea and creatinine in ascitic fluids with evidence of hydronephrosis or ruptured bladder.(2,3,4) These findings were absent in our case as all radiographic imaging to support the urinary cause were negative. Other causes of nonchylous ascites include immune, nonimmune hydrops fetalis, gastrointestinal, cardiac, metabolic, and congenital diseases, inflammatory processes, malignancy and miscellaneous causes. (2, 3, 10) Malrotation of the intestine should be considered in the evaluation of neonatal ascites. (5, 6) The radiographic findings were also negative in our patient. Chylous ascites are mostly idiopathic; other causes include congenital lymphatic obstruction rupture, lymphangiectasia, or trauma (2, 3). The newborn we describe here had primary chylous ascites as no underlying cause was found. Paracentesis fluid was initially clear yellow in colour, Figure 2, and turned milky after initiation of oral feeding which indicates the presence of chylomicrons and high levels of





**Figure 2: Clear yellow ascetic fluid**

triglycerides, cholesterol and predominance of lymphocytes. Ratio of peritoneal fluid's triglycerides to serum triglycerides was 181:112 which was more than 1.0. Peritoneal fluids cholesterol to serum cholesterol was 50:110 which was less than 1.0 consistent with chyle. (8)

This may cause massive lymph drainage that will induce critical losses of fluid, lymphocytes proteins, coagulation factors and antibodies thus increasing mortality and morbidity. (9) Chylous ascites need supportive care which includes parenteral nutrition and avoidance of enteral feeding which can decrease the lymph flow in the abdominal part of the thoracic duct dramatically from 220ml /kg/hr to 1ml /kg /hr. (10) TPN restores nutritional deficits and balances metabolic impairments caused by long standing chylous ascites. Evacuation of ascites fluids can be controlled by either a conservative or surgical approach. The success rate is as high as 70-

80% with conservative treatment, which should be considered as the first option of treatment(11). After a week of restriction of feeding to parenteral nutrition, failed to reduce chylous flow, the mechanism appears to be related to mesenteric lymphatic's leakage of chyle into the peritoneal cavity. (12) So a second evacuation of ascetic fluids was done, and the baby kept on nothing by oral, and nutritional support by TPN continued, with pharmacological therapy in the form of octerotide, (13, 14, 15) which is a long-acting synthetic analogue of endogenous somatostatin, was started. Octerotide, was initiated at 40 microgram/kg/day, and was switched to the IV formulation at a dose of 4mcg/kg/hr continuous infusion for twenty one days. After twenty one days of IV therapy octerotide was discontinued. The infant was put on pregestimil as it contains more constituents of medium chain triglyceride formula. After one week of discontinuation of octerotide with no ascites noted, Figure 4, the

baby was discharged home in good condition and returned to follow up in a good general state.

### Conclusion

Medical management with somatostatin along with Total Parental Nutrition is an effective therapy in the management of congenital chylous ascites, and should be put in place after dietary measures. With this treatment regime some infants with chyloascitis can be prevented from undergoing surgical intervention.

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**Figure 3: After commencing feeding, the drained fluid increased and showed a rather milky color**

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Figure 4: Very minimal rather absences of ascetic fluids

