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Evaluation of Referral System for Cancer Patients and The Information they received about Their Disease in Tertiary Hospitals in Riyadh, 2012 ... page 6

From the Editor

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In this issue of the journal a number of papers deal with various topics ranging from Vitamin D deficiency to recurrent fall.

An interesting correlation was investigated using a prospective case-control study between vitamin D level and primary cesarean section. The authors stressed that delivery by cesarean is a common operative procedure experienced by reproductive age women. Factors which increase risk include older maternal age, obesity, parity and poor vitamin D use along with a more recently defined factor—maternal nutrition. Vitamin D level was measured, women in both groups were classified according to their vitamin D status into vitamin D deficient group (level<30nmol/L), vitamin D insufficient group (level 30-49.9 nmol/L) and those with normal (adequate) vitamin D (level>50). We found that 31 women from the total number of women with cesarean section and control groups have serum 25(OH)D less than 30 nmol/L. 46% (n=23) of them delivered by cesarean section and 8% delivered vaginally. The authors concluded that Vitamin D deficiency was associated with increased odds of primary cesarean section.

A case control study from Cairo looked at recurrent falls in elder patients. Care giving produces great amounts of caregiver burden and stress. The aim of the paper is to evaluate the risk factors of recurrent falls and effect on care giving family members. A structured questionnaire conducted in an outpatient geriatric unit on 150 elder patients, divided into 2 groups; first: cases (100 subjects), second: controls (50 subjects). Comprehensive geriatric assessment and Timed Up and Go test (TUG) were applied. Caregiver burden and potential determinants were measured in all participant partners using resion and use of assistive device are risk factors

for recurrent falls in older adults, and the caregiver stress is more prevalent in those with recurrent falls especially with increase the number of falls, the presence of depression and functional impairment. So we recommend assessment of these risk factors for falls in all older patients and also assessment of caregiver stress especially in the elders with recurrent falls.

This study was designed to evaluate the referral system for cancer patients, and to assess the information which is received by cancer patients about their disease in tertiary hospitals in Riyadh, KSA. A cross sectional study was conducted on 73 cancer patients who received treatment in two tertiary hospitals in Riyadh; King Fahd Medical city and King Khalid University Hospital in March 2012. The study included any man or woman above 15 years old, who had been diagnosed with any type of cancer, and received treatment in the tertiary hospital for any time period. All the participants were recruited from the chemotherapy department and outpatient clinic. Data was collected through questionnaire interview with all patients or their relatives by the study investigator. QLQ-INFO25 questionnaire was used. There were 30 (44.8%) patients who had been referred to KFMC or KKAUH, and 37 (55.2%) patients who had been admitted without referral. The main cause of referral was to confirm the diagnosis 76.7%, then to receive chemotherapy 16.7%. Time duration to the acceptance was 40% less than one week, 36% one to two weeks, 3.3% three to four weeks, 13.3% one to two months, and 6.7% more than two months. 70% of cancer patients gave their case report by hand to the tertiary hospital, 23.3% sent their case report by fax, and 3.3% sent the case report by email. 25 (83.3%) cancer patients were satisfied with the referral system of cancer patients in Saudi Arabia.

A descriptive cross sectional hospital based study carried out in the congenital bleeding disorders ward in Children Welfare Teaching Hospital/ medical city in Baghdad during the period between the 2nd of January 2013 to the 31st of May 2013. The study looked at the prevalence of hepatitis B and C In hemophiliac patients up to 18 years old in Children Welfare Teaching Hospital ,Baghdad-Iraq. The medical records of 384 patients with hemophilia in patient up to 18 years old were surveyed and analyzed for the presence of hepatitis B and C infection and its association to certain factors by using Chi square. Fisher exact test was

used alternatively when the Chi square was inapplicable. Three hundred and eighty four hemophiliac patients were studied; 38 (9.9%) of them had been infected by hepatitis C virus and 2 (0.52%) of them had been infected by hepatitis B virus; one patient had both hepatitis B and C. Twenty eight of the hepatitis C virus infected patients were 11-18 years old. 36 were type A hemophilia and 35 had severe hemophilia. The prevalence of hepatitis B was 0.52%. The prevalence of hepatitis C virus was (9.9 %) and it is significantly associated with the age of the patients, the type of hemophilia and its severity and times of transfusion.

A qualitative paper from Sri Lanka looked at the views of Specialists on referral communications The referral letter is the interface between the primary and secondary/tertiary levels of care. It facilitates the referral process and is beneficial for optimizing patient care. In Sri Lanka a referral letter is not necessary to consult a Specialist. The authors aims to describe Specialists views on the quality of referral letters received, perceived advantages of referral letters and to identify other modes of communication between General Practitioners and Specialists. Conducted in 2013, this study consisted of in-depth interviews using a semi-structured format, with 21 purposively selected Specialists representing a range of specialties. Most patients consulted Specialists without a referral letter and also the few letters received were of poor clarity, lacking important information and scribbled in illegible hand. The authors concluded that the general belief amongst Specialists is that referral letters are an important part of the patient care system. This has not been adequately utilized by the primary care providers in Sri Lanka, despite the numerous advantages described. Also consideration needs to be given to newer modes of emerging information communication technology.

In our education and training section we feature an overview of the requirements for supervision of a medical thesis, plus a CME case presenting with anaemia.

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2 Editorial

Original Contribution / Clinical Investigation

<-- Iraq -->

- 4 **The correlation between vitamin D level and primary cesarean section**
Henan Dh Skheel ALjebory, Abeer N. Hamdy

11 <-- Egypt -->

- Recurrent Falls in Elder Patients: Risk Factors and Effect on Care Giving Family Members**
Hossameldin M. M. Abdelrahman, Amal Emam Emam Elawam

20 <-- Iraq -->

- The prevalence of hepatitis B and C in hemophiliac patients up to 18 years old in Children Welfare Teaching Hospital, Baghdad, Iraq**
Wiam Ghassan Abd Alhameed, Sanaa Jafar Hamodi Alkaisi, Afrah Abdul-Mahdi Al-Ma'eeni

Review Article

<-- Saud Arabia -->

- 26 **Evaluation of Referral System for Cancer Patients and the Information they received about their Disease in Tertiary Hospitals in Riyadh, 2012**
Al Jamaan, M.A., Memish, Z.A., Basulaiman, M.O., Saeedi, M, Y., Al Wadey, A.M., Arafa, M. A.; Al Saif, A. A., Alfarwan, W.M., Al-Fahaad, H.A., Alqarni A.S.

Clinical Research and Methods

34 <-- Sri Lanka -->

- Views of Specialists on referral communications - a qualitative study from Sri Lanka**
R. P. J. C. Ramanayake, A. H. W. de Silva, D. P. Perera, R. D. N. Sumanasekera, L. A. C. L. Athukorala K. A. T. Fernando

Education and Training

39 <-- Iran -->

- How to supervise a medical thesis**
Mohsen Rezaeian

42 CME

The correlation between vitamin D level and primary cesarean section

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Abstract

Background: Delivery by cesarean is a common operative procedure experienced by reproductive age women. Factors which increase risk include older maternal age, obesity, parity and poor vitamin D use along with a more recently defined factor - maternal nutrition.

Recent research has found low circulating 25-hydroxyvitamin D (25(OH)D), the primary indicator of vitamin D status, among women who were either pregnant or in their reproductive years. One way by which poor maternal vitamin D status might increase risk of cesarean delivery is by reducing strength of the pelvic musculature and the mother's ability to push and deliver vaginally.

The extent to which maternal vitamin D influences the course and outcome of human pregnancy needs to be more completely studied.

Objective: To assess the possible correlation between vitamin D level and primary cesarean section.

Study design: A prospective case-control study.

Subjects and method: This study was carried out at AL - Yarmouk Teaching Hospital, Department of Obstetrics and Gynecology for a period of 1 year from the first of October 2012 to the first of October 2013 and included 100 singleton pregnant women; fifty women with cesarean section for the first time (study group) and another fifty women with spontaneous vaginal delivery (control group). Serum level of 25(OH) vitamin D was measured in both groups and the correlation of vitamin D level with cesarean section was studied.

Vitamin D level was measured; women in both groups were classified according to their vitamin D status into vitamin D deficient group (level<30nmol/L), vitamin D insufficient group (level 30-49.9 nmol/L) and those with normal (adequate) vitamin D (level>50).

Results: We found that 31 women from the total number of women with cesarean section and control groups had serum 25(OH)D less than 30 nmol/L (considered as a group of vitamin D deficiency according to the Institute of Medicine (IOM)), 46% (n=23) of them delivered by cesarean section

and 8% delivered vaginally; 42% women with vitamin D level between 30-49.9 nmol/L (group of vitamin D insufficiency), 32%(n=16) of them delivered by cesarean section and 26% delivered vaginally; 27% women with vitamin D =>50nmol/L (vitamin D adequacy), 22% (n=11) of them delivered by cesarean section and 16 delivered vaginally, P value 0.0001. In multivariable logistic regression analysis controlling for age, education level, BMI and vitamin D use, women with 25(OH)D less than 30 nmol/liter (group with vitamin D deficiency) were almost four and a half times as likely to have a cesarean (OR ratio=4.47, 95%CI=1.75-11.43). There was an inverse association with having a cesarean section and serum 25(OH)D levels.

Conclusion: Vitamin D deficiency was associated with increased odds of primary cesarean section.

Key words: Hydroxy vitamin D; vitamin insufficiency; vitamin D deficiency; vitamin D intake; parathyroid hormone; caesarian delivery; prolonged labor.

Introduction

We already know Vitamin D is important for bone health of the mother and infant, but we are just starting to scratch the surface about the many potential health benefits of Vitamin D during pregnancy. Vitamin D deficiency is the major cause of rickets around the world, but rickets may be just the tip of the iceberg. Increasingly, research is revealing the importance of vitamin D in protecting against a host of health problems -- not just those involving calcium and bone.(1,2) Cesarean is a common operative procedure experienced by reproductive age women(3). Optimal cesarean delivery rates will vary over time and across different populations according to individual and societal circumstances(4,5). Factors which increase risk include older maternal age, obesity, parity and ethnicity along with a more recently defined factor-maternal nutrition.(6) Recent research in the United States found low circulating 25-hydroxyvitamin D (25(OH)D), the primary indicator of vitamin D status, among women who were either pregnant or in their reproductive years(7). One way by which poor maternal vitamin D status might increase risk of cesarean delivery is by reducing strength of the pelvic musculature and the mother's ability to push and deliver vaginally(8). Some have speculated that cesarean section rates have increased due to a relationship between birth weight and maternal pelvis size, positing on the basis of Darwinian-inspired logic that since the advent of successful Caesarean birth over the last 150 years, more mothers with small pelvises and babies with large birth weights have survived and contributed to these traits. However, this idea fails to take into account that historically disproportion in childbirth was caused by maternal malnutrition in childhood, in particular malformed pelvic bones due to childhood rickets. Improved maternal nutrition should have led to increased ease in vaginal birth, not an increase in cesarean sections.(5) Vitamin D deficiency is common in Arab women, and its deficiency in pregnancy is detrimental to the health of both mother and child and is largely due to how Arab women dress outdoors - preventing exposure of the skin to sunlight and subsequent vitamin D intake as the majority of vitamin D is synthesized photochemically by the skin from ultraviolet B radiation.(9) There is a growing body of evidence that Vitamin D levels have fallen below what is considered healthy in the overall population and vitamin D has reemerged as an important nutritional factor in maternal and infant health.

Patients and Method

This prospective case-control study was conducted in the Department of Obstetrics and Gynecology in Al-Yarmouk teaching hospital for a period of 1 year starting from the first of October 2012 to the first of October 2013. The study protocol was approved by Obstetrics and Gynecology committee of Iraqi Board for medical specialization and the hospital administration and verbal consent was taken from each patient included in the study.

Patient Collection:

This study included 100 singleton pregnant women; fifty women with cesarean section for the first time (study group) another fifty women with spontaneous vaginal delivery (control group) who were enrolled in this study. All attended the labor ward in Al-Yrmouk Teaching Hospital, Department of Obstetrics and Gynecology during the study period. Serum level of 25(OH) vitamin D was measured in both groups and the correlation of vitamin D level with cesarean section was studied. Vitamin D level was measured; women in both groups were classified according to their vitamin D status into vitamin D deficient group (level<30nmol/L), vitamin D insufficient group (level 30-49.9 nmol/L) and those with normal (adequate) vitamin D (level=>50). During the conduct of this study we have encountered an obstacle; the number of tests allowed per day was very limited and restricted to two patients only and the test was not available at the weekend. This explains the small sample collection, so we selected daily the first 2 patients who were:

- Primigravida.
- Singleton pregnancy with cephalic presentation,
- term pregnancy (37-42 weeks),
- with spontaneous onset of labor, (women planned for induction were excluded),
- no history of thyroidectomy or parathyroidectomy,
- women with known pre-pregnancy BMI .
- no history of travel within two months.
- no history of medical illness (liver, renal, thyroid or parathyroid disease),
- no history of drug interference or alcohol intake.

Enrollment was evenly distributed over the time to ensure data was representative of season as sunlight exposure affects vitamin D status (10). All women were of the same ethnic group. Full history and obstetrical examination was taken for all of them; their progress of labor was observed on partogram.

Blood sample was collected by veni-puncture within 24 hours of delivery. None of the patients were receiving an IV infusion at time of the veni-puncture. Serum 25(OH)D, was accepted as the indicator of vitamin D status in children and adults, and was measured by competitive electrochemiluminescence protein binding assay by Roche Cobace e411(11). The half life of 25(OH)D is about 21 days; it was minimally influenced by fasting or changes in dietary intake during a short fasting.

At the conclusion of the study period we ended with 100 patients.

Data analysis

The dependent variable was maternal vitamin D deficiencies, defined as serum 25(OH)D level less than 30 nmol/l, 30-49.9 nmol/l as insufficiency and=>50nmol/l as adequate. Prenatal vitamin use was analyzed as well as frequency of use in each trimester. BMI measured by dividing the weight in kg by the height in m² according to

WHO ranges. Reason of cesarean section was obtained from the surgeon who performed the cesarean section. Continuous variables are presented as medians with binomially obtained 95% confidence intervals.

Statistical analysis

Analysis of data was carried out using the available statistical package of SPSS-20 (Statistical Packages for Social Sciences- version 20). Data were presented in simple measures of frequency, percentage, mean, standard deviation, range (minimum-maximum values). The significance of difference of different means (quantitative data) was tested using analysis of variance (ANOVA) for more than two groups and using independent student-t-test for difference between two means. Statistical significance was considered whenever the P value was equal to or less than 0.05.

Results

There is no significant difference in the age, level of education between the study group and the control group since the p-value was= 0.525 for the age and 0.909 for the level of education. There is no significant difference in BMI between the two groups. (Table 1 - below).

74% of cesarean sections were performed for cephalopelvic disproportion, 13% for fetal distress; there were no significant associations between vitamin D use during pregnancy or season of birth, but there was significant association with history of vitamin D use before pregnancy (p=0.0001) as shown in Table 2 - opposite page.

The mean vitamin D level in the cesarean group was (28.12 ±20.38) which is significantly lower than that in the vaginal delivery group (43.82±16.45) p=0.0001. Plasma PTH levels were inversely associated with vitamin D levels and there was direct relation between vitamin D and plasma Ca levels p=0.0001 (Table 3 - opposite page).

The relative risk of cesarean section is 4.47 in women with vitamin D deficiency and insufficiency (95%CI=1.75-11.43) compared to women with normal vitamin D level (Table 4, Figure 1 - page 8).

Discussion

The main focus of the current work is to study the possible correlation between vitamin D level and primary cesarean section in term pregnancy. Vitamin D plays a major role in bone metabolism and vitamin D deficiency can initiate rickets and pelvic deformity in the future which may prevent vaginal delivery; also vitamin D acts on the growth of skeletal muscle receptors (Vitamin D receptors) (12,13); vitamin D deficiency and insufficiency are related to muscle mass and strength in younger women (14-16), thus its deficiency or insufficiency reduces the power of pushing during labor and increases the risk of cesarean section.

Vitamin D insufficiency is a common problem worldwide. Among a sample of Iraqi pregnant women, vitamin D deficiency and insufficiency was found in 40% and 38% pregnant women respectively (17). Moreover the rate of cesarean section was 38% according to the Iraqi Ministry of Health report for 2012.

In the current study, it was found that 23 women (46%) of those who underwent primary cesarean section had vitamin D level of less than 30 nmol/l placing them in the vitamin D deficient group. After excluding other confounding factors, there was a 4.5 fold increase in cesarean section rate for those in the deficient group in comparison with the vitamin D sufficient group. Their main indication for cesarean section (74%) was due to cephalopelvic disproportion (CDP) and 26% due to fetal distress. These results neither differ markedly from prevalence data reported by the center for disease control using institute of medicine guidelines, Micheal 2008, Theresa. O Scoll 2012 or Merewood 2009 studies (18-20). They demonstrated that 22.9% of patients who

Table 1: Demographic characteristics for the age, level of education, BMI (Kg/m²) in study group compared to controls

	Cesarean delivery	Vaginal delivery	P value
Age (years)	25.02±5.08 (16-34)	25.06±4.41 (17-34)	0.697
BMI (Kg/m ²)	24.57±6.82 (16.0-39.5)	23.35±4.52 (17.0-34.0)	0.296
Gestational age (weeks)	39.9±1.3 (38-42)	38.8±1.1 (36-41)	0.0001*
*Significant using Students-t-test for difference between two independent means at 0.05 level			
Data were presented as Mean ± SD (Range)			
-23 were males and 27 were females, equal for both groups			

Table 2: Indications for cesarean section and association with season of birth, vitamin D use in each trimester and before pregnancy

		Cesarean delivery		Vaginal delivery		P value
		No	%	No	%	
Cause for CS	CPD	37	74.0	-	-	-
	Fetal distress	13	26.0	-	-	
First Trim Vit D use	Yes	34	68.0	37	74.0	0.509
	No	16	32.0	13	26.0	
Second Trim Vit D use	Yes	42	84.0	40	80.0	0.603
	No	8	16.0	10	20.0	
Third Trim Vit D use	Yes	40	80.0	39	78.0	0.806
	No	10	20.0	11	22.0	
History of taking Vit D	Never	33	66.0	18	36.0	0.0001*
	Occasionally	8	16.0	27	54.0	
	Daily	9	18.0	5	10.0	
Season of birth	Spring	16	32.0	13	26.0	0.795
	Summer	10	20.0	8	16.0	
	Autumn	7	14.0	9	18.0	
	Winter	17	34.0	20	40.0	

*Significant using Pearson Chi-square test at 0.05 level

Table 3: The relation between vitamin D, plasma PTH and plasma Ca levels

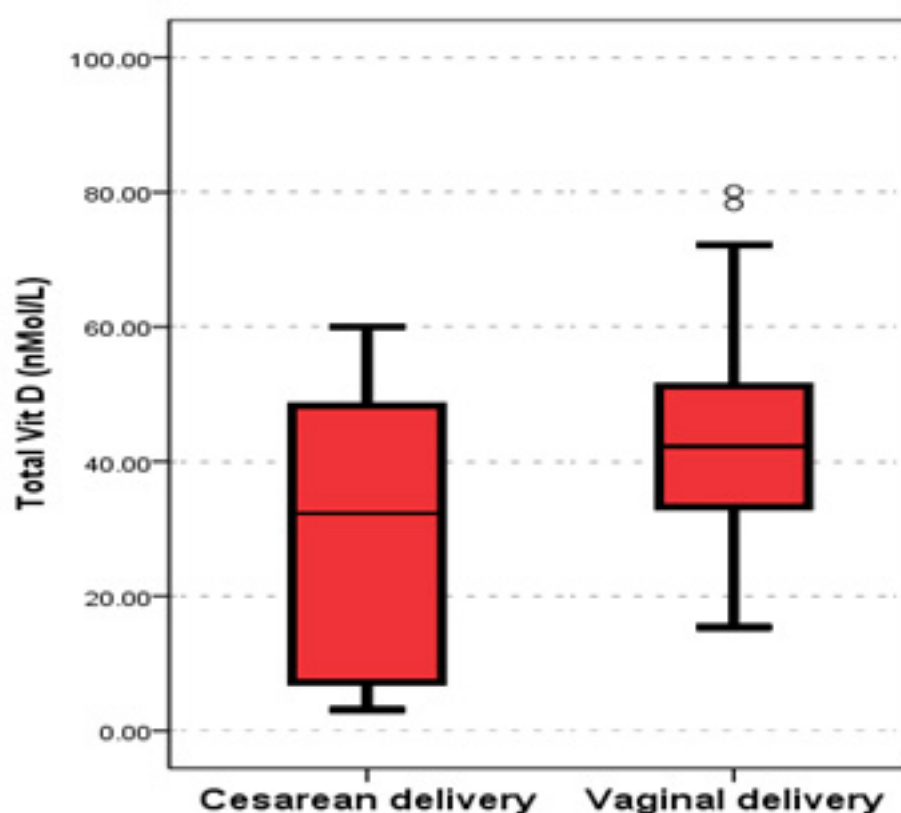
		Cesarean delivery		Vaginal delivery		P value
		No	%	No	%	
Total Vit D (nMol/lI)	<30	23	46.0	8	16.0	0.0001*
	30-49.9	16	32.0	26	52.0	
	=>50	11	22.0	16	32.0	
	Mean ± SD (Range)	28.12±20.38 (3.15-60.00)		43.82±16.45 (15.38-80.12)		
Plasma PTH (pg/ml)	Low (<15)	-	-	4	8.0	0.0001*
	Normal (15-65)	28	56.0	42	84.0	
	High (>65)	22	44.0	4	8.0	
	Mean ± SD (Range)	50.23±23.52 (16.10-82.00)		31.85±19.05 (10.50-86.40)		
Plasma Ca (mEq/dL)	Low (<8.5)	23	46.0	3	6.0	0.0001*
	Normal (8.5-10.5)	26	52.0	33	66.0	
	High (>10.5)	1	2.0	14	28.0	
	Mean ± SD (Range)	8.53±1.00 (6.8-10.7)		9.88±1.15 (8.0-12.5)		

*Significant using Pearson Chi-square test at 0.05 level

Table 4: Vitamin D levels in cesarean and vaginal delivery groups

	Total Vit D (nMol/L)				P value
	<30		30-49.9		
	No	%	No	%	
Cesarean delivery	23	46.0	27	54.0	0.001*
Vaginal delivery	8	16.0	42	84.0	
OR=4.47 95%CI=1.75-11.43					
*Significant using Pearson Chi-square test at 0.05 level					

Figure 1: Vitamin D in cesarean and vaginal delivery groups



undergo primary cesarean section had vitamin D concentration of <30 nmol/l considered as a deficient group, another 19.1% had vitamin D concentration of 30-49.9nmol/l and 17% more than 50nmol/l so there was a 2 fold increase in primary cesarean section in those with vitamin D deficiency. One explanation for our findings is the fact that skeletal muscle contains the Vitamin D receptors (21). Vitamin D deficiency has been associated with proximal muscle weakness as well as suboptimal muscle performance and strength(22-27). Moreover, vitamin D deficiency is a possible risk factor for preeclampsia(28,29), which is a common indication for cesarean section in primigravida.

Papandreou et al (30). reported significantly higher serum calcium levels in pregnant women at the time

of vaginal delivery compared with term women not in labor or women who were not in labor but delivered by scheduled cesarean. It was speculated that the higher serum calcium levels played a role in the mechanism of initiation of labor because vitamin D is critically important for maintenance of calcium homeostasis. It is possible that vitamin D deficiency, which causes a slight lowering of the serum calcium, is related to both skeletal muscle and smooth muscle strength and may play a role in initiation of early labor. It is also possible that vitamin D deficiency might be related to specific types of cesareans (such as cephalopelvic disproportion or failure to progress) than to others (such as breech), although we did not have a large enough sample to be able to analyze this. This finding can be confirmed on a large scale study which would be a critical area for future research. Serum

ca and 25(OH)D are positively related, when vitamin D concentration increase is associated with increased serum calcium level, p- value 0.0001,(Table 5). Vitamin D status is linked to immune status(31, 32). Certain infections have been associated with preeclampsia which in turn increases the odds of cesarean (33). Vitamin D deficiency may thus be a marker for a compromised immune system and an associated, higher risk for cesarean.

A study performed in 1994-1995 by Brunvand et al. (34) found no association between vitamin D deficiency at the time of delivery and obstructed labor in a case control study of Indian women giving birth in Karachi. Their findings bear little relevance for the present study however; outcomes were measured only for cesareans due to cephalopelvic disproportion; the sample consisted of largely undernourished women, and 71% of study participants were severely vitamin D deficient [25(OH)D <30 nmol/liter]. In addition, the paper did not satisfactorily clarify the use of the term cephalopelvic disproportion (as opposed, for example, to alternative, yet closely related reasons such as fetal distress). The specific validity of the term disproportion has been questioned for more than a year.(35,36).

Other variables, which are factors associated with primary cesarean section, BMI, vitamin D use (during 1st, 2nd and 3rd trimester), history of vitamin D intake before pregnancy, season, education, all are factors associated either with elevated or no significant difference in the rate of cesarean section, according to the BMI, season, vitamin D use in 1st, 2nd and 3rd trimester, level of education we found no significance difference between both group in the study. According to the history of vitamin D intake before pregnancy we found significant decrease in the rate of cesarean section in patients with a positive history of vitamin D intake.

The Parathyroid hormone (PTH) is inversely related with 25(OH)D; an increased concentration of PTH is a functional indicator of vitamin D deficiency and insufficiency, consistent with others we found, that as circulating concentrations of 25(OH)D decreased, PTH rose(37,38). In our study PTH was increased at concentrations suggestive of deficiency and insufficiency, declined as 25(OH)D increased and was no different when concentrations consistent with vitamin D sufficiency and those exceeding 50 nmol/L were compared. There is no significant difference with prevalence data reported by, Merewood study(2009), Michael study (2008) and Theresa O. Scholl study(2012). A randomized clinical trial is now needed to determine whether adequate vitamin D supplementation during pregnancy to raise blood levels of 25(OH)D above at least 37.5 nmol/liter can reduce the cesarean section rate.

Conclusions

- Serum vitamin D level was significantly lower in patients with primary cesarean section in comparison to the control group.
- There is a significant increase in the rate of cesarean section in patients with vitamin D level <30 nmol/L.
- Vitamin D deficiency and insufficiency are common in Iraqi women. Health professionals have been slow to respond to this problem even though the issue has been highlighted in the literature for a number of years.

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Recurrent Falls in Elder Patients: Risk Factors and Effect on Care Giving Family Members

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Abstract

Background: Care giving produces great amounts of caregiver burden and stress. Falls are a common and complex geriatric syndrome that cause considerable mortality, morbidity, reduced functioning, and premature nursing home admissions.

Aim: To evaluate the risk factors of recurrent falls and effect on care giving family members.

Materials and methods: Case control study, performed with structured questionnaire conducted in an outpatient geriatric unit on 150 elder patients, divided into 2 groups; first: cases (100 subjects), second: controls (50 subjects). Comprehensive geriatric assessment and Timed Up and Go test (TUG) were applied. Caregiver burden and potential determinants were measured in all participant partners using Caregiver Burden Questionnaire.

Results: The mean age of the cases was 69.6 ± 6.8 , while for controls was 67.2 ± 4.7 , [P: 0.02]. Sex did not show a significant difference between cases and controls [P: 0.123]. The mean BMI of the cases was 26.03 ± 6.4 , and of controls: 29.1 ± 6.8 , [P: 0.007]. The functional state assessed by ADL showed significant difference between cases and controls, [P: <0.001]. Also the use of assistive device was more among cases than controls, [P: 0.01]. Depression and polypharmacy were significantly

found in cases more than controls, [P: 0.006, 0.01 respectively]. The mean value of TUG test in cases was $23.9 \text{ sec} \pm 11.1$ while for controls was 19.6 ± 11.3 , [P: 0.02], and the number of subjects with impaired TUG test was significantly higher in cases than controls [P: 0.002]. Table 3 showed that caregiver stress was significantly prevalent and more severe in cases (84%) than controls (54%), [P: <0.001, 0.002 respectively], also the mean value of ZBI test in cases was $31.9 \text{ sec} \pm 22.8$ while for controls was 18.5 ± 21.4 , [P: 0.001]. Table 4 displayed possible determinants of severity of caregiver stress in cases. It was found that presence of depression and functional impairment in the cases group were significant determinants of caregiver stress [P: 0.006, 0.003] respectively, also the number of falls significantly determined the severity of caregiver stress; the more the number of falls, the more severe caregiver stress score [P: <0.001].

Conclusion: Age, lower BMI, functional impairment, polypharmacy, depression and use of assistive device are risk factors for recurrent falls in older adults, and the caregiver stress is more prevalent in those with recurrent falls especially with increase in the number of falls, the presence of depression and functional impairment. So we recommend assessment of these risk factors for falls in all older patients and also assessment of caregiver stress especially in the elders with recurrent falls.

Key words: recurrent falls, elderly patients, care giving family members

Introduction

Falls are a common and complex geriatric syndrome that cause considerable mortality, morbidity, reduced functioning, and premature nursing home admissions. Falls have multiple precipitating causes and predisposing risk factors, which make their diagnosis, treatment, and prevention a difficult clinical challenge. A fall may be the first indicator of an acute problem (infection, postural hypotension, cardiac arrhythmia), may stem from a chronic disease (Parkinsonism, dementia, diabetic neuropathy), or simply may be a marker for the progression of "normal" age-related changes in vision, gait, and strength. Moreover, most falls that are experienced by older persons have multifactorial and interacting predisposing and precipitating causes (e.g., a trip over an electrical cord contributed to by a gait disorder and poor vision). [1]

Posture control in humans depends on the interaction between the individual's intrinsic characteristics, his surroundings and the demands of the task he is performing. Posture maintenance is mediated by information from the sensory systems, by the Central Nervous System (CNS) programming and by the execution of the musculoskeletal system. The aging process affects the components of postural control, and it is difficult to differentiate the effects of age from those caused by disease and lifestyle. Regardless of the cause, however, the accumulation of alterations in body balance reduces the individual's compensatory capacity, increasing instability and, consequently, the risk of falling. [2]

The adoption of a definition is an important requirement when studying falls as many studies fail to specify an operational definition. For example, older people tend to describe a fall as a loss of balance, whereas health care professionals generally refer to events leading to injuries and ill health. [3]

Another definition that describes a fall is any event that leads to an unplanned, unexpected contact with a supporting surface, while recurrent falls is defined as two or more falls in a 12-month period. [4]

The Royal Society for the Prevention of Accidents (ROSPA) estimates that one in three people aged 65 years and over experience a fall at least once a year - rising to one in two among -80 year-olds and older. Although most falls result in no serious injury, approximately 5 percent of older people in community dwelling settings who fall in a given year experience a fracture or require hospitalization. [5] Approximately 28-35% of people aged 65 and over fall each year increasing to 32-42% for those over 70 years of age. The frequency of falls increases with age and frailty level. [6]

Falls lead to 20-30% of mild to severe injuries, and are an underlying cause of 10-15% of all emergency department visits, with more than 50% of injury related hospitalizations among people over 65 years and older.

Falls account for 40% of all injury deaths. [7] In addition, falls may also result in a post fall syndrome that includes dependence, loss of autonomy, confusion, immobilization and depression, which will lead to a further restriction in daily activities. Loss of confidence in the ability to ambulate safely can result in further functional decline, depression, feelings of helplessness, and social isolation. [8]

Recurrent falls are a major public health issue. Around 25% of adults aged over 75 years suffer at least two falls a year. Recurrent falls usually occur during basic activities of daily living such as walking and body transfer positions from sit-to-stand or stand-to-sit positions. Compared to a single fall, recurrent falls lead to more injuries, hospitalizations and nursing home admissions, which impose high costs on public health and social services. [9]

Providing care to someone, especially the elders, whether full time, part time, formal, informal or long distance takes a huge toll, both physically and emotionally. Few people are prepared for the responsibilities and tasks involved in caring for the aged because of the stress involved in it. [10]

Caregivers provide many kinds of help to the care receivers ranging from assistance with shopping to help with daily tasks such as bathing, dressing, feeding, lifting, turning him or her in bed, cooking, shopping, paying of bills, running errands, giving medicine, keeping him or her company, providing emotional support and so many other things. All this help rendered by caregivers can be time consuming and emotionally, physically and psychologically draining. [11]

Care giving produces great amounts of caregiver burden and stress; when stress builds up it can result in poor health and depression of the caregiver. [12]

For almost three decades, more attention has been given in the literature to family caregivers of older persons with physical or mental disability, especially in the study of the impact the disease has on their lives. The diagnosis of a severe disease, not only affects the patient but also the whole family. In this way, the person with the disability as well as the family group goes through a process of loss and grief. [13]

As mentioned, recurrent falls can increase caregiver stress but there is a lack of studies assessing that. So we are aiming in this study to assess presence of caregiver stress in caregivers of older adults with recurrent fall and its related factors.

Subjects and Methods

Subjects:

This is a case control study. The study included 150 older patients, 60 or more years old, and their caregivers, who accompanied them to the outpatient clinics in Ain Shams University Hospitals. The data were collected between March and August 2010.

A. Older participants:

The sample included 150 older subjects divided into 2 groups:

Cases group (100 subjects):

Inclusion criteria:

1. History of 2 or more falls within the past 12 months. [4]
2. Older patient 60 or more years old.
3. Able to walk with or without an assistive device but without the assistance of another person.
4. Able to follow simple instructions.
5. Living with a caregiver.
6. Can see and hear properly.
7. Without foot problems.

Controls group (50 subjects):

Includes elder subjects without history of recurrent falls.

Exclusion criteria:

1. Any bed ridden patient.
2. Patients with known systemic problems causing caregiver stress e.g.: renal failure, liver failure, COPD, respiratory failure, stroke, delirium and moderate to severe dementia and traumatic fractures.
3. We excluded falls resulting from unavoidable environmental hazards known as the extrinsic fall risks e.g: poor lighting, slippery floors, uneven surfaces, footwear and clothing, inappropriate walking aids or assistive devices.

Tools:

- **Comprehensive Geriatric Assessment:** with detailed history and physical examination including:
- **Age:** the incidence of falls increases with age. [14]
- **Gender:** for the younger old, fall rates for men and women are similar, but among the older old, women fall more often than men, and are far more likely to incur fractures when they fall. [15]
- **Medicines:** risk is increased significantly if a person is on more than four medications, irrespective of type. The use of four or more medications is associated with a nine-fold increased risk of cognitive impairment, and fear of falling. [16]
- **Nutritional deficiencies:** A low body mass index suggesting malnutrition is associated with increased risk. [17]
Evaluating the global nutritional status of the subject by calculating the Body Mass Index (BMI) (weight [kg]/height [m]²): a value < 21 being considered as a malnutrition criterion), and by assessing for a recent weight loss (a weight loss > 5% in a month or > 10% in six months indicating malnutrition) [18]
- **Assessment of functional state using ADL:** [19]
The subject was considered assisted if more than one daily activity is assisted and dependent if the subject was dependent in all the activities of daily living.
- **Screen for depression using GDS 15:** [20]
Geriatric Depression Scale 15 items: It is used for screening of depression; patients who score more than 5 positive items were considered to be depressed. It

had been translated into Arabic slang language suitable for illiterate subjects concerning the meaning of each depressive item included, and validated for detection of cases of depression, because its results significantly correlate with the results of Beck Depression Inventory (B.D.I.)

- **Assessment of cognitive function using MMSE:** [21]
It is well known that dementia is associated with caregiver stress, so any patient with dementia was excluded from the study.
- **Evaluation of gait and balance was done by timed up and go test (TUG test):** [22]
It is a basic evaluation of functional mobility that has been used extensively in geriatric medicine in order to evaluate gait and balance performance.

TUG was developed to assess balance, the risk of falls and the functional capacity of older adults. It consists of observation while the subject gets up from a chair, walks three meters in straight line, comes back to the chair and sits down. This course is timed in seconds, and the subject's performance is scored according to the time taken to completion.

Interpretation:

< 14 seconds = normal. Results correlate with gait speed, balance, functional level, the ability to go out, and can follow change over time.

>14 seconds is indicative of impaired functional mobility in community-dwelling older adults.

B. Caregiver participants:

Caregivers were eligible if they were a family caregiver, defined in this study as a family member or friend of the patient who helps the patient at home with self-care activities and is not paid to do so, were able to speak Arabic and hear at a conversational tone, were alert and oriented as determined by the interviewer, and had access to a working telephone.

The interviewer read all questions to the caregivers during the interviews in order to standardize data collection.

Assessment of caregiver burden:

We applied Zarit Burden Interview (ZBI) [23] for all caregivers; it is the most widely referenced scale in studies of caregiver burden.

Zarit Burden Interview

- **Variations/Translations:** Originally a 29-item scale, the 22 item version is more commonly used. Shorter versions of the ZBI have been developed with 18 and 12 items. Translations of the ZBI are available in French, Japanese, Chinese, Korean, Spanish and Brazilian. The test is known under two different names, the Zarit Burden Interview (ZBI) and the Burden Interview (BI). [24]

- **Setting:** Can be used in either a clinical or a community setting.
- **Method of Delivery:** Self-report questionnaire.
- **Description:** The Zarit Burden Interview (ZBI) was developed to measure subjective burden among caregivers of adults with dementia. Items were generated based on clinical experience with caregivers and prior studies resulting in a 22-item self-report inventory that examines burden associated with functional/behavioural impairments and the home care situation. The items are worded subjectively, focusing on the affective response of the caregiver.
- **Scoring/Interpretation:** Each question is scored on a 5 point Likert scale ranging from: - {never to nearly always present}. Total scores range from 0 (low burden) to 88 (high burden). Score values and interpretation are guidelines only.
- **Quantitative/Qualitative:** Quantitative.
- **Validity (Quantitative):** Good construct validity. The items possess content validity as they were derived from clinical and research experience with caregivers of individuals with dementia and reflect common areas of concern, namely, health, finances, social life, and interpersonal relations. Spearman's rho correlations include: .32 with activities of daily living, .32 with social life restrictions, .41 with the Brief Symptoms Inventory, .71 with the global index of burden, and -.57 with the quality of relationship between the caregiver and the recipient.
- **Reliability (Quantitative):** Excellent internal consistency; Cronbach's alpha = 0.83 and 0.89. A test-retest reliability of 0.71 was obtained.
- **Linguistic validation of the Arabic ZBI:**
 1. Translation to Arabic and confirmation of the linguistic validity and reliability of the Arabic version was made for the current study.
 2. The translation of the ZBI was done according to international methodological recommendations for the linguistic and cultural adaptation of questionnaires [25] using the English version as the source.
 3. Six steps of the translation process were followed: forward translation by 2 translators, meeting with the coordinator of the translation, a check by a bilingual expert to evaluate the scientific correctness of the wording, a backwards translation, meeting among the translators with the coordinator, and finally a pretest with a chosen sample. The translated questionnaire was tested on 15 volunteers who were allowed to comment on their understanding on each question.
 4. A few statements were changed in the Arabic translation to reflect the same correct meaning in the English version. The stability of the Arabic ZBI questionnaire was examined by the test-retest method and the Pearson correlation coefficient between the 2 measures, done on the same group of 15 participants 1 week apart, revealed 90% test-retest agreement.

Statistical Analyses:

All data were entered into the 21st version of SPSS (Statistical Package of Social Science) and analyzed using frequency and descriptive statistics to analyze

the study population. Frequency and percentage was calculated for all qualitative variables. Description of all data in the form of mean (M) and standard deviation (SD) was done for all quantitative variables. Comparison of qualitative variables was done using Chi-square test; it is a test that determines the extent that a single observed series of proportions differs from a theoretical or expected distribution of proportions, or the extent that two or more series of proportions or frequencies differ from one another based on the chi-square distribution.

Comparison between quantitative variables was done using t-test to compare two groups, and ANOVA (analysis of variance) to compare more than two groups.

The level of significance for Chi-square test, t-test and ANOVA was taken at P value < 0.05 is significant, otherwise is non significant.

Results

The study was conducted on 150 older patients and their caregivers; the sample was divided into 2 groups: cases (n= 100) who were the older adults with recurrent falls, and controls (n= 50) who were the older adults with non recurrent falls. Table 1 showed the demographic and characteristics of the older adults: The mean age of the sample was 68.8 ± 6.3 (range: 60 - 86). The sample included 80 (53.3 %) males and 70 (46.7 %) females. Among the 150 older subjects; 77 (51.3 %) were not using any assistive devices, 59 (39.3 %) were using canes and 14 (9.3 %) were using walkers. 80 (53.3 %) of the sample were depressed and 70 (46.7 %) were not depressed. 34 (22.7 %) were dependent in ADL, 81 (54 %) were assisted and 35 (23.3 %) were independent. 88 (58.7 %) were taking 4 or more medications and 62 (41.3 %) were taking less than 4 medications. The mean value of BMI of the sample was 27.07 ± 6.7 (range: 16 - 54). 55 (36.7 %) had TUG test normal and 95 (63.3 %) had TUG test impaired. Table 2 showed the mean age of the cases was 69.6 ± 6.8, while for controls was 67.2 ± 4.7, [P: 0.02]. Sex did not show a significant difference between cases and controls [P: 0.123]. The mean BMI of the cases was 26.03 ± 6.4, and of controls: 29.1 ± 6.8, [P: 0.007]. The functional state assessed by ADL showed significant difference between cases and controls, [P: <0.001]. Also the use of assistive device was more among cases than controls, [P: 0.01]. Depression and polypharmacy were significantly found in cases more than controls, [P: 0.006, 0.01 respectively]. The mean value of TUG test in cases was 23.9 sec ± 11.1 while for controls was 19.6 ± 11.3, [P: 0.02], and the number of subjects with impaired TUG test was significantly higher in cases than controls [P: 0.002]. Table 3 showed that caregiver stress was significantly prevalent and more severe in cases (84%) than controls (54%), [P: <0.001, 0.002 respectively], also the mean value of ZBI test in cases was 31.9 sec ± 22.8 while for controls was 18.5 ± 21.4, [P: 0.001]. Table 4 displayed possible determinants of severity of caregiver stress in cases. It was found that presence of depression and functional impairment in the cases group were significant determinants of caregiver stress [P: 0.006, 0.003]

respectively, also the number of falls significantly determined the severity of caregiver stress; the more the number of falls, the more severe caregiver stress score [P: <0.001].

Table 1: Demographics and characteristics of older subjects sample:

Age: Min:	60
Max	86
Mean & SD	68.8 ± 6.3
Sex: Males:	80 (53.3 %)
Females:	70 (46.7 %)
Assistive device used:	
No:	77 (51.3 %)
Cane:	59 (39.3 %)
Walker:	14 (9.3 %)
Depression	
Present:	80 (53.3 %)
Not present:	70 (46.7 %)
ADL: Dependent:	34 (22.7 %)
Assisted:	81 (54 %)
Independent:	35 (23.3 %)
Polypharmacy:	
Present:	88 (58.7 %)
Not present:	62 (41.3 %)
BMI: Min:	16
Max	54
Mean & SD	27.07 ± 6.7
TUG:	
Normal:	55 (36.7 %)
Impaired:	95 (63.3 %)

(Tables 2-4 are on pages 16-17)

Discussion

Among the highly heterogeneous risk list including age-associated changes, neuro-sensory impairments, muscular weakness, co morbidities, cardiovascular mediated problems, polypharmacy, and environmental hazards, we investigated the association between some of these risks and the recurrent falls and also the possible determinants of severity of caregiver stress in patients with recurrent falls.

We found that the cases had significant higher mean age value and lower BMI value than the controls, also the cases suffered functional impairment, polypharmacy and depression more than the controls, also the use of assistive device, especially the walker, was more prevalent among the cases.

This was supported by many studies which were conducted to investigate the risk factors of recurrent falls,

like Masud and Morris, 2001 [26] who stated that falls are extremely common among older adults, and that each year about one out of three people older than age 65 years who was living in the community, suffered falls, and that rate increased with advanced age and was higher among people who were living in institutional settings.

Also Hogue et al., 1982 [27] reported that falls were extremely common among older adults, and that each year about one out of three people older than age 65 years who was living in the community fell; this rate increased with advanced age and was higher among people who were living in institutional settings. They added that falls caused considerable mortality and morbidity, and that the risk for falls was nearly double for individuals who were older than the age of 80, and added that this was probably due to the increasing prevalence of multiple risk factors associated with age.

Siqueira et al., 2007 [28] stated that many studies had pointed to the female sex and the increase in age as highly relevant risk factors for the occurrence of falls in older adults.

Also Ooi et al., 2000 [29] studied the association between orthostatic hypotension and recurrent falls in nursing home residents and found that the risk for falls was nearly double for individuals who were older than the age of 80. And they explained this by the increasing prevalence of multiple risk factors associated with age.

So the higher age among the cases group could be attributed to the age-associated changes in posture control, muscle strength, and step height that could impair a person's ability to avoid a fall after an unexpected trip or while reaching or bending.

Many studies revealed that falls were more common among females, for example; Perell et al., 2001 [30] conducted a study for fall risk assessment measures and found that among nursing home residents many factors including the female sex and low BMI were associated with increased risk for an injurious fall and they attributed this to the relation to osteoporosis, and higher activity level.

Unfortunately in this study we found that among 70 females, the number of female cases was 51 and controls was 19, yet not significant, but it was considerably different and might be statistically non significant because of the small sample size.

Also we agreed with Ooi et al., 2000 [29] who found a strong relationship between the use of three or more medications and the risk for falls, and Ray et al., 2000 [31] and Friedman et al., 2002 [32] who reported that medicines like benzodiazepine use in older people was associated with an increase of as much as 44% in the risk of hip fracture and night falls, and added that there was a significant increased risk of falling with use of medications such as psychotropics, class 1a anti-arrhythmic

	Cases N = 100	Controls N = 50	
Age	M: 69.6 SD: 6.8	M: 67.2 SD: 4.7	<i>t: 2.2</i> <i>P: 0.02</i>
Sex	Male: 49 (49 %) Female: 51 (51 %)	Male: 31 (62 %) Female: 19 (38 %)	<i>X: 2.26</i> <i>P: 0.132</i>
ADL: Dependent: Assisted: Independent:	27 (27 %) 60 (60 %) 13 (13 %)	7 (14 %) 21 (42 %) 22 (44 %)	<i>X: 18.2</i> <i>P: <0.001</i>
Assistive device used:			
No:	47 (47 %)	30 (60 %)	<i>X: 8.1</i>
Cane:	39 (39 %)	20 (40 %)	<i>P: 0.01</i>
Walker:	14 (14 %)	0	
BMI:	M: 26.03 SD: 6.4	M: 29.1 SD: 6.8	<i>t: 2.7</i> <i>P: 0.007</i>
Depression			
Present:	61 (61 %)	19 (38 %)	<i>X: 7.05</i>
Not present:	39 (39 %)	31 (62 %)	<i>P: 0.006</i>
Polypharmacy:			
Present:	66 (66 %)	22 (44 %)	<i>X: 6.6</i>
Not present:	34 (34 %)	28 (56 %)	<i>P: 0.01</i>
TUG:			
Normal:	28 (28 %)	27 (54 %)	<i>X: 9.7</i>
Impaired:	72 (72 %)	23 (46 %)	<i>P: 0.002</i>
TUG in sec.	M: 23.9 SD: 11.1	M: 19.6 SD: 11.3	<i>t: 2.21</i> <i>P: 0.02</i>

Table 2:
Comparison between
cases and controls
regarding risk factors of
falls

	Cases N = 100	Controls N = 50	
Caregiver stress			
Present	84 (84 %)	27 (54 %)	<i>X: 15.5</i>
Absent:	16 (16 %)	23 (46 %)	<i>P: <0.001</i>
Caregiver stress severity:			
No stress			
Minimal	16 (16 %)	23 (46 %)	<i>X: 16.7</i>
mild	19 (19 %)	5 (10 %)	<i>P: 0.002</i>
Moderate	30 (30 %)	12 (24 %)	
Severe	23 (23 %) 12 (12 %)	8 (16 %) 2 (4 %)	
Caregiver stress value	M: 31.9 SD: 22.8	M: 18.5 SD: 21.4	<i>t: 3.4</i> <i>P: 0.001</i>

Table 3:
Comparison between
cases and controls
regarding prevalence
and severity of
caregiver stress

Table 4: Possible determinants of severity of caregiver stress in patients with recurrent falls:

Caregiver stress degree	No N = 16	Minimal N = 19	Mild N = 30	Moderate N = 23	Severe N = 12	
Patients' age	M: 69.8 SD: 7.3	M: 65.9 SD: 5.2	M: 70.1 SD: 6.6	M: 71.6 SD: 7.4	M: 70.3 SD: 6.8	<i>F: 2.004</i> <i>P: 0.1</i>
Patients' sex:						
Male:	10	7	16	11	5	<i>X: 2.7</i>
Female:	6	12	14	12	7	<i>P: 0.59</i>
ADL: Dependent:						
Assisted:	6	6	4	14	3	<i>X: 22.9</i>
Independent:	9 1	12 1	17 9	7 2	9 0	<i>P: 0.003</i>
Number of falls:						
2 falls:						
3 falls:	12	14	14	9	1	<i>X: 32.9</i>
4 falls:	3 1	1 4	14 2	11 3	4 7	<i>P:</i> <i><0.001</i>
Depression:						
Present:	11	6	16	17	11	<i>X: 14.4</i>
Absent :	5	13	14	6	1	<i>P: 0.006</i>

medications, digoxin, diuretics and sedatives, and mentioned that with the expanding evidence base for medications in chronic disease management, the number of prescribed medications had increased. They mentioned that risk was increased significantly if a person was on more than four medications, irrespective of type.

Regarding depression, Biderman et al., 2002 [33] reported that depression was associated with about a twofold increased risk for falling, and he explained this as depression might result in inattention to the environment, or cause more risk-taking behaviours. Besides he added that depression might be a reaction to previous fall-related morbidity and not be an actual causative risk at all. They reported also that fear of falling had been recognized as a negative consequence of falls.

And Cumming et al., 2000; [8] stated that post fall anxiety syndrome could result in self-imposed activity restrictions among home-living and institutionalized older fallers, and loss of confidence in the ability to ambulate safely could result in further functional decline, depression, feelings of helplessness, and social isolation.

Also Biderman et al., 2002 [33] reported that mild depressive symptoms occurred in close to one quarter of the older population, and about 5% of that population suffered major depression.

Feder et al., 2000 [34] stated that depression, fear of falling and other psychological problems - "post-fall syndrome" - were common effects of repeated falls, and added that loss of self-confidence as well as social

withdrawal, confusion and loneliness could occur, even when there had been no injury.

This was going with our study as we found that depression was a significant risk factor for fall in cases group and the association between falls and depression could be explained by the presence of common risk factors identified for depression and falls i.e., poor self-rated health, cognitive impairment, functional impairment, slow gait speed, etc.

In our study we found that TUG test values were higher in the cases than the controls group, as older adults who took longer than 14 seconds to complete the TUG had a high risk for falls.

This was supported by a study conducted by Gonçalves et al., 2009 [35] to compare the functional balance among community dwelling older adults according to their history of falls. They found that the older non-fallers completed the task in less time than the other groups, which showed that the fallers demonstrated higher mobility deficit.

Also many studies supported this finding; Günter et al., 2000 [36] found that older non-fallers were significantly faster in the execution of the TUG test when compared to the older one-time fallers or recurrent fallers ($p < 0.01$).

Another; Shumway-Cook et al., 2000 [37] applied the TUG test to community-dwelling older adults with no falls and with two or more falls in the six previous months, and the results suggested that older adults who completed the task in over 14 seconds had a high risk of falls.

And this could be explained by the fact that any musculoskeletal disorder would affect mobility and increase the chance for fall and therefore would lengthen the time for the task performance.

The study revealed that functional impairment assessed by ADL was a significant risk factor for fall, and this was supported by many studies; Sahyoun et al., 2001 [38] stated Gait and balance impairments were a significant risk factor for falls, and were associated with about a threefold increased risk for falling, they added that functional impairment, usually indicated by the inability to perform basic activities of daily living (ADLs; e.g., dressing, bathing, eating), doubled the risk for falling and in the community, ADL impairment affected 20% of persons who were older than age 70.

In this study the use of assistive device was found to be associated with recurrent falls; this was supported by Sahyoun et al., 2001 [38] who reported that the use of an assistive device for ambulation was associated with a 2.6-fold increased risk for falling.

In this study malnutrition assessed by BMI was found to be associated with fall risk, also Tinetti et al., 1996 [39] stated that nutritional deficiencies determined by a low body mass index suggesting malnutrition is associated with increased risk.

It is expected that recurrent falls in elders can be associated with caregiver stress, and in the literature, hardly any studies investigated the association between recurrent falls in elders and caregiver burden. So in this study we investigated the prevalence of caregiver stress among patients with recurrent falls and the possible determinants of severity of caregiver stress in patients with recurrent falls.

The study displayed that caregiver stress was more prevalent in the caregivers of cases (84%) than in the caregivers of the controls (54%) [$P < 0.001$] and the questionnaire values were higher in the caregivers of cases [mean: 31.9 ± 22.8] than in the caregivers of the controls [mean: 18.5 ± 21.4] [$P: 0.001$]

Also in the study, we found some significant determinants of severity of caregiver stress in patients with recurrent falls which were functional impairment, number of falls and presence of depression. So, the more the number of falls, the more dependent and depressed patient, the higher the severity of caregiver stress.

In our community, family caregivers provide a variety of kinds of support; they help with transportation and household activities, caregivers also help some care providers, for example; every time a new home care provider enters the home, a caregiver needs to explain the care recipient's routine and preferences, and help orient the provider. In addition, a caregiver may help a home care provider by organizing medications to be given to the older patient, or with tasks such as lifting

or moving the patient from a bed to a wheelchair (which can place the caregiver at risk for injury). Caregivers also monitor the care that is provided to ensure that home care meets their needs and preferences-both the patient's and caregiver's-and that tasks are completed effectively.

Although most caregivers said that care giving offered rewards such as personal satisfaction and a closer relationship with the older patient in their care, the proportion of distressed caregivers increases steadily as the patients move from low to high levels of need, and spikes when they have very high needs. So caregivers may report experiencing difficulties in care giving. For many it is emotionally demanding, creates stress, and takes away time from other activities.

Family caregivers can sometimes find themselves in a difficult predicament when caring for a senior-aged family member. While they are concerned for their loved one's wellbeing, they want to respect their independence and lifestyle. They may believe that assisted living and long-term care are undesirable or unattainable. Even when a senior moves in with a family caregiver, it may be impossible for that caregiver to look after the senior at all times - a situation which many seniors find unnecessary in the first place! These tough decisions can create tension between seniors and their loved ones. However, there are new advances in technology to ease these tensions and lower the "burden of care" for a family caregiver.

It is well known that falls are dangerous for older adults, because they can easily cause a disabling injury, such as a broken hip. Fear of falling can also seriously affect an aging adult's quality of life, and can keep a person from being active and so increase the dependency on the caregiver.

Conclusion

Age, lower BMI, functional impairment, polypharmacy, depression and use of assistive device are risk factors for recurrent falls in older adults and caregiver stress is more prevalent in those with recurrent falls especially with increase in the number of falls and the presence of depression and functional impairment. So we recommend assessment of these risk factors for falls in all older patients and also assessment of caregiver stress especially in the elders with recurrent falls.

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The prevalence of hepatitis B and C in hemophiliac patients up to 18 years old in Children Welfare Teaching Hospital, Baghdad, Iraq

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Abstract

Background and Objectives: Hepatitis B virus is one of the important public-health issues worldwide. Globally two billion people are infected with hepatitis B virus and about 350 million people are chronic carriers. About 3% of the world population is infected with hepatitis C virus. Hemophiliac patients who received blood and / or blood products due to frequent bleeding attacks usually have high risk of these viral infections. The objectives of this study are to estimate the prevalence of hepatitis B and C in hemophiliac patients up to 18 years old and to show the association between the prevalence of hepatitis C and certain factors which include:

- 1 Age.
- 2 Type and severity of hemophilia.
- 3 Family history of hepatitis.
- 4 Inhibitor status.
- 5 Times of blood and / or blood products transfusion.

Patients and methods: This is a descriptive cross sectional hospital based study carried out in the congenital bleeding disorders ward in Children Welfare Teaching Hospital, Medical city in Baghdad

during the period between the 2nd of January 2013 to the 31st of May 2013. The medical records of 384 patients with hemophilia in patients up to 18 years old were surveyed and analyzed for the presence of hepatitis B and C infection and its association to certain factors by using Chi square. Fisher exact test was used alternatively when the Chi square was inapplicable.

Results: Three hundred and eighty four hemophiliac patients were studied; 38 (9.9%) of them had been infected by hepatitis C virus and 2 (0.52%) of them had been infected by hepatitis B virus; one patient had both hepatitis B and C. Twenty eight of the hepatitis C virus infected patients were 11-18 years old. 36 were type A hemophilia and 35 had severe hemophilia. All of them had received blood and / or blood products; 28 of them had received them more than twice.

Conclusion: The prevalence of hepatitis B was 0.52%. The prevalence of hepatitis C virus was (9.9 %), and it is significantly associated with the age of the patients, the type of hemophilia and its severity and times of transfusion.

Key words: Prevalence, Hepatitis B, hepatitis C, hemophilia.

Introduction

Management of viral hepatitis is a major aspect of hemophilia nursing. A large majority of individuals with bleeding disorders have chronic hepatitis C infection, while a few are chronic carriers of hepatitis B virus, some of whom are co-infected with hepatitis D. Many also have hepatitis G virus or antibody [1].

An understanding of viral hepatitis is essential to provide appropriate patient education and support in order to prevent or moderate the effects of chronic infection [1].

We must distinguish among these various viral infections and explain them to patients, interpret hepatitis tests and markers, explain how to prevent transmission to others and encourage behaviors that protect the liver from further harm. Caring for those with chronic hepatitis and protecting those without hepatitis are integral to the practice of hemophilia nursing [1].

Around 500,000,000 people are chronically infected with hepatitis B virus (HBV) or hepatitis C virus (HCV) [1].

o Approximately 1,000,000 people die each year (~2.7% of all deaths) from causes related to viral hepatitis, most commonly liver disease, including liver cancer [2].

o An estimated 57% of cases of liver cirrhosis and 78% of cases of primary liver cancer result from HBV or HCV infection [3].

New hepatitis B and C infections are seen more often in recipients of organs, blood, and tissue, along with persons working or receiving care in health settings, and in vulnerable groups [3].

Millions of people are living with viral hepatitis and millions more are at risk. Most people who were infected long ago with HBV or HCV are unaware of their chronic infection. They are at high risk of developing severe chronic liver disease and can unknowingly transmit the infection to other people [3].

Viral hepatitis places a heavy burden on the health care system because of the costs of treatment of liver failure and chronic liver disease. In many countries, viral hepatitis is the leading cause of liver transplants. Such end-stage treatments are expensive, easily reaching up to hundreds of thousands of dollars per person [3].

Chronic viral hepatitis also results in loss of productivity [4].

Objectives

- 1) To estimate the prevalence of hepatitis B and C in hemophiliac patients up to 18 years old .
- 2) To show the association between the prevalence of hepatitis C and certain factors which include:

- A) Age.
- B) Type and severity of hemophilia.
- C) Family history of hepatitis.

D) Inhibitor status.

E) Times of blood and / or blood products transfusion.

Patients and Methods

This is a cross sectional hospital based study carried out in the congenital bleeding disorders ward in Children Welfare Teaching hospital, Medical city in Baghdad, Iraq during a period between the 2nd of January 2013 to the 31st of May 2013.

This study involved hemophiliac patients who were registered in this ward between August 2008 and December 2012.

The medical records of 384 patients with hemophilia, up to 18 years old, were surveyed and analyzed. Two hundred and eighty two (282) of them are hemophilia A (factor VIII deficiency), (102) of them are hemophilia B (factor IX deficiency); all of them were males.

These patients were screened for Anti HCV antibody (Anti HCV Ab) and HBV surface antigen (HBs Ag) by ELISA test.

Data of all cases were checked for any error or inconsistency then transferred into a computerized database program; Microsoft Excel software was used. All variables were coded with a specific code for each variable and prepared for statistical analysis. SPSS (Statistical Package for Social Sciences) software for windows version 20 was used in statistical analysis.

Descriptive statistics were presented as frequency (number of cases) with proportions (percentages) for categorical variables, and as mean \pm standard deviation and range for discrete variables.

T test for two independent samples was used to test the significance of observed difference in mean. Chi-square test for independence and Fisher's exact test was used as appropriate to test the significance of association between discrete variables.

Results

Description of the studied sample:

A total number of 384 files of hemophiliac patients aged up to 18 years were surveyed, 282 of them (73.4%) with hemophilia A and 102 (26.6%) with hemophilia B. Out of the 384 patients with hemophilia, 39 (10.2%) had a positive serological test for hepatitis B, C or both. Two patients (0.52%) had hepatitis B, 38 (9.9%) had hepatitis C; one patient had both hepatitis B and C. (Table 1 - next page)

Prevalence of hepatitis B and hepatitis C among hemophiliac patients:

The findings of positive serology for hepatitis B and hepatitis C provide that among all hemophilia cases (384), the prevalence of hepatitis B was 0.52%, and of hepatitis C was 9.9%, (Figure 1 - next page).

Association between the prevalence of hepatitis C and certain factors:

- There is a statistically significant association between age and hepatitis C infection that the frequency of infection increases with age ($P < 0.05$), (Table 2).
- There is a statistically significant association between the prevalence of hepatitis C and type of hemophilia, more with hemophilia A ($P < 0.05$) (Table 3).

- There is a statistically significant association between the prevalence of hepatitis C and the severity of hemophilia, more with severe hemophilia ($P < 0.05$), (Table 4).

- There is a statistically significant association between the prevalence of hepatitis C infection and the times of transfusion, more than two transfusions ($P < 0.05$), (Table 5).

Table 1: Distribution of the study group according to serology status of hepatitis B and C

Serology*	N	Percentage (%) from number of cases (N=39)
Hepatitis B	2	5.1%
Hepatitis C	38	97.4%

* One patient had both hepatitis B and C

Figure 1: Prevalence of hepatitis B and hepatitis C among hemophiliac patients

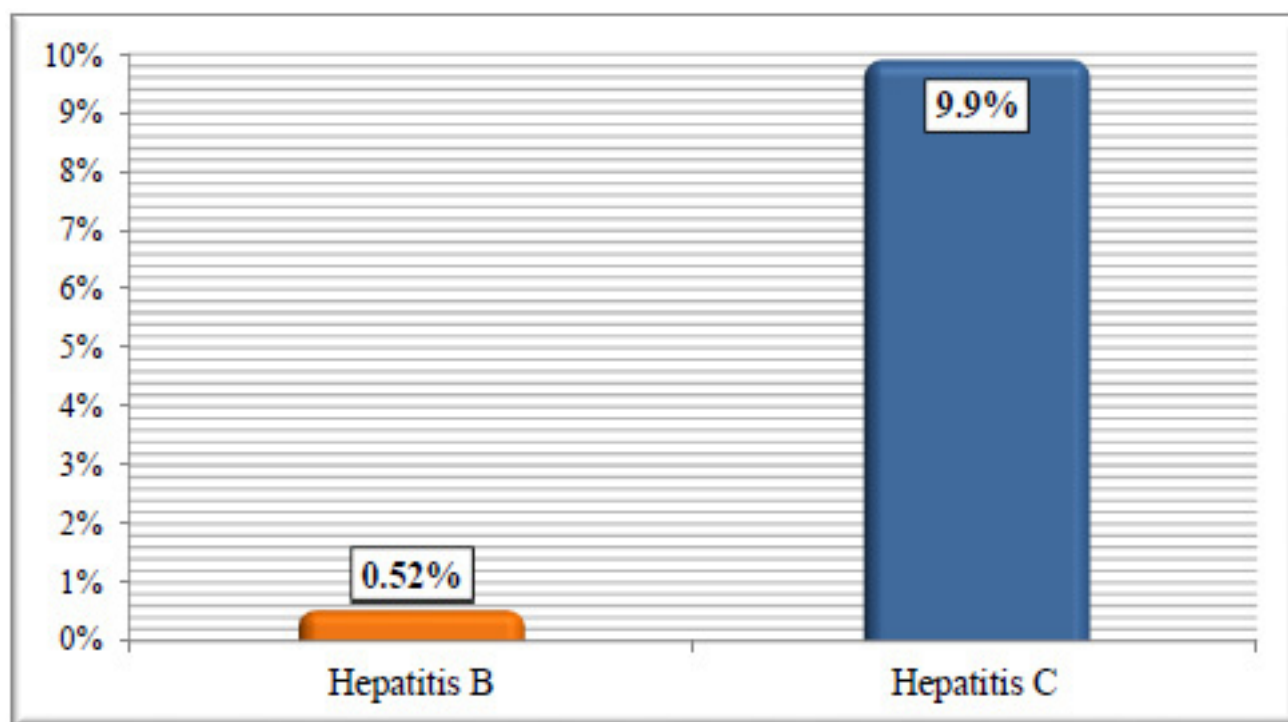


Table 2: Distribution of the study sample according to status of hepatitis C and to age group

Age group (year)	Total N (100.0%)	Hepatitis C				P value
		Positive		Negative		
		N	%	N	%	
Up to 5	140	1	0.7%	139	99.3%	
6-10	118	9	7.6%	109	92.4%	<0.001
11-18	126	28	22.2%	98	77.8%	
Total	384	38	9.9%	346	90.1%	

Table 3: Distribution of the study sample according to status of hepatitis C and to type of hemophilia

Type of hemophilia	Total N (100.0%)	Hepatitis C				P value
		Positive		Negative		
		N	%	N	%	
Hemophilia A	282	36	12.8%	246	87.2%	0.002
Hemophilia B	102	2	2.0%	100	98.0%	
Total	384	83	9.9%	346	90.1%	

Table 4: Distribution of the study sample according to status of hepatitis C and to severity of hemophilia

Severity of hemophilia	Total N (100.0%)	Hepatitis C				P value
		Positive		Negative		
		N	%	N	%	
Mild	47	0	0.0%	47	100%	<0.001
Moderate	122	3	2.5%	119	97.5%	
Severe	215	35	16.3%	180	83.7%	
Total	384	38	9.9%	346	90.1%	

Table 5: Distribution of the study sample according to status of hepatitis C and to frequency of receiving blood &/or blood products

Times of blood &/or blood products transfusion	Total N (100.0%)	Hepatitis C				P value
		Positive		Negative		
		N	%	N	%	
0	256	0	0.0%	256	100.0%	<0.001
1	37	1	2.7%	36	97.3%	
2	32	9	28.1%	23	71.9%	
>2	59	28	47.5%	31	52.5%	
Total	384	38	9.9%	346	90.1%	

Discussion

This study shows that the prevalence of hepatitis C was 9.9% among (384) hemophiliac patients. In contrast to another study in Iran done by Maziar Mojtabavi (2007) [5], which shows that the prevalence of hepatitis C was (22.6%), this difference may be because Maziar's study included all patients of hereditary bleeding disorders in all ages while our study included only hemophiliac patients up to 18 years.

In this study the prevalence of hepatitis C infection among hemophiliac patients may be associated to certain factors which include (age, type of hemophilia, severity of hemophilia, family history of viral hepatitis, the presence of inhibitors, history of blood and / or blood products transfusion).

It was found that HCV was more statistically significant associated to advanced age >11 years old. This agrees with the result by Chung-JI in Taiwan 1997 [6] and the study by Sanchez, J et al in Peru 2000 [7]. It could be due to the increasing physical activity of children at this age which makes them more susceptible to hemarthrosis.

There was a statistically significant association between the type of hemophilia and the prevalence of hepatitis C; it was more with hemophilia A than with hemophilia B. This may be due to type A being the commonest type of hemophilia. This disagrees with Musaab 2011 in Iraq [8] and agrees with Amel 2012 in Egypt [9].

In this study there is a statistically significant association between the severity of hemophilia and the prevalence of hepatitis C. This agrees with the study done by Musaab [8], where he found that HCV infection is higher in severe forms of hemophilia. This may be due to the low level of factor VIII which increases the susceptibility to bleeding and thus increases the requirement for factor replacement (either recombinant factor and if it is unavailable we give blood products) to correct the factor deficiency. This is also in agreement with the study done by Ghosk K et al in India 2000 [10].

Family history has no significant association with the prevalence of HCV infection. This is in agreement with Musaab 2011[8] and also agrees with R.A.Camro 2002 in Brazil [11].

There is no statistically significant association between HCV infection prevalence and positive inhibitors population of this study group. This disagrees with Kristen Et al in Nicaragua 2002 [12], but agrees with R.A. Camro 2002 [11].

In this study HCV infection has a statistically significant association to transfusion of blood and blood products; from another point the prevalence is directly associated to the times of transfusions. This result is in agreement with the study done by Calderon GM et al in Mexico 2009 [13] and this may be due to the blood screening for antibodies

to HCV could not completely eliminate the risk of HCV transmission by blood, because antibodies usually appear within 7-10 weeks after acquiring the infection.

This study shows that the prevalence of hepatitis B in hemophiliac patients up to 18 years old was (0.52%). Another study done by Mohammed Ali Assarehzadegan (2012) in Iran [14] shows that the prevalence of hepatitis B in hemophiliac patients was (1.1%), and Maziar's study [5] which shows that the prevalence of hepatitis B was (0.2%).

Conclusion

- 1) The prevalence of hepatitis C in hemophiliac patients up to 18 years old is still significantly high.
- 2) The prevalence of hepatitis C is statistically significant related to various factors:
 - a) Increasing age. More than 11 years old.
 - b) Type of hemophilia. More with hemophilia A.
 - c) Severity of hemophilia. More with severe hemophilia.
 - d) Frequency of blood and blood products transfusion, (more than 2 transfusions).
- 3) The family history of hepatitis C and the presence of inhibitors are not significantly related to the prevalence of hepatitis C infection.
- 4) There is low prevalence of hepatitis B infection in hemophiliac patients up to 18 years old.

Recommendations:

- 1) Health promotion and health education regarding raising public awareness about hepatitis B and C infections to prevent its transmission in the community.
- 2) Encouragement of the vaccination of all children and all risk groups (e.g. hemophiliac patients).
- 3) Implementation of blood safety strategies, including blood supplies based on voluntary blood donation, effective public education on blood donation, donor selection and quality assured screening of all donated blood and blood components used for transfusion. This can prevent transmission of HBV and HCV infection.
- 4) Strengthening of Infection control precautions in health care centers and community settings can prevent viral hepatitis infection.
- 5) Provision of Safe injection practices can protect against transmission of viral hepatitis.

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Evaluation of Referral System for Cancer Patients and The Information they received about Their Disease in Tertiary Hospitals in Riyadh, 2012

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Abstract

Cancer is a major health problem in both developed and developing countries. This study was designed to evaluate the referral system for cancer patients, and to assess the information which is received by cancer patients about their disease in tertiary hospitals in Riyadh, KSA. A cross sectional study was conducted on 73 cancer patients who received treatment in two tertiary hospitals in Riyadh; King Fahd Medical city and King Khalid University Hospital in March 2012. The study included any man or woman above 15 years old, who had been diagnosed with any type of cancer, and received treatment in the tertiary hospital for any time period. All the participants were recruited from the chemotherapy department and outpatient clinic. Data was collected through questionnaire interview with all patients or their relatives by the study investigator. QLQ-INFO25 questionnaire was used. There were 30 (44.8%) patients who had been referred to KFMC or KKHU, and 37 (55.2%) patients who had been admitted without referral. The main cause of referral was to confirm the diagnosis 76.7%, then to receive chemotherapy 16.7%. Time duration to the acceptance was 40% less than one week, 36% one to two

weeks, 3.3% three to four weeks, 13.3% one to two months, and 6.7% more than two months. 70% of cancer patients gave their case report by hand to the tertiary hospital, 23.3% sent their case report by fax, and 3.3% sent the case report by email. 25 (83.3%) cancer patients were satisfied with the referral system of cancer patients in Saudi Arabia. The global score of the information module "QLQ-INFO25" was 67. The mean score was 31.3 (46.8) and standard deviation was 12.1. From this study, we conclude that, the referral system for cancer patients in Saudi Arabia needs to be electronic, unified in all hospitals, fair with all cancer patients, time effective, connect all tertiary hospitals and have a two way direction between secondary and tertiary hospitals. All medical facilities should provide the disease information to cancer patients by transparency and honesty. Health educators and social workers have an important role in psychological support to cancer patients.

Key words: Referral system, information, cancer patients, Riyadh Saudi Arabia

Introduction

Cancer is a major health problem in both developed and developing countries. According to the World Health Organization's most recent figures, the global incidence of cancer was nearly 12.7 million in 2008. Projected incidence rates are calculated at over 21.4 million by 2030. Also, in 2008 over 7.6 million people died from cancer and projected mortality rates will exceed 11 million by 2030. However, WHO reports future mortality rates could be reduced with regular screenings, timely diagnosis and early treatment of cancers (1).

In Saudi Arabia, age-standardized death rate per 100,000 for cancer patients was 79.2 in males and 66.2 in females. Cancer was estimated to account for 6% of all deaths in 2010 (2). According to the KSA National Cancer Registry, from January 1998 to December 2007 there were 69,941 Saudi nationals diagnosed with cancer. More than 50% of cases presented with advanced cancer (31% of males and 24% of females presented with distant metastasis, and regional metastases were present in 20% of males and 28% of females) (3). A comprehensive cancer control encompasses primary prevention, early detection/ screening, treatment and palliative care (4). Cost-effective interventions are available across the four broad approaches to cancer prevention and control (5, 6, 4-7). Early detection and screening for cancer and Population-based screening for common cancers are important complements to primary prevention.

Early diagnosis is essential to reduce cancer morbidity and mortality since cancer stage at diagnosis is the most important determinant of treatment options and patient survival. Early detection is based upon awareness of early signs and symptoms. In a population where the majority of the cancers are diagnosed in late stages, the establishment of an early diagnosis program is an effective strategy to reduce the proportion of advanced stages and improve survival rates for selected cancers that may be amenable to effective treatment with limited resources (e.g. cervical, breast, oral or skin cancers) (6, 4-7).

Referral system is one of the services provided to cancer patients to confirm the diagnosis and receive the appropriate treatment. Referral was defined as a process in which the treating physician at a lower level of the health service, who has inadequate skills by virtue of his qualification and/or fewer facilities to manage a clinical condition, seeks the assistance of a better equipped and/or specially trained person, with better resources at a higher level, to guide him in managing or to take over the management of a particular episode of a clinical condition in a beneficiary.(8)

In Saudi Arabia, Ministry of Health is responsible for the supervision of health care and hospitals in both the public and private sectors. The system offers universal health care coverage.(9) In Riyadh, there are 4 tertiary hospitals. They receive the cancer patients from all Saudi regions,

and offer a free service. Most of cancer patients are diagnosed initially in the primary or secondary hospitals in different regions, and they are referred to the tertiary hospitals to confirm diagnosis or to receive chemotherapy, radiotherapy, or to do some special surgeries. After the case report of the cancer patient is written and sent to the tertiary hospitals, there is a special committee to study the case and get the acceptance or rejection. Each tertiary hospital has its own referral system and its own processes. So, there is no unified system that can facilitate and organize the referral system.

There is some evidence that doctors are failing to inform patients when they diagnose cancer, particularly in older patients (10, 11, 12). This is despite evidence that some patients with malignancy want to know if their illness is cancer, and others want to know as much as possible about their illness, often more than a doctor assumes they want to know (13, 14, 15, 16).

This study discusses two issues. The first one is the referral system for cancer patients in Saudi Arabia and the other issue is the information received by cancer patients about their disease.

Material and Methods

This study was conducted throughout 4 months, March-July 2012, using the information module QLQ-INFO25, by questionnaire interview method. The questionnaire consisted of 4 parts: The first part consisted of sociodemographic data; the second part was eight multiple choice questions which were qualitative variables. They included information regarding the disease, the time and place of diagnosis and type of treatment received. The third part discussed the way, time, and processes of referral system, and the opinion of the participant about the referral system. The last part was composed according to guidelines from the EORTC Quality of Life Group.

Study Design:

A cross sectional study was conducted on 73 cancer patients who received treatment in two tertiary hospitals in Riyadh to evaluate the referral system and information conveyed to patients about their disease and its treatment.

Study Population:

The study included any man or woman above 15 years old who has been diagnosed with any type of cancer and received treatment in the tertiary hospital for any time period. Only Saudis were eligible in the study.

Data Analysis:

SPSS "Statistical Package for the Social Sciences" was used for data entry and data analysis. Each questionnaire had a serial number in the cover page and each question had a serial number in the questionnaire.

Scoring of QLQ-INFO25

		Items	Range	Score	Question
Multi-item Scales	Information about the disease	4	3	12	38-41
	Information about medical tests	3	3	9	42-44
	Information about treatments	6	3	18	45-50
	Information about other services	4	3	12	51-54
Single-item Scales	Information about different places of care	1	3	3	55
	Information about things you can do to help yourself	1	3	3	56
	Satisfaction with the information received	1	3	3	57
	Written information	1	1	1	58
	Information on CD tape /video	1	1	1	59
	Wish to receive more information	1	1	1	60
	Wish you have received less information	1	1	1	61
	Overall the information has been helpful	1	3	3	62
Global score		1	25	67	

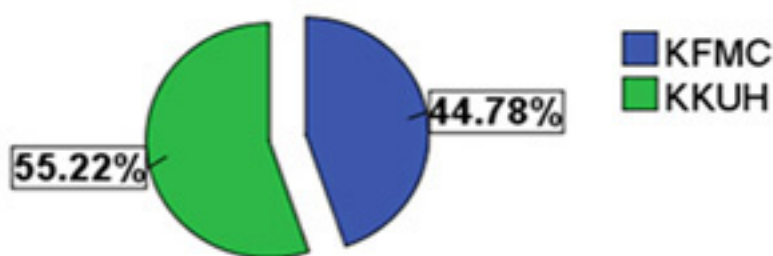


Figure 1 Distribution of cancer patients according to the hospital

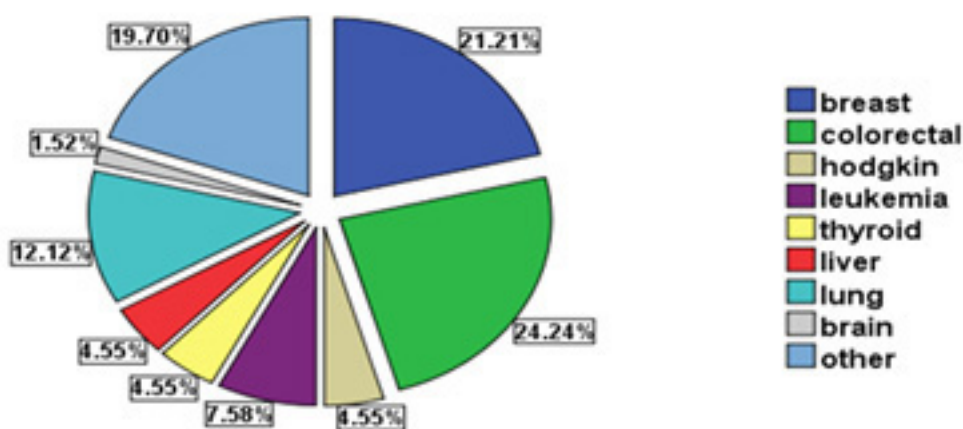


Figure 2 Distribution of the cancer sites among cancer patients in Riyadh (n=67)

Ethical issues were considered. The informed consent was clear and indicated the purpose of the study and right of the participant to withdraw at any time without any obligation to participate. No incentives or rewards were given to the participants and no obligation to participate. Participants' anonymity was assured by assigning each participant with a code number. IRB approval was obtained from King Khalid University Hospital on 18/4/2012.

Results

Sample size was 73 cancer patients; six patients were non Saudis and excluded. Of the other 67 cancer patients, 30(44.8%) were from KFMC and 37(55.2%) from KKHU. (Figure 1 - opposite page).

There were 52 (77.6%) males and 15 (22.4%) females. Educational level of participants was 17% university, 16% illiterate, 16% secondary, 10% intermediate, and 6% primary. The age was between 15 to 80 years old, mean was 50.1 and standard deviation was 16.29.

56.7% of patients have been diagnosed with cancer for less than one year, 34.3% between one to three years, and 9% for more than three years. Patients who received surgery were 57 (85.1%), patients who received chemotherapy were 32 (47.8%), and patients who received radiotherapy were 8 (11.9%). The cancer patients were 24.2% with colorectal cancer, 21.2% with breast cancer, 12.1% with lung cancer, 7.6% with leukemia, 4.5% with Hodgkins, 4.5% with thyroid, 4.5% with liver, and others were 22.3% (Figure 2).

There were 30 (44.8%) patients who had been referred to KFMC or KKHU, and 37(55.2%) patients who had been admitted without referral. 63.3% patients had been diagnosed for less than one year, 23% between one to two years, and 13.4% for more than two years. 63.3% had treatment at one tertiary hospital and 33.3% had two tertiary hospitals. The main cause of referral was to confirm the diagnosis 76.7%, then to receive chemotherapy, 16.7%. Time duration to the acceptance was 40% less than one week, 36% one to two weeks, 3.3% three to four weeks, 13.3% one to two months, and 6.7% more than two months. The duration between the acceptance and the first appointment was 50% less than one week in, 33.3% one to two weeks, 6.7% three to four weeks, and 10% one to two months. 70% of cancer patients gave their case report by hand to the tertiary hospital, 23.3% sent their case report by fax, and 3.3% sent the case report by email. 80% came to the tertiary hospital by car, 16.7% by free air plane service for cancer patients, and 3.3% by taxi. (Table 1 - next page)

Extent of satisfaction with referral system (Table 2 - page 31). Percent of patients who thought they were referred in a proper time was 86.7%. Percent of patients who thought the processes of referral were simple and clear was 76.7%. There were 26.7% who thought the referral processes were not unified in all tertiary hospitals, and 73.3% didn't know. There were 30% who thought their

disease was affected by the delaying in the referral system. 73% didn't know if there was an electronic referral system, and 20% answered "No". In general, 25 (83.3%) cancer patients were satisfied with the referral system of cancer patients in Saudi Arabia.

The last part of the questionnaire was evaluation of the information received by cancer patients. Patients were 66, and one patient was missed. Regarding the information about disease, maximum score was 12, mean score was 6.2 (51.6%), and standard deviation was 2.4. The maximum score of the information about medical tests was 9. The mean score was 5.1(56.2%), and standard deviation was 2.3. The maximum score of the Information about treatments was 18. The mean score was 10 (56.2%) and standard deviation was 4.5. The maximum score of the Information about other services was 12. The mean score was 2.9 (24.2%) and standard deviation was 3. The global score was 67. The mean score was 31.3 (46.8) and standard deviation was 12.1. In KFMC, cancer patients who had been referred numbered 20 (66.7%), and in KKHU 10 (27%). The difference between the two hospitals was statistically significant by chi-square test. In KFMC, there was an electronic referral system and they had radiotherapy, but in KKHU there was not. In KFMC, time duration to the acceptance was 40% less than one week, and 45% one to two weeks. In KKHU, time duration to the acceptance was 40% less than one week, and 20% one to two weeks. In KFMC, 85% of cancer patients referred to KFMC were satisfied with the referral system, and 80% of cancer patients referred to KKHU were satisfied. In KKHU, 78.4% answered "not at all" and in KFMC, 41.4% answered "not at all". Regarding the information received by the cancer patient, the mean global score was 31.3. In KFMC, the mean global score was 34.8 and standard deviation was 8.95. In KKHU, the mean global score was 28.7 and standard deviation was 13.7.

Discussion

Regarding referral system, most of the studies in Saudi Arabia focus on referral between primary and secondary health care. Sample size of this study was few and not enough (73). There were 30 (44.8%) patients who had been referred to KFMC or KKHU, and 37 (55.2%) patients were not referred. The percent of patients who had not been referred to tertiary hospitals was 55.2%. Some of them had a special royal decree, or they know some workers in the hospital. Other patients were admitted through the emergency department or they were treated by their own account. The main cause of referral was to confirm the diagnosis in 76.7%. This means, 76.7% of cancer patients have confirmed their diagnosis in tertiary hospitals. On the other hand, 23.8% of cancer patients have confirmed their diagnosis in primary and secondary hospitals.

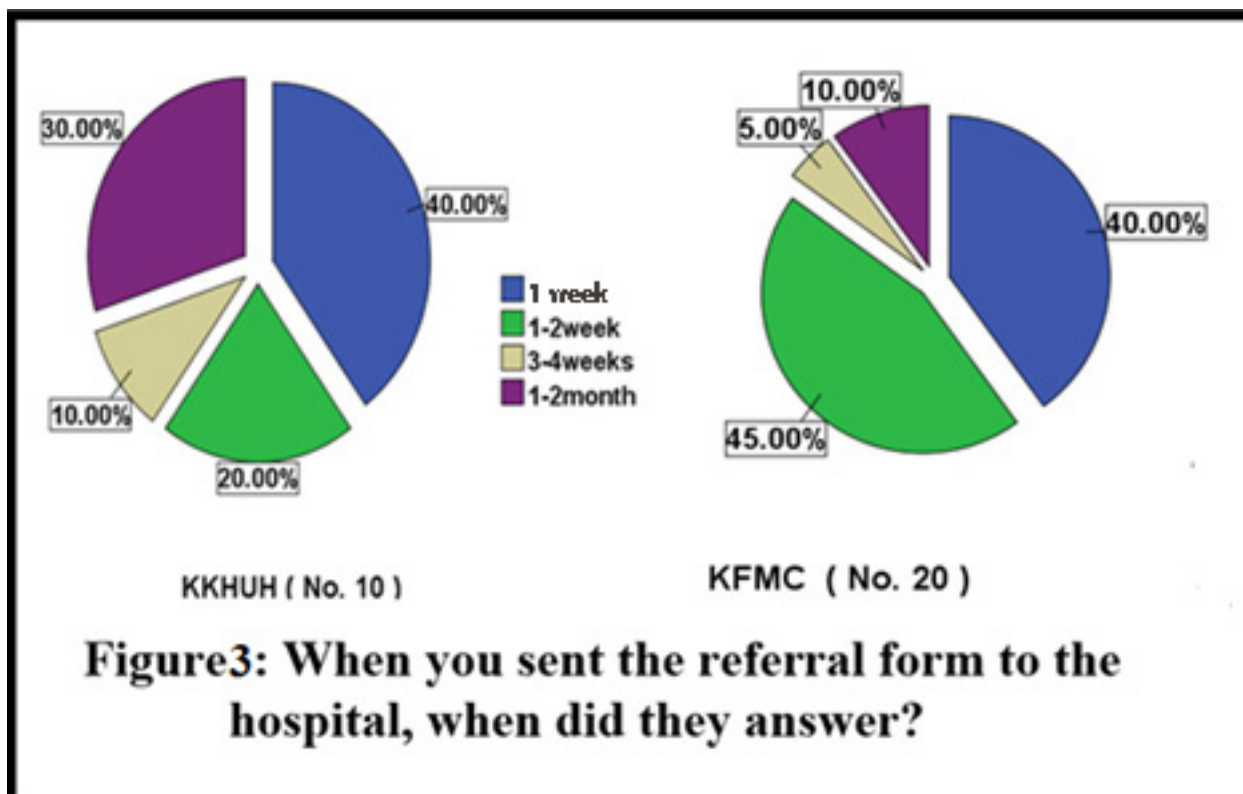
Regarding the standardization of procedures for referral system in the tertiary hospitals, 73.3% of cancer patients did not know about it and 26.7% answered there was not any standardization. There were 20% of cancer patients

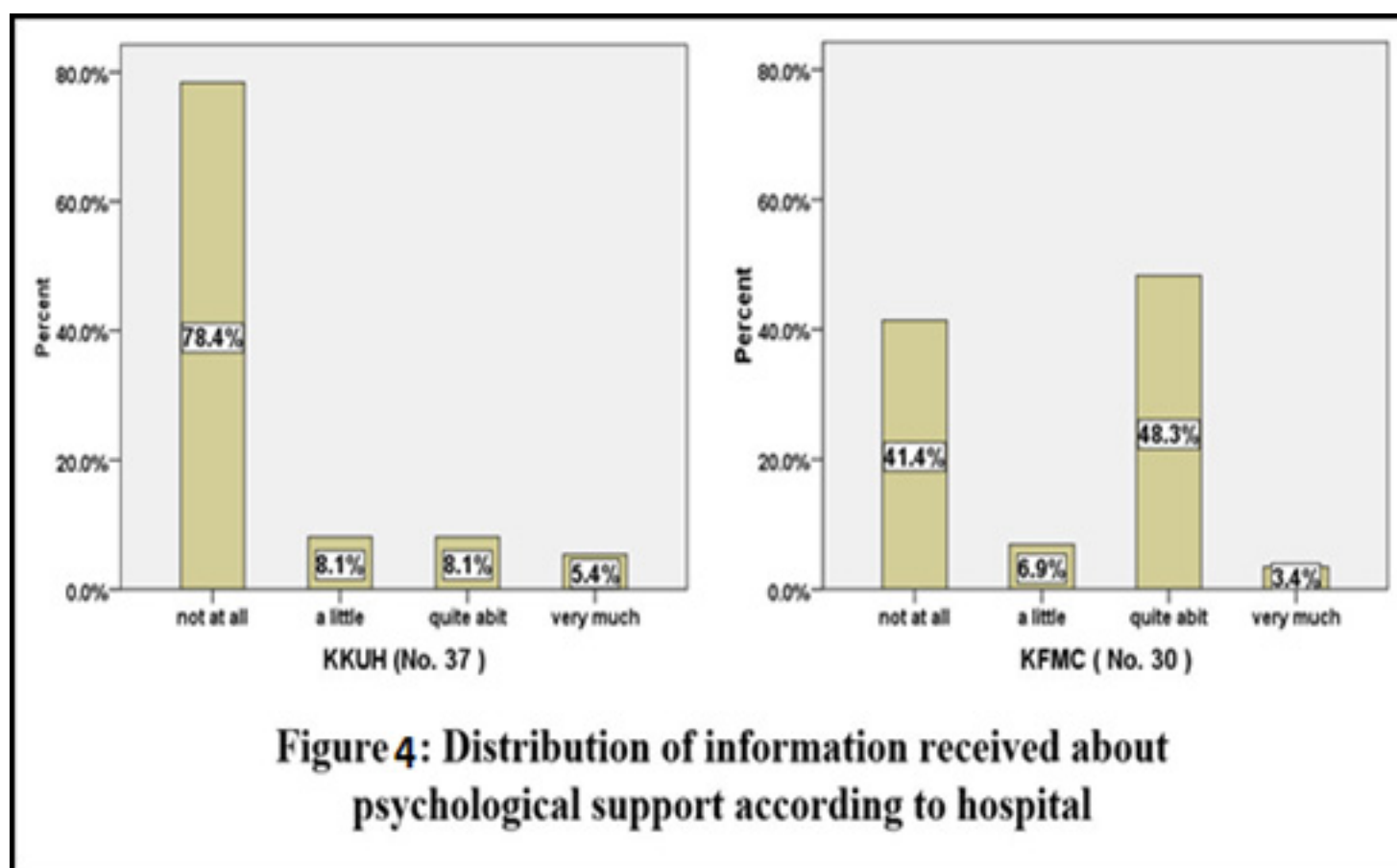
Table 1: General information of referral system:

Q	Question	Items	Frequency	Percent
1	When were you referred to the tertiary hospital? "Missing 37"	<1year	19	63.3
		1-2year	7	23.3
		3-4years	2	6.7
		>5years	2	6.7
		Total	30	100.0
2	How many hospitals did you address in the referral?	1	19	63.3
		2	10	33.3
		3	0	0
		4	1	3.3
		Total	30	100.0
3	What was the main cause of the referral?	chemotherapy	5	16.7
		surgery	2	6.7
		confirm diagnosis	23	76.7
		Total	30	100.0
4	When you sent the referral fom to the hospital, when did they answer?	<1week	12	40.0
		1-2week	11	36.7
		3-4weeks	1	3.3
		1-2month	4	13.3
		>2months	2	6.7
		Total	30	100.0
5	What was the time period between a hospital acceptance to the first appointment?	<1week	15	50.0
		1-2week	10	33.3
		3-4weeks	2	6.7
		1-2month	3	10.0
		Total	30	100.0
5	What is the time period between the appointments in the tertiary hospital?	1-2week	6	33.3
		3-4weeks	7	38.9
		1-2month	1	5.6
		3-4months	4	22.2
		Total	18	100.0
6	How did you send the referral fom to the tertiary hospital?	fax	7	23.3
		email	1	3.3
		by hand	21	70.0
		some one	1	3.3
		Total	30	100.0
7	How do you come to the hospital usually?	car	24	80.0
		taxi	1	3.3
		air plane	5	16.7
		Total	30	100.0
8	Who is the person who escorts you?	parent/son	13	43.3
		relative	15	50.0
		other	2	6.7
		Total	30	100.0

Table 2: Participant’s self-perception of referral system:

	Question	Items	Freq.	Percent
1	Have you been referred in a proper time?	Yes	26	86.7
		No	4	13.3
2	Were the processes of referral simple?	Yes	23	76.7
		No	4	13.3
		I don't know	3	10.0
3	Were the processes of referral clear?	Yes	22	73.3
		No	5	16.7
		I don't know	3	10.0
4	Were the processes of referral identical in all hospitals?	No	8	26.7
		I don't know	22	73.3
5	Did you experience difficulty when you referred?	Yes	6	20
		No	24	80
6	Was the time between the appointments suitable for you?	Yes	24	82.8
		No	2	6.9
		I don't know	3	10.3
7	Have you been affected by the delay in the referral system?	Yes	9	30.0
		No	17	56.7
		I don't know	4	13.3
8	Was there a free transportation service in the referred hospital?	Yes	1	3.3
		No	1	3.3
		I don't know	28	93.3
9	Was there an electronic referral system in the hospital?	Yes	2	6.7
		No	6	20.0
		I don't know	22	73.3
10	In general, are you satisfied with the referral system for cancer patients?	Yes	25	83.3
		No	5	16.7





who answered there is no electronic referral system and 73.3% answered "I do not know". In fact, there was no general electronic system connecting all tertiary hospitals in Saudi Arabia. There were 16.7% of cancer patients who had a free transportation service by air plane. Ministry of Health provides the free delivery service for cancer patients who live in remote areas.

There were some limitations in the study. First, the administrative procedures of the tertiary hospitals were complex and not clear. It consumed almost more than month from the study period. The work place was not suitable to conduct the study. Second, there was scarcity of information which related to referral system. It was difficult to know the number of cancer patients who have been referred to each tertiary hospital per month or year, number of referred patients from each region, number of free beds and the capacity of each tertiary hospital, the referral time required of each cancer stage, or the referral time required of each cancer type. Third, the study period was short "four months". Fourth, recall bias was present in some situations. Fifth, sample size was not enough. Sixth, there was no central electronic referral system in Saudi Arabia.

The central electronic referral system controls referral procedures between secondary and tertiary hospitals in all Saudi regions, connects tertiary and secondary hospitals, provides statistics about referral system and produces an annual report, and communicates with patients and hospitals to facilitate the referral procedure and reduce the

time. It facilitates the distribution of cancer patients to the tertiary hospitals according to region, type of cancer, age, sex, or type of treatment. It applies standardized guidelines in all tertiary hospitals without discrimination.

Conclusion and Recommendations

Referral system for cancer patients in Saudi Arabia needs to be electronic, unified, fair, time effective, and provide a two way direction between secondary and tertiary hospitals. All medical facilities should provide the disease information to cancer patients by transparency and honesty.

Central electronic cancer referral system aims to connect and coordinate between the different health care levels.

By this criteria it will be an effective referral system and it will ensure a close relationship between all levels of the health system and help to ensure people receive the best possible care closest to home.

This effective referral system will reduce the mortality & morbidity associated with this disease.

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Views of Specialists on referral communications - a qualitative study from Sri Lanka

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Abstract

Introduction: The referral letter is the interface between the primary and secondary/tertiary levels of care. It facilitates the referral process and is beneficial for optimizing patient care. In Sri Lanka a referral letter is not essential to consult a Specialist. In this scenario, the quality as well as the number of referral letters encountered in practice needed to be explored.

Objectives: To describe Specialists' views on the quality of referral letters received, perceived advantages of referral letters and to identify other modes of communication between General Practitioners and Specialists.

Methods: Conducted in 2013, this study consisted of in-depth interviews using a semi-structured format, with 21 purposively selected Specialists representing a range of specialties. They included clinicians and university academics from both the government and the private sector. Analysis was by generating a thematic framework based on the recurrent themes and issues which was then applied to the textual data.

Results: Most patients consulted Specialists without a referral letter and also the few letters received were of poor clarity, lacking important information and scribbled in illegible hand.

Main themes identified as advantages of referral letters were: impart important information about the patient, clear description of the initial condition and treatment given, reduced consultation time, prevents delays in diagnosis and reduced healthcare costs by reducing polypharmacy and repetition of investigations.

Some of the other modes of communication suggested by Specialists were via telephone, SMS, fax and email.

Conclusions: The general belief amongst Specialists is that referral letters are an important part of the patient care system. This has not been adequately utilized by the primary care providers in Sri Lanka, despite the numerous advantages described. Also consideration needs to be given to newer modes of emerging information communication technology.

Key words: Referral letters, communications, specialists, general practice

Introduction

Referral of patients to hospitals and specialists become imperative in patient management in primary care. Patients are referred for a number of reasons including diagnosis, investigation, treatment and reassurance of both the patient and the General Practitioner.(1)

A referral letter provides pertinent information to specialists. Ideally, it should provide clinical and administrative information in a format which facilitates quick retrieval of information. A proper referral letter prevents delays in diagnosis and treatment, prevents unnecessary testing and reduces health care costs.(2)

Literature shows that specialists are unhappy about the quality of referral letters(3,4) and general practitioners (GPs) complain that they do not receive replies to their referrals in many instances and also that most reply letters are deficient in content. Time constraints, heavy work load(5,6), lack of secretarial support(7) have been identified as possible reasons for badly written referral letters by General Practitioners.(8)

Referrals are an important connector between specialists and general practitioners. Studies show that according to GPs' opinion, referral letters are also a relevant factor in building specialists' opinion about GPs. If the quality of referrals is low, this might reinforce specialists' negative opinion of GPs' work.(9)

This study is part of a larger project describing the current referral and back referral system between general practitioners and secondary and tertiary care providers in Sri Lanka. Referral interaction was identified by the participants as important and problematic. The purpose of this study is to describe the views of specialists on the quality, advantages and disadvantages of referral letters and identify other modes of communication. Since it is an exploratory study of interpersonal and intraprofessional interaction, a qualitative approach was considered appropriate.

Methodology

A qualitative study consisting of in-depth interviews was chosen to allow an intensive analysis. In-depth interviews are an established qualitative research method to collect information from particular groups e.g. professional target groups.(9)

Sample

21 specialists were purposively selected to represent different specialties. These specialists included clinicians and university academics from both the government and the private sector. Specialists rarely contacting a GP, such as anesthesiologists and microbiologists, were not invited to participate.

Table 1: Sample of participating specialists (N=21)

Gender	
Male	15
Female	06
Age	
Less than 50 years	11
50 years or more	10
Place of practice	
Government sector	01
Private sector	02
Both	18
Specialty	
Paediatrician	4
General Physician	3
General Surgeon	2
Dermatologist	2
Respiratory Physician	1
Gastroenterologist	1
Rheumatologist	1
Gynaecologist and Obstetrician	1
Ophthalmologist	1
Psychiatrist	1
Neurologist	1
Cardiologist	1
Orthopaedic Surgeon	1
Neurosurgeon	1

Data collection

A letter was sent requesting them to participate in the study. It included the areas, they would be interviewed.

The interviews were carried out from October 2012 to January 2013. In depth telephone interviews were conducted based on a semi structured interview schedule. Each interview lasted between 30-40 minutes. All interviews were recorded digitally and transcribed verbatim. The interviews were based on the following questions:

1. Do you receive referral letters from primary care doctors when they refer patients to you and how often?
2. Do you think referral letters are important and why?
3. What are the drawbacks you have identified in the referral letters that you usually receive?
4. What other modes of communication can be used to share information about patients?

The aims of the study were explained to each interviewee. The interviewer ensured that each aspect of these questions was explained sufficiently, so that no questions or misunderstandings remained.

Ethics approval

The ethics committee of the Faculty of Medicine, University of Kelaniya granted ethical clearance to conduct this study.

Data analysis

A thematic framework was generated from the emergent data based on the recurrent themes and issues. This was then applied to the textual data. The indexed text was then lifted and put into charts with the same themes, allowing comparisons to be made within and between the data. In order to ensure the accuracy of the analysis, the transcripts were read, charts checked and discussions held. The analysis was conducted by 2 investigators independently and discrepancies were mitigated in a joint group discussion with the team.

Findings

The main emerging theme from the respondents was that referral letters were an important aspect of communication between primary and secondary care doctors and that the referral letters received were few in number and poor in quality. In addition a number of other interesting themes were identified and these are presented separately.

Importance of referral communication

Impart information about the patient

The general practitioner is in a unique position where he has known the patient over a period of time. He is privy to certain information regarding the patient which is of value when treating a patient. This information can be of value to the secondary care doctor and can assist in deciding the future course of management.

"..... the GP who is looking after them, they have a much better idea of the patient in every sense medical, surgical, social and every background." (11)

"..... any serious drug allergies, these things are best known to the GP than the patient and also patient's family background is very important" (10)

"We get to know important details about the patient and we immediately get a 2nd opinion." (16)

Clear description of the initial condition and treatment given

An inherent feature of medical conditions is that the clinical picture keeps changing with time. The natural progression of the disease progress can be altered by the initial medication that is provided to the patient. This can cause a problem to the secondary care doctor in his/her management.

"I think it's important, because the patient's disease may have different picture by the time he comes to me." (10)

".... if the patient has been treated in the past, then I know what the initial condition is and what medication was prescribed. It is very important in certain dermatological conditions where previous medication would have an impact on current skin condition." (8)

Reduces consultation time

When the general practitioner gives a referral letter, this provides the specialist a platform to begin his task on and saves time from having to take a routine detailed history.

"it is easy for us to look at the referral letter and get an idea what he thinks, then we can shorten our differential diagnoses, We can assess the patient within a limited time in more depth" (3)

"It will definitely save time....." (4)

Reduces healthcare cost

When the patient is referred with a referral letter, the secondary care doctors get an instant awareness regarding the medications already tried by the patient and the investigations available. This prevents polypharmacy and repetition of investigations.

"prevent repeated consultation, unnecessary investigations and other unnecessary cost associated with it." (1)

"In some cases we have to keep on asking the color of the tablets and all those things. If you (general practitioner) write all in a form it's easy for me (specialist) to have an idea." (10)

Prevents delays in diagnosis

When a comprehensive referral letter is provided, this facilitates early diagnosis of the patient's condition. This results in better outcome for the patient.

"It helps to get an idea about the GP's suspicion about the patient's condition. Therefore it saves time and it would be easy to conduct further management, proceeding from that level." (21)

"If the referring physician tells me why he is referring, if he has done some basic investigations then it will be helpful to make an immediate diagnosis." (5)

Trends in referral letters

The perceived percentage of referral letters received by specialists varied between 10-50%. They also identified a difference between the amount of referral letters received in the government sector and in the private sector. Most were of the opinion that more referral letters were received in the government sector. "In hospital setting (government sector) maybe 50% of the time and private sector 20-30% I get referrals. But not always." (6)

“Roughly about one third of patients referring have referral letters.” (10)

“Usually we don’t receive a letter. We get something like a letter, but more of a note on which our name has been written.” (11)

Quality of referral letters received

Lack of relevant information

A main drawback identified by most specialists was that the amount of relevant information contained in the referral letters was inadequate.

“So they don’t have a writing pad or anything to write a referral letter, so they write the whole referral letter in a small chit that used to write prescription that may not be enough to write a referral letter. The problem is not giving adequate information.” (9)

“One thing is there is inadequate information. They haven’t described the condition at presentation, treatment details may not be there....” (10)

Illegible handwriting

Poor handwriting among doctors is a standard joke in most cultures the world over. We still keep honoring this dictum according to the feedback received from the specialists that were interviewed.

“Doctors have very poor hand writing, which sometimes does not say anything other than a vague idea that someone has been referred to us.” (1)

“Hand writing is the first thing. Most of the time, they are not readable so there is no point in sending us a referral letter.” (12)

“Most of the time the biggest problem with referral letter is illegible hand writing. We can’t read them.” (9)

Clarity of the message

The general practitioners have been accused of not specifying what exactly they expect from the consultation with the specialist. Whether it is admission, a second opinion or to be assessed for suitability for surgery etc...

“Identification is sometimes inadequate and sometimes the real concern of referral some doctors are reluctant to tell. They just hand over the patient, they really don’t express their concern.” (4)

“..... neck pain, back pain, knee pain anybody can treat. If those are referred to an orthopedic surgeon, they (GP) should indicate why they are referring the patient. Most of the time specific reason is not indicated.” (5)

Other modes of communication

Referral letters are not the only way to communicate in today’s world. With the advancement of information,

communication, technology; our specialists identified other methods that they use to communicate.

“Sometimes they give a call or tell me that very specific reason. Email very rarely. SMS very rarely. If he is a known GP, he/she would call me and say.” (5)

“We do get faxes from GP from periphery and we also do fax back saying our diagnosis. Emailing will be good method.” (8)

“Diagnosis cards are also a good way of communication.” (4)

Discussion

Specialists in Sri Lanka appreciate the importance of a referral letter and most of them see the convenience of having such system in terms of reducing consultation time and reducing the healthcare cost by preventing polypharmacy, repeated consultations and unnecessary investigations. They also stated that it helps to prevent diagnostic delays. However, all of the above mentioned advantages will be influenced greatly by the quality of the referral letters that are being exchanged.

Some of the comments by the specialists we interviewed indicated their opinion regarding the General Practitioners’ role within the health care system. The value of an immediate second opinion via the referral process was highlighted by some whereas others considered that they do not rely solely on the information provided by the GP, but obtained their own history and background. This demonstrated 2 definite lines of thoughts and attitudes towards the referral letters provided by primary care doctors.

A similar study conducted in Germany, showed that a vast number of specialists respect what GPs do and consider them to be an important category of healthcare providers.(10) They further emphasized the role of the GP as a coordinator between primary and secondary care levels.

According to this study, specialists acknowledge the importance of referral letters in the referral process, but describe illegible handwriting, lack of important information, poor clarity of the message as shortcomings in the letters that they do receive. Therefore even though a referral letter is available, the majority do not meet the expectations of specialists. This issue of GP’s referral letters not meeting the expectations of the specialists was described by Piterman in a study regarding referral letters in 2005.(1)

Our specialists were open to the use of other modes of communication rather than the conventional ‘referral letter’. They were comfortable to the use of phone calls, emails, fax and SMS as modes of communication regarding patients. Similarly, Berendsen et al.(11) stated that specialists identified telephone calls, e-mail, fax and SMS in addition to letters for communication.

Strengths and Weaknesses

To our knowledge this is the first qualitative study evaluating the perceptions of specialists regarding the referral process between family doctors and specialists in Sri Lanka. Strength of this study is the widely spread sample which comprises different criteria such as specialty, academic, hospital, or private practice. When interpreting the data it must be considered that a tendency toward socially desirable answers from the side of the specialists cannot be excluded. Indeed, the specialists were informed prior to the interviews that the interviewer was from the Department of Family Medicine. Also, before any questioning the interviewer stressed the fact that she is a temporary employee who is neither a General Practitioner nor a Specialist with a neutral position and that the respondents should freely and openly respond to the structured questions.

Conclusion

Specialists in Sri Lanka are enthusiastic about working together in partnership with their general practitioner colleagues. Referral letters are identified as a time tested tool for communication between specialists and general practitioners for better patient care. Other technologically advanced modes of communication are coming up as preferred methods of communication between primary and secondary care. If written carefully and legibly, referral letters containing essential information about a patient's condition are an invaluable tool.

Further study into the reasons for specialists not replying to referral letters and on how to improve the referral process (referral and back referral) needs to be looked into.

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How to supervise a medical thesis

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Introduction

Medical students usually need to select a topic for their thesis almost at the end of their study period. They also need to complete the requirements of the chosen topic and to formally defend it. The chief aim of such practices is to make sure that a medical doctor before graduation, gets to know the fundamentals of selecting, conducting and reporting a research topic. This will aid the student in evaluating medical research as Evidence Based Medicine (EBM) in their future practice. Moreover, if the selected topic is categorized as health system research (HSR), the medical students could get to know how research could help them to better understand and respond to a community's health problems.

However, there is a strong barrier to the successful completion of a medical thesis and that is lack of enough time for a medical student to accomplish the task. Usually, medical students should select, conduct and report their thesis at the period of internship, which is the busiest and the most important period in the entire medicine curriculum. Therefore, the roles of supervisors and the supervisory teams are very important to the success of a medical thesis. The chief aim of the present article is therefore to provide some practical guidelines on how to supervise a medical thesis.

Guidelines

1. The first important issue in supervision of a medical thesis is that a potential supervisor should not accept to be a supervisor unless they devote enough time for this important task.
2. Given the complexity of the selected topic it is highly recommended that a supervisory team be appointed for every medical thesis. One of the members of this team should be familiar with statistics and the methodology of research to make sure that each medical thesis fulfils the necessary standards of a good piece of research.

Abstract

Most medical students at the end of their study period, should select, conduct and defend a research topic as their thesis. Medical theses could not only provide a training opportunity for medical students to get familiar with the ABC of a research activity, but could also provide an opportunity to scientifically investigate a community's health problems. The chief aim of the present article is to provide some practical guidelines for the supervision of such a thesis.

Key words: Medical school, medical thesis, supervision

3. Since it is very difficult in some countries for a medical student to choose their research topic due to lack of time it would be necessary that a supervisor could suggest and provide a range of topics for a student. This could help the student to select the most appropriate topic which is in accordance with their personal interest. It is better to provide students with the topics that are categorized as HSR rather than basic sciences or clinical sciences. This not only helps students to become familiar with the application of research in solving community health issues but also to help the medical school to fulfill its social accountability mission.
4. On very rare occasions when a medical student may suggest a topic for their thesis the potential supervisor should appraise the merit of topic and help the student to further develop the proposed idea to see whether it could be considered as a medical thesis or not.
5. As soon as a topic is selected and the supervisory team is appointed it is time to help students to write down the research proposals. Usually, medical curriculum, especially within developing countries does not contain a research methodology syllabus. In order to remove this shortcoming, some medical schools might conduct research methodology workshops. It is the responsibility of a supervisor to make sure that their student is already attending such a workshop before writing down the research proposal.
6. During writing down the research proposal the supervisor should also make sure that the student is familiar with searching and critically appraising the relevant literature. These two aspects are the most fundamental of any research projects and it is highly important that medical students are familiar with them.
7. There is also another important point that the supervisor should make sure that the student is familiar with during the writing down phase of the research proposal. This important point is related to the ethics of research. The ethics of research encompasses all ethical issues and guidelines that a researcher should take into account in any section of the research cycle, including writing down the research proposal, conducting the research and gathering the data, conducting data analyses and writing down the actual thesis. The medical student will be able to apply these same skills as evidence based medicine in their future practice.
8. As soon as the research proposal is written down and has been approved by the research and ethical committees of the medical school, an action plan should be written based on the timetable of research proposal. The key of this action plan is to establish a regular meeting, for example, once a week between the supervisor and medical student. Similarly, a regular meeting between supervisory team and student should be considered say once a month.
9. In each regular meeting the student should present their progress report and take feedback from the supervisor or other members of the supervisory team. Students should learn to prepare a logbook for their medical theses and should address any feedback they might receive from their supervisor or supervisory team.
10. Given the busy schedule of an intern, the meeting should be arranged in a way that suits medical students. My personal experiences show that usually medical students like to have their meetings arranged during lunchtime. Therefore, the supervisor or other members of the supervisory team should consider the restraints of the timetable of an intern.
11. In addition to regular meetings, any route for communication between student and their supervisor or other members of the supervisory team should be considered. Phone calls and sending emails are two obvious and important routes for communications.
12. While most students do need close supervision a few of them can work more independently after the first face to face meetings. Therefore, the time interval between formal meetings would be changed based on the needs and the abilities of the students.
13. Regular meetings plus other possible communication routes should be continued all through the phases of conducting research, analyzing the results and up to start of the writing down phase.
14. During the period of writing the thesis it is important that the supervisor read any chapters of the thesis early and provide the student with helpful comments. Again, my personal experiences show that medical students do need close supervision during this period before they go down a path with inherent problems or that might innocently breach publication ethics.
15. Conducting a mock viva would help the medical student to get ready for a real viva and it is the responsibility of a supervisor to arrange a mock viva.
16. Besides, students do need to know the guidelines of their medical school in terms of typing, copying and bindings of the medical thesis and the supervisor should make sure that the student is fully aware of such guidelines.
17. Finally, when the student passes the viva it is important that at least one article will be published based on the results of the thesis. Usually time constraints of medical students do not let them publish an article from their thesis before graduation. However, after graduation it might be possible for them to prepare an article. Therefore, it is important that the relation between supervisor and the student is kept intact to make sure that the publication of an article would eventually ensue.

Conclusion

Medical theses will provide a valuable opportunity for medical students to become familiar with the essence of a research activity and evidence base in medicine. In the present articles seventeen practical guidelines are introduced that might help a potential supervisor to be a good supervisor for a medical thesis.

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CME

case presentation

Ahmed, aged 64, sees you for the first time and asks for a blood test. On enquiry, he states that 3 months ago he went to his doctor in another town because of shortness of breath and at his wife's insistence because she said he looked pale. His Hb was 9 gm and the film showed microcytosis and hypochromia. He was placed on oral Fe and told to return for review. Ahmed says that his breathing is much better and his colour is now normal.

Question 1

What comment would you make about this patient's management so far?

(After considering your answers view Author's answers and feedback on the opposite page)

Question 2

What is your next step?

Continuing history

The commonest cause of occult blood loss is from the g.i. tract. The only abnormal features present in this case are weight loss, occasional dull ache in the R.I.F and the unexpected finding of a mass in the region of the pain.

When considered in conjunction with his age there is one important likely diagnosis to be excluded.

Question 3

What is it?

Question 4

What further tests are required to confirm or refute this diagnosis?

Outcome

Colonoscopy confirmed the probability of ca. of the colon and operation was advised. Unfortunately widespread secondaries were found on laparotomy, and curative surgery was not possible.

Ahmed was mismanaged from the beginning. Treating the anaemia without finding out why the patient had become anaemic gave false reassurance to both patient and doctor. It may well be that the resulting 3 months delay may not have altered the prognosis. However a legal challenge against the first doctor is likely to be successful.

CME quiz answers and feedback

Answer 1

Comment on management

In a case of suspected anaemia there are three questions to be asked:

1, Is the patient anaemic?

Answer: Hb 9gm

2. If anaemic, what type is it?

Answer - Fe deficiency type

3. What is the underlying cause?

Answer - This question has not been answered.

Treatment should not begin until the reason for the anaemia is understood. In this case, from where has the patient bled?

Answer 2

The approach includes history

There is no history of blood loss, stools are normal in colour, diet is normal, he is not using any drugs including aspirin and he feels better since taking the course of Fe tabs. and losing 3 kg recently. Alan's only new complaint is an occasional dull ache in his R.I.F.

Physical examination

Alan looks well and the only abnormality found was a mass in the R.I.F.

Appropriate tests

A rpt. Hb was 13 gm.

Answer 3

The most likely diagnosis in this case is colonic cancer

Answer 4

The most important step is colonoscopy.

If cancer is present it is likely to be visualised and a biopsy will provide a definitive diagnosis. Some authorities would recommend prior occult blood tests (three) but false positives and negatives are common.

Left sided ca. colon often presents as bowel obstruction, but right sided cancer may present with blood loss (usually occult), diarrhoea, weight loss and pain. It is common that the first finding is a right sided mass. This case is a common scenario.

