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From the Editor



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This is the first issue for 2007, after a successful year for the journal in 2006. A number of initiatives were started in 2006 and new members joined the editorial board, which will greatly assist our ongoing success.. The Focus on Quality Care series, which started in 2006, will continue this year.

Throughout the previous years we continued in our efforts to coach authors toward better writing by helping in the writing process and revising the manuscripts and editing. We are hoping to organise a writing and editing workshop for the Middle East in 2007.

We are indebted for all the work of the production team and the editorial board which has contributed to our continuous success. Owing to the large numbers of papers received, and the great increase in readership we are planning to increase the frequency of the journal to 8 issues per year, in addition to starting a paid subscription for hard copies.

In this issue, Bener A , JAl-Marri S,

Azhar Abdulaziz A et al. investigated the link between consultation length and patient assessment care. The objective of this study was to assess the consultation length in a tertiary care teaching hospital and in general practice. The present study in Qatar showed that the average consultation time at the Hamad General Hospital ranged from 7.0 to 17.4 minutes. The average consultation time at the PHC ranged from 4.7 to 8.1 minutes. The authors concluded that the consultation length has increased in Qatar during the decade, however, it is still short by international and western standards.

A cross sectional cohort study from Iraq evaluated mother knowledge, practice and attitude towards childhood survival. The study revealed that the Knowledge and practice of mothers was, generally, not satisfactory towards diarrhoeal disease and ante-natal care, while the knowledge of mothers about ARI risk signs were better. The authors concluded that stressing health education and breast feeding will be of significant value.

A study from Turkey examined the variables that affect patient satisfaction when they are examined by students. The authors reviewed 185 patients; answers to 13 questions. Among the patients, 92.1% pointed out that students' examinations were helpful. 84.1% of the patients felt confidence in the examination. The authors stressed that this study showed that satisfaction with student participation is high, especially in the group of elderly, married, women, and in patients with less education.

A study from Bangladesh and China discussed a new concept of the velocity and Elasticity curves of Pregnancy Wastage and Caesarian Deliveries in Bangladesh. The aim of the authors was to investigate the effect of age of mother as a cause of pregnancy wastage and delivery types. Their results revealed that the risk of caesarian delivery increases with the increased age and this risk increases

faster than age.

Ali Keshtkaran A & Keshtkaran V discussed factors affecting neonatal death in Fars Province, Southern Iran, 2004. The authors stressed that neonatal death is the third most common factor of mortality in their country. The authors concluded that there is a need for more attention on care from pre-conception, during pregnancy, and during delivery.

A case report from the UK report discussed Human chorionic gonadotrophin induced Hyperemesis and Hyperthyroidism in Pregnancy. The authors stressed that Hyperthyroidism secondary to b hcg is a recognized occurrence. It is something to consider when admitting a patient with hyperemesis as hyperthyroidism worsens and mimics signs of hyperemesis.

Dr Ahmed A evaluated and compared data contained in referral forms sent by primary health care center's physicians to the diabetic clinic, with that adopted by the American Diabetes Association (ADA). A total of four hundred and thirty (430) referral forms were collected. The authors concluded that the referral form is an important tool that needs great attention and regular review, to evaluate its components and its efficacy.

A review study from Saudi Arabia discussed the use of Angiotensin Converting Enzyme Inhibitor in Diabetes. The author stressed that Diabetes mellitus is one of the diseases that affects different systems in the body. Angiotensin Converting Enzyme inhibitors (ACEI) were the first class of antihypertensive drugs shown to reduce vascular complications among diabetics, independent of blood pressure reduction. The review highlighted the points which are not known by most of physicians using ACEIs, such as the history of ACEIs and the evidence base for the use of this group of therapeutics.

Finally I would like to wish all our readers, editorial board and the production team a happy new year.

DETERMINANTS OF SATISFACTION WITH PRIMARY HEALTH CARE SETTINGS AND SERVICES AMONG PATIENTS VISITING PRIMARY HEALTH CARE CENTRES IN QATEEF, EASTERN SAUDI ARABIA

Key words: Patient satisfaction, primary health care, quality assurance, structure, utilisation.

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ABSTRACT

Objective: To measure the current primary health care centres users' assessment of the quality of the settings and services of their centres and identify the areas that cause most concern and to identify the socio-demographic and other factors most associated with satisfaction among the current users of primary health care centres in Qateef area.

Design: Interviews conducted by well-trained interviewers with a random sample of current users of primary health care centre using proportional allocation method. The questionnaires were composed of questions that measure the extent of satisfaction with settings and services in the primary health care centres using a 5-point rating scale from very satisfied to very dissatisfied.

Setting: All the 25 primary health care centres in Qateef area, Eastern Saudi Arabia.

Study participants: A sample of 1,098 current users of primary health care centres. No refusals were encountered.

Results: Waiting area structure, environment structure and explanation were the areas that caused most concern to the current service users. The study showed that the type of the primary health care centre building showed the strongest influence on the level of satisfaction with higher beta values against the environment structure and more so against the waiting area structure. The literacy status was the second strongest factor influencing satisfaction with structure components.

Conclusion: The finding in this study showed that the type of PHCC building was the most influential factor on the level of satisfaction, a fact that should be put in mind in any future quality improvement effort in the area.

Introduction

Evaluation of the quality of health care has emerged as a key issue for all health services, and for some time it has been recognised that the patient's views are essential components of such evaluations. Social acceptability and patient satisfaction are now acknowledged as important criteria for the evaluation of health services¹. Patient satisfaction is recognised as a valuable outcome in itself and, like any outcome, requires measurement². Investigations of patients' satisfaction have used a range of interview and questionnaire measures which differ quite markedly in their levels of methodological sophistication³. The simplest method of all has been to use general questions about the topics of interest. Items with fixed multiple choice response categories have a number of advantages for statistical purposes^{4,5}. The use in questionnaires of a Likert-type format for such items, where responders are asked to indicate the extent of their satisfaction with certain aspect of services is another method that fulfils the same objective⁶. Measurement of satisfaction, although important and highly recommended, should not be the ultimate objective. The point is not simply to measure quality but to improve it⁷. This is to say that finding out about the most likely determinants of satisfaction is an important step if a real improvement in the health care service or setting under question is to be made. Many studies sought to measure the levels of satisfaction only, while some others went further to reveal the factors determining it but failed to specify the most influential

factor on the levels of satisfaction measured. The recognition and the analysis of such factors are fundamental in modern thinking about quality improvement^{8,9,10,11}. This study, like the population satisfaction study¹¹, is a small step towards this direction. Studies that take this approach using a wide range of variables will contribute to real improvement in the health care services and settings in Saudi Arabia.

Subjects and Methods

Patients

This study was conducted concurrently with the population satisfaction study¹¹ on April 1995. It is thought that this will give a more complete picture about satisfaction than conducting either alone. Many studies showed that the setting in which the people are interviewed plays an important role in their responses especially about their satisfaction with health care^{3,12,13}. All patients attending the 25 primary health care centres in Qateef area during the week of the data collection for each centre were viewed as the target population. In practical terms, any file that was pulled from the medical records' room for patients who were 15 years or older would be part of the sampling frame for the target population. For the patients less than 15 years of age interviews were made with their older companions and it was the companions' opinions that was sought. If there was more than one companion the older was interviewed and for couples with their children the mother was interviewed as she was the

one expected to know more about the child and most likely to accompany the child to receive the required services in the centres. Patients whose illness prevented them from participating in the study were excluded.

Sampling

The sample size was estimated using the same strategy as used in the population study¹¹ so that valid comparisons can be made. A 95% confidence interval of +/- 5% for proportions was selected. The required sample is 400. To allow for age or sex breakdowns of the data this number was doubled to 800. Subjects were selected using a proportional allocation method whereby systematic sampling of every *n*th attendee at each health centre was entered into the study. The value for *n* was determined from the average daily attendance at that centre. The selection process was constrained by the time taken to complete each interview. It was estimated that each interviewer would be able to interview every fifteenth eligible patient attending the health centre which means that *n*=15. With sufficient well-trained interviewers the data collection for the patient satisfaction survey could be completed within the same four weeks period employed in the population survey mentioned above. Within this four week period interviewing would be carried out for a period of one week in each health centre. With this strategy the number of patients interviewed at each centre would be proportional to the number of patients attending the centre during the target week. Hence the overall sample would be weighted approximately by the average utilisation of the health centre. When the selected patient declined to participate, substitution of the previous eligible patient was allowed. While it is noted that this might have introduced a bias as compared with complete random sampling it has been nevertheless done to increase the efficiency of sampling. The final sample size reached was 1098.

Instrument

The process of questionnaire construction, testing and revision for the patient survey was similar to that for the population survey¹¹. The

questionnaires were also subjected to similar pre-testing and piloting experiences with exactly similar results. One major difference from the questionnaire in the population survey is that the questionnaire form has two main parts - an entry part that is completed as the client enters the health centre and the other is an exit part that is completed as the patient was about to exit the health centre. Another difference is the presence of "nature of health centre visit" as a variable that is present in this study but not the population study. Like in the population study the components and their items had been chosen by the authors based on experience and literature review.

Because of traditional / religious reasons same-sex interviewers were required for the male and female respondents. Whilst this increased the number of interviewers required, and hence the possible variability of the way interviews were conducted, it also had the advantage of reducing embarrassment and possible inhibitions that females might have in answering questions to male interviewers (and vice versa).

Female patients were interviewed by well-trained health visitors (HVs) and male patients interviewed by well-trained health inspectors (HIs). The 25 PHCCs were covered in four weeks. The selection of HVs and HIs was based both on their willingness to undertake the training and interview work, and on judgements as to their suitability for interview work. Training was similar to that carried out for the interviewers in the population survey. As the proportion of non-Saudi patients was low and as the great majority of them were Arabic speakers no language problems had been encountered.

Data processing of questionnaires as well as the analysis plan for the patient survey followed the same strategy as that for the population survey.

Cronbach's alpha test in the (SPSS) was conducted to test the level of internal consistency and so the reliability of the components with multiple items. Like other correlation coefficient scores close to 10.00 are

highly correlated and scores close to 0.00 are not correlated. Typically a minimum standard for group comparisons for reliability of a measure is above 0.5 on the Cronbach's Alpha measure. Scores above this suggest high reliability. Nevertheless, there is one point that should be taken into consideration. The Alpha measure will increase as the number of items used in every component increases. Therefore for areas using fewer items Alpha score may be lower.

Table (1) shows the coefficient alpha scores to be generally high to moderate. Of all the components attitude and to a lesser extent explanation received low Cronbach's value. All this means that we should be cautious in interpreting the ability of the questionnaires used to measure satisfaction with these components in a consistent and reproducible fashion.

Like in the population study, the questionnaires were subjected to face, consensual and construct validity.

Results

Table (2) shows the frequency distribution of the various independent variables among the respondents in the study.

Table (3) shows the satisfaction rate received by each of the components. Waiting area structure, environmental structure, and explanation received the lowest levels of satisfaction and hence are priorities for improvements. Patients were most satisfied with the staff attitude, perceived outcome of the consultation episode, and consultation time.

Table (4) shows the extent of significance of the relationship between each of the various socio-demographic / independent factors and the components used in the study as well as the Beta values reflecting the relative importance of the associations between them. It is evident from the table that some of the components have a significant relationship with more than one factor. It is to be realised that the identified areas of concern are mostly associated with the extent of PHCC use, type of PHCC building, age and literacy status.

It is clear from table 4 that the relation between satisfaction levels and the various independent factors were not following a simple one to one cause and effect mechanism and the effect is more likely to have been brought about by a number of causes, some inter-related while some others are independent of each other.

In this study, each of the components were entered in a multiple regression analysis test against those independent variables and the resulting beta values were used to identify the relative importance of the various independent variables used. Nevertheless, the low coefficient scores in the Cronbach's alpha test for attitude and to a lesser extent explanation does not allow us to generalise our conclusions to all components and limit it only to the other four components. As far as the two structure components are concerned, the test showed that the type of the PHCC building was the most influential factor followed by the literacy level and the sex of the respondent respectively. As for activities age was the only influential factor whereas the extent of health centre use or how regular the respondent was the only influencing factor as far as consultation time is concerned. In general, the extent of health centre use did not show high beta values although its effect on the various components was consistent.

The type of the PHCC building was the factor most associated with patients' satisfaction with both structure of the waiting area and the environment structure. Of those using purpose-built PHCCs 42% were satisfied with the waiting area structure as compared with a satisfaction rate of 68.4% among those using rented PHCCs. Similarly, 61.6% of those using purpose-built PHCCs were satisfied with the environment structure as compared with a satisfaction rate of 79% among those using rented PHCCs. The factor with the third highest beta value was literacy level against the waiting area structure. The satisfaction rate among the literate was 56.1% as compared to 73.3% among the illiterates. Sex was the factor that showed the fourth highest beta value against the waiting area structure with 59.1% satisfaction

rate among females as compared to 65.3% among males.

Discussion

The results in many satisfaction studies revealed that satisfaction is multi-factorial, and no one factor could be claimed to be the sole contributor to satisfaction or dissatisfaction¹⁴. Nevertheless, some factors are more important than others in contributing to patient satisfaction. Identifying the relative importance of the variables helps to rationalise decisions related to the improvement of health care so that they are not limited to satisfaction rates only. This is a clear message to the young primary health care quality assurance programme in Saudi Arabia as it is hoped that it will ultimately incorporate users' satisfaction elements in such programmes. The same could also be said about any quality assurance programme in places other than primary health care.

This study as well as some other studies used multiple regression analysis to reveal the relative importance of the independent variables used. The fact that the coefficient alpha was low with attitude and explanation components makes it difficult to generalise our conclusions regarding what independent factor is more influential than the other and leads us to limit it to the other components that received moderate to high coefficient alpha.

The study showed that the type of the primary health care centre building had the strongest influence on the level of satisfaction with higher beta values against the environment structure and more so against the waiting area structure. This simply tells us that the setting in general has an important effect on satisfaction and care delivered in a reasonably accepted setting is most likely to be accepted. To our knowledge, no other Saudi study tried to see the effect of the nature of the building on satisfaction. The study also showed that, with the reservations mentioned above as regards the low coefficient alpha values for attitude and explanation components, the extent of health centre utilisation did not appear to be as important in this study as in

the population satisfaction study¹¹. The literacy status was the second strongest factor influencing satisfaction with structure components with the illiterate patients being more satisfied than the literate. Other Saudi studies found variable effects of literacy state on the level of satisfaction. Whereas Al Faris¹⁵ did not find any influence of the educational level, Makhdoom et al¹⁶ found, like in this study, low educational level significantly associated with satisfaction. Other studies found variable results with possible effects from other socio-demographic factors^{14,17,18}. Sex of patient was also an important influence on the level of satisfaction. Males were more satisfied with both structure components than females. Other Saudi studies showed variable sex effects. Saeed et al¹⁹ and Al Faris¹⁵ did not find any significant association between the level of satisfaction and sex, while Al Dawood²⁰ identified maleness of the respondent as the most influential variable on the level of satisfaction. Other studies also showed variable and inconsistent effect of sex on the level of satisfaction²¹. While some showed that women give more negative responses than men^{22,23}, some others found females to be more satisfied than males^{17,24,25}. Nature of health centre visit had a relatively weak effect on the component of activities. No Saudi study included factors like the type of the building, the nature of the area in which the respondent lives, the extent of the PHCC use or nature of the visit in their independent variables. Such factors might affect the expectations the respondents have for their centres and so could influence their level of satisfaction with its settings and services. The finding in this study that the type of the PHCC building was the most influential factor on the level of satisfaction should be put in mind in any future quality improvement effort. Users of PHCCs with purpose-built buildings were found to be less satisfied than the users of centres with rented buildings. This matches findings from the population study¹¹. Although this finding could be explained by the high expectation that people might have for the PHCCs with purpose-built buildings, the topic needs to be further studied in both settings and in

various locations.

We thank all the health visitors and the health inspectors who actively participated in interviewing patients and whose perseverance enabled us to complete the health centre study smoothly. The help and understanding of the various staff in the health centres is quite appreciated. We also thank all the patients who participated in the study for their co-operation and understanding.

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Table 1. Internal consistency reliability coefficients for the questionnaires of the study.

Components of satisfaction	Cronbach's alpha(internal consistency)
Environment structure	0.81
Waiting area structure	0.85
Attitude	0.24
Activity	0.67
Consultation time	0.66
Explanation	0.40

Table 2. Frequency distributions of the variables in the study.

Independent Variable	Number	Percentage
Age		
15-29	486	44.2
30-59	564	51.4
60 and older	48	4.4
Sex		
Females	709	64.6
Males	389	35.4
Literacy		
Literate	765	69.7
Illiterate	333	30.3
Area of residence		
Towns	414	37.7
Villages	684	62.3
Type of building of PHCC used		
Purpose-built	297	27.0
Rented	801	73.0
Extent of PHCC use		
Frequent	823	75.0
Infrequent	275	25.0
Nature of visit		
Follow up	125	11.5
Preventive	188	17.1
Chronic Disease	54	4.9
Medical complaint	621	56.5
Mixed	82	7.5
Others	28	2.5

Table 3. Levels of satisfaction for each of the components measured in the study

Component	Satisfaction rate (%)	CI (%)
Attitude	96.2	95.0 - 97.4
Perceived outcome	94.1	92.7 - 95.5
Consultation time	93.6	92.0 - 95.2
Activities	92.0	90.4 - 93.6
Confidentiality measures	89.3	87.4 - 91.2
Privacy measures	88.4	86.5 - 90.3
Waiting time	77.7	75.2 - 80.2
Explanation	76.4	73.8 - 79.0
Environment structure	74.5	71.9 - 77.1
Waiting area structure	61.3	58.4 - 64.2

CI=95% Confidence Interval

Table 4. Relative importance of the associations between the quality of service components and the respondent characteristics as indicated by Beta-values (P-values) from multiple regression analysis.

Component	Extent of HC Use	Literacy State	Sex	Age	Area of Residence	Nature of visit	PHCC Building
Consultation time	-0.101 (<0.005)	-	-	-	-	-	-
Activities	-	-	-	-	-	0.056 (<0.001)	-
Environment structure	.090 (<0.001)	0.148 (<0.001)	0.096 (<0.05)	-	-	-	0.205 (<0.001)
Waiting area structure	-0.096 (<0.001)	0.170 (<0.001)	0.157 (<0.01)	-	-	-	0.308 (<0.001)

APPENDIX 1

English translation of the Questionnaires of the patient satisfaction survey (PTSATIS)

HC <A >

ENTRY INTERVIEW**PART I. RESPONDENT CHARACTERISTICS**

- {Q1} Age <A >
 {Q2} Sex <A>
 {Q3} Education <A >
 {Q4} What is your usual source of health care? <A >

PART II. CHARACTERISTICS OF THE CURRENT VISIT

- {Q5} What is the type of the patient? <A >
 {Q6} What is the nature of the visit? <A >

EXIT INTERVIEW

Actual {waiting} time spent in the centre <A >

PART I. THE EXTENT OF SATISFACTION WITH THE STRUCTURE OF THE PHCC

For each of the satisfaction questions mention next, the possible responses should be one of the following:-

- 1= very dissatisfied,
 2= dissatisfied,
 3= uncertain,
 4= satisfied or
 5= very satisfied.

- {Q7} How satisfied are you with.....
 {Q7a} The general condition of the building? <A>
 {Q7b} The general cleanliness of the building? <A>
 {Q7c} The general setup (tidiness) of the centre? <A>
 {Q7d} The staffing of the health centre? <A>
 {Q7e} The furniture of the health centre? <A>
 {Q7f} The technical facilities available in the centre? <A>
 {Q7g} The working hours of the centre? <A>
 {Q7h} The working shifts of the centre? <A>

PART II. THE EXTENT OF SATISFACTION WITH THE WAITING TIME / AREA

- {Q8} How satisfied are you with the waiting time in the health centre? <A>
 {Q9} How satisfied are you with the waiting area in the centre in terms of...
 {Q9a} The situation? <A>
 {Q9b} The space? <A>
 {Q9c} The furniture? <A>
 {Q9d} The setup (tidiness)? <A>
 {Q9e} The cleanliness? <A>
 {Q9f} Privacy? <A>
 {Q9g} Availability of drinking water? <A>
 {Q9h} Availability of a bathroom? <A>
 {Q9i} Health education reading materials? <A>

PART III. THE EXTENT OF SATISFACTION WITH THE SERVICES

- {QA} Did you see the filing clerk today? <Y>
 If yes: How satisfied are you with..
- {Q10} The attitude of the filing clerk? <A>
 {Q11} The procedures performed by the filing clerk? <A>
- {QB} Did you pass by the screening room today? <Y>
 If yes: How satisfied are you with..
- {Q12} The attitude of the nurse in the screening room? <A>
 {Q13} The procedures performed by the screening room nurse? <A>
- {QC} Did you attend any health education session today? <Y>
 If yes: How satisfied are you with..
- {Q14} The attitude of the person conducted the health education session? <A>
 {Q15} The way the health education session was conducted? <A>
 {Q16} Your understanding of the health education topic? <A>
- {QD} Did you see the doctor for treatment today? <Y>
 If yes: How satisfied are you with..
- {Q17} The attitude of the doctor? <A>
 {Q18} The time the doctor spent with you? <A>
 {Q19} The questions the doctor asked you about your complaints? <A>
 {Q20} The way the doctor examined you? <A>
 {Q21} The lab tests the doctor requested for you? <A>
 {Q22} The diagnosis the doctor made for your complaint? <A>
 {Q23} The explanation the doctor made about the diagnosis? <A>
 {Q24} The action the doctor made for you? <A>
 {Action}? <A >
 {Q25} The explanation given to you by the doctor about the action? <A>
- {QE} Did you see the dentist for a dental problem today? <Y>
 If yes: How satisfied are you with..
- {Q26} The attitude of the dentist? <A>
 {Q27} The time the dentist spent with you? <A>
 {Q28} The questions the dentist asked you about your complaints? <A>
 {Q29} The way the dentist examined you? <A>
 {Q30} The diagnosis the dentist made for your complaint? <A>
 {Q31} The explanation the dentist made about the diagnosis? <A>
- {Q32} The action the dentist made for you? <A>
 {Q33} The explanation given to you by the dentist about the action? <A>
- {QF} Did you see the health visitor for antenatal care today? <Y>
 If yes: How satisfied are you with..
- {Q34} The attitude of the health visitor? <A>
 {Q35} The way the health visitor conducted the antenatal care? <A>
 {Q36} The explanation the health visitor made about the results of the visit? <A>
 {Q37} Your antenatal care in the centre in general? <A>
- {QG} Did you see the immunisation nurse for immunisation today? <Y>
 If yes: How satisfied are you with..
- {Q38} The attitude of the immunisation nurse? <A>
 {Q39} The way the immunisation was given to you or to your child? <A>
 {Q40} The explanation the nurse gave about the nature of the vaccine? <A>
 Check the knowledge of the patient about the nature of the vaccine given..
 {Q41} Is it right? <Y>
- {QH} Did you see the midwife for postnatal care today? <Y>
 If yes: How satisfied are you with..
- {Q42} The attitude of the midwife? <A>
 {Q43} The way the postnatal care was conducted? <A>
 {Q44} The explanation given to you by the midwife about the result of the visit? <A>
- {QI} Did you see the nurse in charge of the dressing and injections for dressing or an injection today? <Y>
 If yes: How satisfied are you with..
- {Q45} The attitude of the dressing and injections nurse? <A>
 {Q46} The way the dressing was made or the injection was given? <A>
- {QJ} Did you pass by the pharmacist to dispense a drug today? <Y>
 If yes: How satisfied are you with..
- {Q47} The attitude of the pharmacist? <A>
- {Q48} The way the pharmacist used to dispense the drug? <A>
 {Q49} The explanation the pharmacist gave to you about how to use the drug? <A>
- {QK} Have you been given an appointment to come in a later date? <Y>
 If yes: How satisfied are you with..
- {Q50} The way the appointment was given to you? <A>
 {Q51} The reason for which the appointment was given? <A>
- {QL} Have you been in the centre to follow up the weight of your child? <Y>
 If yes: How satisfied are you with..
- {Q52} The attitude of the nurse who entered the weight into the growth chart? <A>
 {Q53} The way the growth chart was made? <A>
- {Q54} The explanation the nurse gave to you about what she was doing? <A>
- {QM} Have you been in the centre for having diarrhoea? <Y>
 If yes: How satisfied are you with..
- {Q55} The way the diarrhoea has been treated in the centre? <A>
 {Q56} The explanation given to you about how to prepare the ORS? <A>
 {Q57} The explanation given to you about how to use the ORS? <A>
 {Q58} The way they explained to you about the nature of diarrhoea? <A>
- {QN} Have you been to the lab service in the centre today? <Y>
 If yes: How satisfied are you with..
- {Q59} The attitude of the person in-charge of the service? <A>
 {Q60} The procedures performed by the person? <A>
 {Q61} How satisfied are you with the result of your visit to the centre today? <A>
 {Q62} How satisfied are you with the measures taken to ensure privacy during your consultation? <A>
 {Q63} How satisfied are you with the measures taken to ensure the confidentiality about your health problems? <A>
 {Q64} What suggestions do you have to improve the quality of the services in the centre? <A >

FACTORS PREDICTING IMMUNIZATION COVERAGE IN TIKRIT CITY

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Key words: immunization coverage, immunization in Tikrit city

ABSTRACT

Background: Immunization is a key health intervention to reduce child mortality.

Objectives: To determine coverage of an expanded immunization programme and factors predicting vaccination delay.

Methods: A simple random cross sectional study was done in Tikrit city, on 282 children under 2 years, by face to face interview using a standard questionnaire. Data were analyzed in SPSS statistical program. Simple and multiple linear regression and logistic regression was used to analyze factors predicting immunization status.

Results: Fully vaccinated children aged 0-11 months, and 12-23 months was 32.2 %, 47.4% respectively. Vaccination coverage among children aged 12-23 months old was BCG 83.9%, DPT1/POV 74%, DPT2/POV 69.8%, DPT3/POV 65.1%, Measles 58.3%, MMR 35.4%, Booster 14.6%. MMR coverage for children with urban literate mothers was 44.4% and 24.4% for children with rural literate mothers, 30.8% for those with urban illiterate and 14.3% for rural illiterate mothers. Univariate and multiple logistic regression analysis showed that the number of children and residence associated with vaccination coverage. Multiple regression equation was highly significant for mother education, number of children, residence.

Conclusions: Full vaccination rates for both age groups were lower than previously reported in the area. An intervention programme should be considered, particularly in low coverage rate groups.

Introduction

It is the right of every child to be immunized and the duty of every parent to ensure this[1]. Child immunization is one of the most cost effective public health interventions for reducing child morbidity and mortality, and attaining high levels of coverage with potent vaccines administered at the appropriate ages[2]. Immunization program managers and service providers need continuous information to know of the immunization services accessible to the target population. How many individuals in the target population are being vaccinated? Who is not being vaccinated and why?[3].

The EPI Programme was initiated in Iraq in the early 1980s, and expanding to national coverage in the mid-1980s. Coverage increases steeply but after 1990 coverage declines gradually due to international sanctions. Estimates since 1999 are based on 1999 survey data point. No reliable data are available to show current level of immunization coverage. Officially reported data in the 1990s tends to overestimate coverage[4]. Therefore this study was done to evaluate the coverage rate of vaccination and the factors predicting vaccination delay, in order to find the risk groups in need of comprehensive interference.

Materials and Methods

A cross sectional study was done in Tikrit teaching hospital by pediatric consultants, during the period between 15th February to 30th May. A sample of 282 children aged (0-23) months were chosen randomly, and the data collected by face to face interview using a standard questionnaire containing questions about child age, sex, vaccination schedule, mother's job, education, and residence area. The information on vaccination received by the child was collected depending on the child immunization card, and if not present on the history, taken from the mother, depending on her recall.

Fully immunized child is defined as a child of age 12-23 months who received three doses of Oral Polio Vaccine (OPV), three doses of DTP, and one dose each of Bacille Calmette-Guerin (BCG) and measles

vaccines before age 12 months, and considered partially immunized if he/she received fewer than these immunizations doses, and considered "not immunized" if he/she did not receive any vaccine. Mothers were considered illiterate if she could not read or write and literate if she could.

Data were entered and analyzed in SPSS Version 7.5 statistical program. Immunization differences were reported as statistically significant when Chi square P value is less than 0.05 simple linear regression, multiple regression and logistic regression (Enter method) was performed to analyze which factors predicted mothers compliance with childhood immunization.

Results

About 62 (22%) of mothers were illiterate and 220 (78%) literate, the majority of mothers were aged 15-25 years old, 148 (52.5%), did not work 192 (68.1%), were from urban areas 159 (56.4%), and those who had 1-2 child under 5 years old 215 (76.2%).

Among children aged 12-23 months, 24 (12.5%) were not vaccinated, 77 (40.1%) had not completed their vaccination, and only 91 (47.4) were fully immunized, while among children aged 0-11 months was 29 (32.2 %) who had completed vaccination , and 37 (41.1%) of them were not vaccinated as shown in Table 1.

The vaccination coverage among children aged 12-23 months old for BCG was 83.9%, DPT1/POV 74%, DPT2/POV 69.8%, DPT3/POV 65.1%, Measles 58.3%, MMR35.4%, Booster 14.6% as shown in Table 2.

The dropout from DPT1to DPT3 was 11.9%, from BCG to DPT3 was 11.8, and from DPT3 to measles vaccine was 10.4%.

The BCG coverage for children with urban literate mothers was 92.9% and 68.8% for children with rural literate mothers, 92.3% for those with urban illiterate and 16.9%and 16.9% for children with rural illiterate mothers. The MMR coverage for children with urban literate mothers was 44.4% and 24.4% for children with rural literate mothers, 30.8% for those with urban illiterate and 14.3% for rural illiterate mothers (P value= 0.03)as shown in Figure.1.

The univariate analysis showed that the number of children and the residence independently associated with vaccination coverage and multiple logistic regression analysis showed that number of children and the residence significantly predicted vaccination compliance among children aged 12-23 months old (Table 3).

The multiple regression equation for the factors predicting fully vaccinated status of 12-23 months old children was significant for mother education, number of children, residence, child sex, mother age, mother job ($p = 0.017$) and highly significant for mother education, number of children, residence ($p = 0.002$) as shown in (Table 4).

Discussion

The information on vaccination was taken from the child immunization card, and immunization history taken from the mother depending on her recall as it is reliable[5,6]. In this study the vaccination coverage for the first year of life is: BCG 57.8%, DPT1 46.7%, DPT2 27.8%, DPT3 11.1%; and these were lower than previous results in Tikrit; BCG 96%, DPT1 89%, DPT2 80%, DPT3 75%[7]. The vaccination coverage for the second year of life was lower than the estimated levels by UNICEF and WHO reports (BCG 93%, DPT1 93% DPT3 81%, MCV 90%) and the government official reports (BCG 95%, DPT1 96% DPT3 84%, MCV 85%). This difference may be due to difficult access to populations as well as a likely underestimation of the denominator[4]. The vaccination coverage for all vaccines was lower than that found in Ethiopia, and Istanbul[8,9]. In this study, fully-vaccinated children aged 0-11 months was 32.2% in comparison to 57% of that found by Mohammed. M et al, and was 47.4% for children aged 12-23 months in comparison to that found by Takelay Kidance and Michael Tekie and Topuzoglu A et al 75.5%, 68.3% respectively[7,8, 9]. But these results are higher than that found in Delhi 41.4%[10].

In this study, the not vaccinated children among all children was 21.6% in comparison to 4%, that found by Al Hilfy T.K and Essa A, and this

difference may be due to the fact that their data was collected in the PHCCs and this gives the high coverage rate[11]. Access to immunization services was 83.9% (BCG) and 74% (DPT1/pov), but fully vaccinated children was 47.4%, which means a default in the programme success[2]. These results differ from that found by Al-Sheikh OG, et al; that access to immunization services were BCG 97% in urban and 92% in rural areas in comparison to 60% of urban children, and 28% of rural children being fully immunized[12]. The drop out of BCG to DPT3-OPV was 11.8%, DPT1-OPV to DPT3-OPV was 11.9%, DPT3-OPV to measles was 10.4%, which indicates a default in programme performance and poor communication between health worker and parents[2]. The drop out from vaccination gives the impression that with increasing child age the coverage will decrease and this is what was found by Al-Sheikh OG. et al [12], and Farizo et al[13].

In this study the drop out rate of DPT1/pov to DPT3/pov was lower than that in Delhi 18%[10].

These results may be explained by the delivery system of immunization which has many inherent problems to which an addition may be made by the people themselves, with their prejudices, carelessness and apathy[14]. Other national factors can be added; overloading as the city loaded with thousands of families coming from other governorates, or to lack of some vaccines in the primary health care centers, difficult transportation due to insecurity and lack of fuel, or to lack of awareness of the importance of immunization and the need for continuing doses, and lastly the idea that the vaccines may be unhealthy or toxic and may kill their children, as a part of civil war, as it noticed that multiple families refuse vaccination, as found by Mohammed. M et al that 28.7% of mothers fear side effects of the vaccine, and 43% of mothers lack of awareness [7].

In this study, the children of literate-urban mothers are more likely to have completed vaccination, than the children of literate rural mothers. This finding is supported by researchers, who found that vaccination coverage was higher in urban than in rural

areas[12,15,16]. In contrast, Takelay Kidance and Michael Tekie found the opposite[8].

In this study, the univariate and multivariate analysis shows that the vaccination status was significantly associated with residence and number of children >5 years old in the family. This is supported by Takelay Kidance and Michael Tekie,[8] who found that there is a significant association between the residence and mother's education and vaccination status of the children by using the multiple logistic regression analysis, and that found by Cutts FT.[17] et al and Diaz T. et al[18] that the vaccination completion was determined by the mother's experience with vaccination services.

The multiple linear regression highly associated with mother's education, number of children, residence (p value 0.002), gives a view about the risk groups which the programme efforts must concentrate on. This finding was supported by Cutts FT.[17] et al and Diaz T. et al[18] who found that vaccination completion was determined by the mother's educational level, employment status and experience with vaccination services, and by Takelay Kidance and Michael Tekie,[8] who found it significantly associated with residence and mother education, while, Topuzoglu A et al and Simonetti A. et al found a significant association between high socio-economic status and coverage level[9,19].

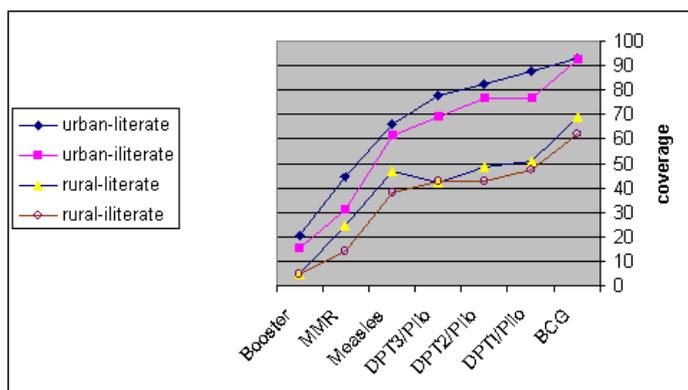
Table 1. Immunization status according to child's age

		vaccination status			Total
		not vaccinated	complete	incomplete	
child age	0-11 month	37 (41.1)	29 (32.2%)	24 (26.7%)	90 (100%)
	12-23 month	24 (12.5%)	91 (47.4%)	77 (40.1%)	192 (100%)
Total		61 (21.6%)	120 (42.6%)	101 (35.8%)	282 (100%)

Table .2. The vaccination coverage according to the child's age.

Type of vaccine	0-11 month N (%) denominator=90	12-23 month N(%) denominator=192
BCG	52 (57.8%)	161 (83.9%)
DPT1/POV	42 (46.7%)	142 (74%)
DPT2/POV	25 (27.8%)	134 (69.8%)
DPT3/POV	10(11.1%)	125(65.1%)
Measles	4(4.4%)	112(58.3%)
MMR	0(0%)	68(35.4%)
Booster 1	0(0%)	28(14.6%)

Figure 1. Immunization coverage (%) of 12-23 months old children by residence and maternal education.



BCG p=0.2, DPT1 p=0.3, DPT2 p=0.3, DPT3 p=0.4, Measles p=0.4
MMR p=0.03, Booster p=0.07

Table 3. Factors predicting fully vaccinated status of 12-23 months old children.

Risk factor	not fully vaccinated/total	Univariate OR	multivariate OR	95% CI	P-value
	Mother literacy				
illiterate	21/34	0.68	0.635	0.2-1.3	0.1
Literate	80/158	1.08			
Residance					
Rural	44/66	0.55	2.4	1.3-4.5	0.004
urban	57/126	1.34			
NO. of children					
1-2 child	67/145	1.29	3.04	1.48-6.2	0.001
> 2 child	34/47	0.42			
sex					
Male	56/104	0.95	0.89	0.5-1.5	0.4
Femal	45/88	1.06			

Table 4. Multiple regression equation for the factors predicting fully vaccinated status of 12-23 months old children.

Model	R	R square	Adjusted R Square	Std. Error of the Estimate	Sig*.
1	0.085a	0.007	0.002	0.5001	0.240a
2	0.23b	0.055	0.045	0.4892	0.004b
3	0.271c	0.073	0.058	0.4858	0.002c
4	0.273d	0.074	0.055	0.4867	0.006d
5	0.276e	0.076	0.052	0.4875	0.011e
6	0.281f	0.079	0.050	0.4881	0.017f
a. Predictors: (Constant), mother education					
b. Predictors: (Constant), mother education, number of children					
c. Predictors: (Constant), mother education, number of children, residence					
d. Predictors: (Constant), mother education, number of children, residence, child sex					
e. Predictors: (Constant), mother education, number of children, residence, child sex, mother age					
f. Predictors: (Constant), mother education, number of children, residence, child sex, mother age, mother jobe					

*significant tested by ANOVA

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ABSTRACT

Objective: To determine which scorpion stings need treatment with antivenom.

Material: This review study was based on analysing cases of scorpion stings in children seen during 2001 to 2005 at (PRH) which is a referral hospital in north of Jordan.

Results: In our series of 386 cases, 201 (52%) were asymptomatic and 185 (48%) were showing some local or general symptoms of envenomation at the time of arrival to the hospital emergency department. Of these 185 symptomatic cases, 169 had developed symptoms within two hours of the sting and all 185 by four hours.

Conclusion: Completely asymptomatic cases which remain so during observation need not be given antiscorpion serum, which should be avoided if possible.

Introduction

Scorpion envenomation is common in tropical and subtropical regions, especially in North Africa, Latin America, India, and the Middle East, where it is seen as a public-health problem.^{1, 2}

The current therapeutic strategies rely partly on supportive symptomatic treatments.² Scorpion antivenom is, however, the only specific treatment and is widely used in many countries such as Brazil and Saudi Arabia.^{2,3-5}

So the suggested treatment regimes are:

1. no antivenom serum, 6symptomatic treatment only;
2. 1 mL antivenom intramuscularly;⁷ and
3. 5 mL intravenous antivenom in all cases.

Materials and Methods

This study was based on scorpion sting cases in children seen during 2001 to 2005 in Prince Rashed hospital which is a referral hospital in north of Jordan. The total number of cases seen was 386, with ages varying from one year to 12 years, the youngest of

SCORPION STINGS IN JORDANIAN CHILDREN

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Key Words: immunization coverage, immunization in Tikrit city.

which was a baby of 10 months. The patients comprised 237 males and 149 females. Fifty-three of them were below two years, 125 were between two to five years, and 208 were between five and 12 years of age.

Management Protocol

The treatment of scorpion envenomation consists of nonspecific or supportive care and specific treatment with scorpion antivenom, which should be species-specific. We gave 5 mL antivenom intravenously in all cases.

Patients with a history of reactions to antivenom were excluded. We gave 10 mL antivenom in moderate systemic affection and 15-20 mL in severely affected cases showing signs of myocarditis or central nervous system (CNS) affection. The antivenom used was purified polyvalent anti-scorpion serum produced by the Egyptian Organisation for Biological Vaccine Production in Cairo, Egypt. The serum was prepared from the purified plasma of healthy horses immunized with venoms of *Leiurus quinquestriatus*, and *Androctonus amoreuxi*, and capable of neutralizing venoms of *L. quinquestriatus*, *A. amoreuxi*, *A. crassicauda*, and *A. Aeneas* and *Buthus occitanus*.

Non-specific (supportive) treatment consisted mainly of chlorpromazine (largactil) 0.5 to 2 mg/kg, repeated once or twice, and sometimes promethazine (phenergan) 0.25 to 1mg/kg was adequate to control autonomic symptoms and agitation.

For convulsions, diazepam 0.1 to 0.5 mg/kg was used, and occasionally had to be repeated. For cardiac complications like pulmonary edema, myocarditis and heart failure, frusemide 1 to 3 mg/kg, and ACE inhibitors like captopril were used.

For cerebral edema, appropriate

therapy, such as mannitol, dexamethazone, hyperventilation, etc., were used. Cases which showed marked respiratory distress or impending respiratory failure were put on mechanical ventilation.

Results

In our series of 386 cases, 201 (52%) were asymptomatic and 185 (48%) were showing some local or general symptoms of envenomation at the time of arrival at the hospital. Of these 185 symptomatic cases, 169 had developed symptoms within two hours of the sting and all 185 by four hours.

Twenty-nine (7.5%) had local symptoms like pain, swelling, redness, and itching lasting for between two and four hours. Systemic involvement was seen in 156 cases (40%). General symptoms such as salivation, sweating, extreme irritability, agitation and excessive crying were present in 132 cases (32%). Priapism was present in 52 affected male children (22%). The symptom wise presentation, laboratory and radiological abnormalities are listed in Table 1.

Cardiovascular and neurological complications cause the most morbidity and are major causes of mortality in scorpion envenomation. Neurological complications were the next most common feature, and were seen in 51 cases (13%). The main neurological complications were extreme agitation and disorientation, muscular spasms, seizures, coma and cerebral edema, which is the most dreaded complication. A girl of four years who presented to hospital in a comatose condition after about six hours of envenomation died of cerebral edema.

A total of 182 patients (163 symptomatic and 19 asymptomatic) were given 5 mL antivenom intravenously. Reactions were seen in 25 patients (13.7%), with minor

transient skin reactions in 23 (12.6%) of them. In two patients (1%), the reactions were more serious, such as severe urticaria, periorbital edema, cough, breathlessness, severe hypotension and heart failure. One symptomatic patient who was given serum intravenously started showing signs of anaphylactoid reaction within minutes, and had to be sent to ICU, where the patient eventually recovered.

None of the asymptomatic cases developed any symptoms during the 24 hours of observation. In the 163 symptomatic cases, antiscorpion venom serum was given. In the remaining 22 cases, it could not be given because of non-availability or hypersensitivity to serum. Those affected children who were given serum had fewer complications, and shorter hospital stay, and there were no deaths in the group.

The hospital stay in the group that was given serum was between 3 to 7. For those who were not given serum, it was between 7 to 13 days.

Discussion

In humans, the effects of scorpion venom are due to stimulation of the hypothalamus, leading to hypothalamic discharges, and causing profound effect on sympathetic and parasympathetic systems.²

There is a massive release of catecholamines, probably causing shunting of blood from metabolically active areas. There may be a direct toxic effect of the venom on regional oxygen transport at the cellular level. There is persistent arterial and gastric mucosal acidosis and increased lactate concentration.⁸

A number of clinical cardiovascular syndromes and central nervous system dysfunctions may be seen as a result of the effects of the released transmitters. Myocarditis, heart failure, pulmonary edema, hypertension, acute myocardial infarction-like picture, rhythm disturbances, etc., may occur: Soomro et al.⁹ reported major cardiovascular complications, such as changes in blood pressure, reversible ECG abnormalities simulating myocardial ischemia or infarction, reversible echocardiographic changes of systolic dysfunction, congestive heart failure and pulmonary edema in 18.5% of

cases of scorpion envenomation. Also in our series, cardiac complications such as pulmonary edema, myocarditis, changes in heart rate and rhythm, and cardiac failure were seen in 70 cases (18%). In one case of a 12-year-old boy, the electrocardiographic changes were striking.

The first ECG taken on admission showed ventricular bigeminy or coupling, but after 48 hours the ECG showed a picture of anterolateral wall infarction and ischemia, with Q-waves, raised ST and inverted T-waves in leads I and avL and tall T-waves in leads II, III, V3-V6. The ECG changes started regressing rapidly and after four days were showing normal ST-T-waves in LI and avL, the only remaining defect being Q-waves in lead I. After four weeks, the ECG had become completely normal. For cardiac complications, afterload reduction with either nifedipine or an angiotensin-converting enzyme inhibitor should be considered.

Central nervous system disturbances such as confusion, agitation, seizures, cerebral edema and coma are more common in children.¹⁰⁻¹² All cases of scorpion sting should be kept under close observation for at least 12 hours.

Santhanakrishnan and Balagopal Raju¹³ reported a mortality rate of 2.7% for cases of all ages. In our series, there were two deaths in 1991, the first, a girl of one year who died of disseminated intravascular coagulopathy and renal failure, and the second, a girl of four years who died of cerebral edema. The mortality percentage in our series was 0.5%. In cases of definite envenomation, the earliest use of species-specific antivenom serum reduces mortality and morbidity. Still, it should always be borne in mind that antivenoms are animal-derived Igs. Because they are concentrates of animal serum, both immediate and delayed hypertension-sensitivity reactions are common, and may themselves be life-threatening.

Bond¹⁴ reported that 58% of patients treated with antivenom had a delayed onset of rash or symptoms of serum sickness, and states that the use of antivenom for the less severe envenomation may subject them to unjustified risk.

In our series, of the 182 patients who were given antivenom serum, minor reactions were seen in 13.7% and more

serious reactions in 1%. With regards to treatment of completely symptomatic cases, which in our series were 201, of which 182 (90%) could not be given any serum; these patients did not develop any symptoms and were discharged home in good condition after 24 hours of observation.

From the review of our cases, it seems that completely symptomatic cases which remain so during observation need not be given antiscorpion serum, for, however small the risk may be, there is a substantial danger of serious reactions to the animal protein in the antivenom serum, and it should be avoided if possible.

Table 1. Scorpion stings: symptoms and laboratory abnormalities (n=386).

Symptoms and laboratory abnormalities Number (%)			
Local symptoms	29 (7.5)	Generalized symptoms	156 (40)
Sweating, salivation	132 (34)	Vomiting, diarrhea	86 (22)
Abdominal rigidity	30 (8)	Tachycardia	125 (32)
Bradycardia	3 (0.77)	Hypotension	7 (2)
Circulatory failure	4 (1)	Breathlessness	18 (5)
Pulmonary edema	5 (1)	Respiratory failure	1 (0.2)
Seizures	17 (44)	Coma	7 (1.8)
Pupillary changes	19 (5)	Hemiplegia	1 (0.25)
Cerebral edema	1 (0.25)	Priapism	52 (22)
Hyperglycemia	22 (5.6)	Cardiac enzymes	24 (6)
ECG changes	30 (7)	Echo changes	5 (1.2)
pulmonary edema	5 (1.2)	Hyperkalemia	20 (5)
Leukocytosis	60 (16)	Asymptomatic	201 (52)

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ABSTRACT

Background: Henoch-Schonlein purpura is an IgA-mediated, autoimmune, hypersensitivity vasculitis of childhood characterized by purpuric rash occurring on the lower extremities, abdominal pain, arthritis and renal involvement. Although of unknown cause, HSP is often associated with infectious agents, food reactions, exposure to cold, insect bites and drug allergens. Ethnic variations of the rare childhood vasculitides are not well characterized. Our aim was to ascertain the incidence and presentation pattern in Arab children in Kuwait.

Patients and methods: Forty-four Arab children of 2-12 years old were included in this study. Detailed history was obtained, and through clinical examination was performed. Laboratory, as well as imaging evaluation, was done.

Interpretation: Henoch-Schonlein purpura occurred more frequently among Arab children. The incidence was 0.3%. All patients presented with purpuric rash. Arthritis was present in 36.4%, and abdominal pain in 25% of cases. Renal involvement was rare. It occurred in 9% of cases. In contrary bleeding per rectum was common, it occurred in 20.4% of cases.

Introduction

This small- vessel vasculitis is most commonly seen in children. It is associated with abdominal pain and an acute arthritis affecting one or more joints at a time (1). Boys are affected twice as frequently as girls (2). It has an incidence of 14 per 100,000 children and occurs most frequently in spring and fall (3). Pulpable non-thrombocytopenic purpura is found characteristically over buttocks and lower legs, and up to half the children affected have angio-edema. Intussusception, rectal bleeding and renal involvement are features of more severe disease. Fewer than 54% of patients have acute renal insufficiency (4), and another 5% have slow progression with renal failure developing months to years later (5).

The skin lesions and the renal glomeruli may contain IgA immune complexes, which likely are formed

HENOCH-SCHONLEIN PURPURA: PRESENTATION PATTERNS IN ARAB CHILDREN IN KUWAIT

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Keywords: Purpura, Henoch-Schonlein, systemic vasculitis of childhood, IgA-associated nephropathy, arthritis, abdominal pain.

in response to an inciting factor; most probably Parvovirus B19 (6). However the disease can occur secondary to other infectious agents, food reactions, exposure to cold, insect bites and drug allergies.

Ethnic differences in the incidence of childhood diseases are well recognized, and have been described for several conditions. Recognition of ethnic differences in incidence rates of rare conditions such as vasculitis, helps to identify the cause and directs the investigations. It can, as well, help in the planning of health services, and identification of outcome of these conditions.

The aim of this study was to find out the incidence and identify the presentation pattern of Henoch-Schonlein purpura (HSP) among Arab children in Kuwait.

Patients and methods

Forty-four Arab children with Henoch-Schonlein purpura were included in this study. A child is considered to have HSP if he fulfills three or more out of the criteria of The American College of Rheumatology for the classification of Henoch-Schonlein purpura (1). Detailed history was obtained. History of recent drug ingestion and food consumption was ascertained. Abdominal pain and gastric hemorrhage had also been reported, as well as seizure activity. Full physical examination was performed. Skin rash, arthritis, throat congestion, palpable abdominal masses and signs of cardiac involvement were looked for and blood pressure was recorded.

Laboratory evaluation was done. This included CBC, ESR, LFT, PT & PTT, RFT, urinalysis, and stool for

occult blood. Serum samples for C3, C4, ANA, ds DNA and rheumatoid factor were collected.

Ultra-sound abdomen was done in patients with abdominal pain. Renal biopsy was done in one case because of hematuria, heavy proteinuria and elevated blood pressure. Upper gastro-intestinal endoscopy was done in another case because of hematemesis.

Results

Over a period of 2 years from January 2005 to December 2006; out of 16,903 admissions to Pediatric Department, Jahra Hospital 44 (0.3%) children had Henoch-Schonlein purpura. Twenty were males and 24 were females with a male to female ratio of 1:1.2 (Table 1). Their ages ranged from 2-12 years. The incidence was highest between 6 and 8 years (Figure 1), with a mean age of 6 years & 8 months. The mean age of male patients was 7 years (range 2.5-11 years.) and that of the females 6.5 yrs. (range 2-12 years). Twelve patients (27.2%) had recurrent attacks of HSP; 2 of them had more than one attack (Table 1).

All patients had purpuric skin rash mainly involving both lower limbs (Table 2). Arthritis was found in 16 (36.4%) patients, and abdominal pain in 11 (25%) patients. Six (13.6%) patients were edematous and only one (2.3%) patient had hypertension. Table 3 summarizes the clinical data.

Hematuria and proteinuria were present in 6 (13.5%) patients. Acute phase reactants were elevated in 25 (57%) patients and stools were positive for blood in 11 (25%) patients. Virology studies were positive in 11

(25%) cases; 2 Parvovirus, 1 EBV and 2 Adenovirus.

Ultrasound abdomen was normal in all patients. Renal biopsy showed minimal change; glomerulonephritis in one patient and gastroscopy revealed duodenitis with micro ulcers in another patient.

Discussion

Henoch-Schonlein purpura is an acute vasculitis that affects children rarely. The etiology remains unknown, however circulating IgA immune complexes play a critical role in the pathogenesis of the disease. The prevalence of HSP peaks in children aged 3-10 years. It occurs twice as often in males as in females (7). Genetic contribution to childhood illness is likely to be increasingly recognized as our knowledge of the human genome becomes more sophisticated (8). Gander et al (2) noted important ethnic differences in the incidence rates for all childhood primary vasculitides. Their findings suggest a higher incidence of HSP in children below 14 years than, the 13.5-18/100,000, previously estimated (9, 10). They also found that the incidence rate of HSP was lower in blacks than any other population, a finding previously reported in black Americans (11). By comparison, results of a UK survey suggest an overall annual incidence of 1.9/100,000 in young children (12). In our study, we estimated an incidence of 0.3% (260/100,000), indicating that HSP among Arab Children may be more frequent. However, our incidence rate was among diseased children admitted to the hospital, not among the childhood population. The prevalence of the disease in our patients was similar to that found by others. It peaked in children aged 6-8 years (Figure 1), but the male to female ratio was almost equal, 1:1.2.

Dermatological findings are notable in HSP. The rash is usually symmetrical and purpuric. It typically involves lower extremities and buttocks (13). In more severe cases, hemorrhagic or necrotic lesions may be prominent (14). All our cases presented with purpuric skin rash that involved lower limbs and buttocks. However, we noticed that the rash tends to be more generalized in children less than 4 years (Table 2),

contrary to the findings of others who reported mild illness in infants and young children (7, 15, 16).

Joint symptoms occur in 70-85% of cases (17). They precede the rash in 25% of cases. Joints are warm, tender and swollen. In one study in Thailand, joints were affected in 42.6% of cases of childhood Henoch-Schonlein purpura (Pabunruang, 2002). In our study, only 36% of patients had arthritis. This may be due to ethnic susceptibility as gene polymorphism may contribute to the diversity of clinical responses to inflammatory stimulation.

The most serious sequelae of HSP is renal involvement. It occurs in 50% of older children, and 25% of children younger than 2 years (18, 19, 20). In our patients, only 4 (9%) presented with renal involvement; one (2.2%) of them had hypertension. Renal function was normal in all. This may be due to the fact that Arab children are less susceptible to renal involvement during the course of the disease. Other authors also reported ethnic differences for nephritis in HSP (21).

Gastro-intestinal manifestations, the commonest second manifestation of HSP, occur in more than 50% of cases and usually consist of colicky abdominal pain, melena, or bloody diarrhoea (22, 23). Hematemesis occurs less frequently. In our study, 11 (25%) patients had abdominal pain, 9 (20.4%) had bleeding per rectum, and one (2.2%) had hematemesis.

From the previous discussion, we can assume that ethnic differences play a role in susceptibility to HSP, as well as its presentation pattern. However, any estimates must be tentative as less severe cases may be missed. Also these differences may be secondary to differences in associated provocative or inducing factors among locations.

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HENOCH-SCHÖNLEIN PURPURA IN JORDANIAN CHILDREN

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Keywords: Henoch- Schönlein purpura, treatment, epidemiologic, clinical manifestation.

ABSTRACT

Objective: To study the epidemiological and clinical manifestation of Henöch-Schönlein purpura (HSP) in Jordan.

Setting: Princess Hia Hussein Hospital (Aqaba) and Queen Alia military hospital (Amman)

Methods: This retrospective study was carried out during the period between January 2002 and January 2006. A total number of 30 patients were studied regarding the age, gender, clinical manifestation, laboratory findings and treatment.

Results: Of the 30 patients, 17 (56.7%) were males and 13 (43.3%) were females. age ranged between 1-12 years with a mean age of 5.75 years. Seasonal distribution of admissions was highest in the winter months. All patients had the characteristic skin rash, 83.3 % of patients had joint manifestations and 53.3 % of patients had gastrointestinal manifestations. Treatment was supportive in 26 (87.7 %) patients, whereas short courses of steroids were started in the remaining 4 (13.3 %) patients.

Conclusion: Henoch-schönlein purpura is a self limiting disease with an excellent overall prognosis and generally treatment is unwarranted.

Introduction

HSP is the most common vasculitic disease of childhood (1, 2, 3). It is an IgA-mediated, autoimmune, hypersensitivity vasculitis of small vessels (4, 5, 6). It was first reported by Heberden in 1806. The association of purpura and joint pain was described by Schönlein in 1837, who termed it peliosis rheumatica. Henöch added a description of four children with skin lesions associated with colicky abdominal

pain, gastrointestinal hemorrhage and joint pain in 1874, and in 1899 pointed out that renal involvement sometimes occurred(2,7). It has an annual incidence of approximately 13.5-18 /100,000 children (1), and peaks during winter (2). Most of the cases occur between 2-8 years of age with a male-to-female ratio of 2:1(5, 8). In 1990, the American college of Rheumatology defined HSP by the presence of 2 or more of the following criteria: age of disease onset 20 years or younger; palpable purpura; acute abdominal pain (bowel angina) and granulocytic infiltration in the walls of arterioles or venules (1, 9).

Methods

The records of all children diagnosed as having HSP from January 2002 to January 2006 were reviewed. The criteria for diagnosis of HSP were based on the classical description of skin rash together with either joint involvement (arthralgia and / or arthritis) or gastrointestinal manifestations (abdominal pain and /or gastrointestinal bleeding).

Results

Of the 30 patients, 17 (56.7%) were males and 13 (43.3%) were females. The age ranged between 1-12 years with a mean age of 5.75 years. Seasonal distribution of admissions showed that most of the cases occurred in winter. The frequency of different signs and symptoms is shown in table I. All patients had the characteristic skin rash, 25 patients had joint manifestations, including arthritis in 13 patients, involving the larger joints particularly the knees and ankles. 16 patients had gastrointestinal manifestations in the form of abdominal pain and /or gastrointestinal bleeding, 7 patients had renal involvement in the form of hematuria, proteinuria or

both. Renal function tests and blood pressure were normal in all patients on admission and a short follow-up, one patient had scrotal edema and another one developed multiple intracerebral hematomas and unfortunately died.

The laboratory findings are shown in table II. Throat swabs obtained from 8 patients revealed normal flora in all specimens. Leukocytes and platelets were normal or elevated.

In 87.7 % of our patients, no specific treatment was warranted, while in the remaining 13.3%, short courses of steroids were started.

Discussion

HSP, also known as anaphylactoid purpura, is an immunologically mediated systemic vasculitis of small vessels affecting predominantly the skin, gastrointestinal tract, joints, and kidneys (5, 10).

A variety of other unusual manifestation can occur such as seizures, intracerebral hematoma, hemiplegia, cortical blindness, pulmonary hemorrhage, myocardial infarction, pancreatitis, intramuscular hemorrhage, cholecystitis and hemorrhagic cystitis(1,4,5,7,10).

Our data gave the usual pattern of presentation of the syndrome. Only one patient had multiple intracerebral hematomas and unfortunately died, another patient had scrotal edema in addition to the usual clinical manifestation.

The etiology of HSP is unknown, although there has been association with infectious agents especially group A B-hemolytic streptococci and less commonly measles, rubella, adenovirus, parvovirus, and mycoplasma (1, 11, 12).

The role of preceding upper respiratory tract infection (URTI) has

been discussed frequently in relation to etiology; our figure of 46 % of those having URTI is lower than the 75 % reported in literature (13).

Proof of streptococcal infection was not present in our study because none of our 8 patients grew group A B-hemolytic streptococci in the throat swab cultures obtained and only 4 patients had antistreptolysin-O (ASO) titer > 200 IU/ml .

Hypersensitivity to food, drugs (penicillin, sulfonamides, allopurinol, propylthiouracil, and quinidine) and insect bites has also been postulated (2, 8, 14).

Cases have been reported following vaccination for typhoid, measles, cholera, and yellow fever (4).

Complement abnormalities have been described in association with HSP: C2 deficiency, homozygous null C4 phenotype and C4B deficiency, glomerular C3 and properdin deposition, low CH50 and properdin and raised C3d concentration in the acute phase of the disease have suggested complement activation (1, 15).

In our cases, serum complement (C3, C4) determinations were done in 5 patients and all were normal which failed to support a role of complement activation in HSP.

Regarding histopathology of the skin, the early changes are those of leukocytoclastic vasculitis with extravasations of erythrocytes. In the later stages the picture becomes less florid and mononuclear cells predominate with fibrin deposition and impaired fibrinolysis (14).

The direct immunofluorescence analysis evidenced vascular deposition of IgA and C3 in upper and mid dermis (5, 9).

Renal biopsy findings may be graded according to the classification of the international study of kidney disease in children (ISKDC) from 1-5

The primary lesion is endocapillary proliferative glomerulonephritis involving both endothelial and mesangial cells, but proliferation of extracapillary cells may result in crescent formation, immunofluorescence usually reveals

mesangial IgA with IgG, C3, and fibrin(1).

Treatment of HSP remains symptomatic and supportive in general.

There is widespread agreement that corticosteroids have a beneficial effect on gastrointestinal and central nervous system symptoms(4,5) . This was true in our study where the severity of abdominal pain was ameliorated in those patients receiving short courses of steroids and the response was fairly dramatic in a few.

Treatment with cyclophosphamides, plasmapheresis and azathioprine is controversial (4).

HSP is generally a benign disease, but recurrences are common occurring in up to half of the patients (8, 14).

The prognosis depends on the degree and severity of renal involvement. No relation was found between prognosis and age, streptococcal infection, type of presentation or relapse rates (14).

Death may occur during the acute phase of the disease as a result of bowel infarction, CNS involvement or renal disease (15) was seen in one of our patients who developed multiple intra-cerebral hematomas and unfortunately died.

In conclusion HSP is generally a self limited disease with an excellent overall prognosis .

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Table 1. clinical manifestations of 30 patients with HSP

Clinical manifestations	Number of patients	Percentage
Skin	30	100
Gastrointestinal tract	16	53.3 %
Joint	25	83.3 %
Renal	7	23.3 %

Table 2. laboratory findings of 30 patients with HSP

Laboratory tests	Number of patients tested	Results
Antistreptolysin-O titer	11	4(≥ 200 IU/ml)
Throat swab	8	0
Erythrocyte sedimentation rates	13	Variable(12-86 mm/hr)
Serum complement C3, C4	5	All normal
C-reactive protein	5	2 positive

REPRODUCTIVE/SEXUAL HEALTH KNOWLEDGE, OPINIONS AND ATTITUDES OF UNIVERSITY STUDENTS

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Keywords: medical students, reproductive health, contraceptive methods, STDs

Introduction

Each year, it is estimated that over 585,000 women die worldwide because of complications from pregnancy, birth, and abortions because of inappropriate conditions 1. On the other hand, the rate, cost, and morbidity challenges of unwanted pregnancy and sexually transmitted diseases (STDs) are increasing each day around the world. The majority of these deaths and the inappropriate conditions may, be prevented by educating people about reproductive/sexual health (R/SH) and by increasing the usage of effective contraceptive methods 2. Therefore, developing countries should give particular importance to this issue.

Turkey is a developing country, and health indicators are not at the desired levels. Although the total birth rate in Turkey is decreasing (i.e., 2.23 per woman), infant and maternal mortality and intentional abortion rates are higher compared to developed countries, 43 per 1000 live births, 49 per 100,000 live births 3, and 11.3%, respectively 4. According to a 2003 study conducted by Hacettepe University, the overall contraceptive usage rate in Turkey is 71%, but 28.5% of sexual participants prefer traditional methods like coitus interruptus and calendar methods 4. Although the Turkish Ministry of Health (MoH) provides free family planning services, two-thirds of Turkish women still do not use contraceptives.

Despite the fact that during the last decade, when eight-year primary school education became obligatory in Turkey, the illiteracy rate remains at 12.6% 5. Since primary school

graduates account for 61.1% of Turkey's total population 5; primary school teachers play an important role in public education. This may be particularly important where including reproductive health education is concerned. Primary school curricula contain R/SH instruction, but it is not clear if the goals of these programs are achieved.

Doctors comprise another important group, with responsibility for public health education. During medical school medical educators are responsible for educating students, physicians, and residents about R/SH 6. In Turkey, upon graduation medical students are mostly employed by the Ministry of Health (MoH) which provides primary care services (PCS), and the graduates deal with patients in primary care centers 7. Similarly, maternal-child health care and family planning services are provided mostly through PCS, so it is very important that future doctors be knowledgeable about these issues.

Therefore, the aims of this study were:

1. to identify the knowledge, opinions, and attitudes of the students about R/SH
2. to determine the effects of a medical school R/SH curriculum given in the second class
3. to compare the socio-demographic features, R/SH knowledge and experiences between medical and educational sciences students
4. to evaluate the knowledge levels of the students about R/SH, prior to their university education
5. to call students' attention to R/SH,

ABSTRACT

Objectives: Medical and educational sciences students in Turkey are the target population of the study. The goals of this study consist of identifying the knowledge level, opinions, and attitudes of the students about R/SH, and to determine the effects of the R/SH program on the knowledge level, opinions, and attitudes in the second class of medical school.

Methods: In this cross-sectional study, an anonymous, self-administered, structured questionnaire was completed by students. The questionnaire addressed socio-demographic features, knowledge, opinions, attitudes, and experiences of those students about R/SH. Chi square, student t test, ANOVA, and correlation analyses were performed for the statistical evaluation.

Results: A total of 139 students participated in the study. Of the total, 25.2% had sexual experience, and among those, only 31.4% had used contraceptive methods, mostly condoms. The mean knowledge score of the medical students before and after the R/SH lectures improved from 20.2±3.6 to 26.1±2.6. In addition, after the lecture, the medical students scored higher in their knowledge of STD preventive measures, contraceptive methods, and overall R/SH knowledge as compared with the educational school students.

Conclusion: The level of R/SH knowledge among the participating students was lower than expected.

Materials and Methods

Setting

Adnan Menderes University, a relatively young institution, was established in 1992 in Aydin which is located in the Aegean part of Turkey. It is composed of six schools, including educational sciences and medical schools. In the School of Educational Sciences, R/SH lectures begin in the 3rd class. The School of Medicine has an integrated curriculum, which is based on community-oriented medicine. The focus of the Family Medicine Department is also community-oriented medicine and has a significant role in the curriculum. In the School of Medicine, the R/SH program begins in the second term of the second class. In addition to the second class theoretical lectures, covering R/SH care, contraceptive methods and family planning counseling, instruction in clinical skills (like applying intrauterine devices, family planning counseling and communication skills), and field experiences (like simulated patient interviews, visiting PCSs), are conducted by two of the authors (AG and SA).

Questionnaire

In this cross-sectional study, we used an anonymous, self-administered, and structured questionnaire, consisting of three parts employing 34 questions which may be either open- or closed-ended. We used related literature as well as information gathered from group discussions with the students as the basis for the questionnaire. To track the questionnaires, but still maintain anonymity, we established a tracking number for each participant. The tracking number was composed of the first letter of the participant's first name, the total number of letters in his/her mother's first name, the number of the month in which he/she was born, and his/her eye colour (e.g., S-07-December-black). The first part of the questionnaire consists of socio-demographic information of the participant: age, gender, number of siblings, place of birth, parents' level of education, and the type of high-school from which they had graduated. The second part of the questionnaire

deals with attitudes towards sexual behaviors and opinions on reproductive health. The last part is geared toward assessing the basic knowledge of the participant on these subjects.

Data

The target population of this study was the second class medical students and the third class educational sciences students at Adnan Menderes University. Permission was obtained from the Medical Directorate of the University. Confidentiality and anonymity were assured to the students. All participation was voluntary and based on oral informed consent. For both sets of students, questionnaires were distributed and collected by trained interviewers prior to the beginning of the educational period. For the medical school students, the questionnaires were given again after the students had completed the educational period on this subject. The questionnaire was not given again after the lectures in educational sciences school as the lectures were not given by the authors. The educational sciences students can be considered as a control group for the pre-educational knowledge level and socio-demographic features. The cut-off point of the total knowledge score was determined as 20 over 30, and students obtaining more than 20 points were considered to be "successful."

Statistical Analysis

The answers for open-ended questions were categorized for data entry. The socio-demographic features were given as means \pm standard deviations (SD). Chi square, student t- test, ANOVA, and correlation analyses were performed for the statistical evaluation. A p value smaller than 0.05 was accepted as statistically significant.

Results

All of the students in the second class of medical school (n=63) and 76 of 101 (75.2%) students in the third class of the School of Educational Sciences participated in the study. The mean age of the total group was 20.1 \pm 1.4 years (minimum 17, maximum 24). Females comprised

51.8% of the group. There was a larger number of females in the School of Educational Sciences (p=0.024). Table 1 shows gender distribution according to the schools.

Table1. Distribution of Students According to Their Gender, by School

	Medical School (n=63)	Educational Sciences School (n=76)	Total (n=139)
Boys	37	30	67
Girls	26	46*	72
Total	63	76	139

*p:0.024 The educational level of the participants' mothers was low. The illiteracy rate was 12.2%. Primary school graduates accounted for 41.7%, while high school/university graduates numbered 36.6%.

The educational level of the fathers was better. Only 3.6% of the fathers were illiterate. Primary school graduates totaled 25.4%, while high school/university graduates totaled 58.3%. The questionnaires revealed that the fathers of the medical students had higher levels of education than those of the educational sciences students (p<0.05).

The students were similar in other socio demographic features. The mean sibling number was 2.9 \pm 1.7. The students were mostly from the Aegean part of Turkey and generally lived separately from their families. Only 13.7% lived with their families in Aydin. 75 (54%) students (mostly medical students) had graduated from special high schools, where the curricula offered more foreign language and science lectures than the ordinary high schools. In general, the medical students graduated from the special high schools, and this fact was statistically significant (p=0.000).

Of the total participants, 26 students were smokers and 39 students drank alcohol. The mean age when these students started to smoke was 16.9 \pm 2.4 years. Between the schools, there was no difference in the rates for drinking alcohol and smoking. The mean age of adolescence was 13.4 \pm 1.2 years. 69.8% of the students had a girl/boyfriend. Of the total, 25.2% (mostly males, p=0.000) had some sexual experience. Flirting and sexual experience rates were similar for both gender in both schools. The

mean age of the students when they had their first sexual encounter was 17.9±1.7 years. Among those who were sexually active, only 31.4% used contraception, mostly condoms.

Only 38 students (27.3%) thought their knowledge of R/SH was adequate. However, between the educational sciences and the medical students, the medical students thought that they were more knowledgeable (p=0.000). Both sets of students obtained their first knowledge of R/SH, mostly from their friends and mothers, but 56 students stated that they had no knowledge of this subject at all. Of those 56 students, the majority were medical students (p=0.000). Only 30 (21.6%) students stated that they had gained sufficient knowledge of R/SH during their secondary or high school education, and, again, the rate was higher among the medical students (p=0.025).

Typically, students preferred to talk about R/SH issues with their girl/boy friends (39.5%), and secondly with their mothers (25.9%). A total of 20 students preferred to speak with health professionals about R/SH issues, while the remaining stated that they had no one to talk with, about such issues. 37.4% of the students preferred to get their knowledge from their friends, 36.0% from their mothers, and 13.7% from multimedia resources. Typically, the educational sciences students preferred obtaining R/SH information from the media and their parents as compared to the medical students (p=0.01).

In general, R/SH knowledge did not differ according to gender or previous formal education, except medical students were more knowledgeable about STD prevention measures (p=0.04).

The students, who had experience in flirting, scored higher in their knowledge of STD prevention and contraceptive methods as well as had a higher overall knowledge score (p=0.015, p=0.045, p=0.029, respectively). The students, who had some sexual experience, knew much more about STD prevention measures (p=0.046). The students, who experienced abuse, could list the names of more STDs than the other participants (p=0.004); and they achieved higher scores in overall knowledge, but it was not statistically significant.

Tables 2, 3, and 4 list the STDs, contraceptive methods, and STD prevention measures respectively that were recorded by the students in the questionnaire.

Table 2. Distribution of Students According to Their Knowledge about Sexually Transmitted Diseases (STDs), by School

	Medical School (n=63)	Educational Sciences School (n=76)	Total (n=139)
AIDS	53 (84.1%)	76 (100%)	129 (92.8%)
Hepatitis-B	24 (38.1%)	22 (28.9%)	46 (33.0%)
Gonorrhoea	15 (23.8%)	29 (38.1%)	44 (31.7)
Syphilis	17 (27.0%)	17 (22.3%)	34 (24.4)
STDs listed			
None	10 (15.9%)	--	10 (7.2%)
One	19 (30.2%)	26 (34.2%)	45 (32.4%)
Two	17 (27.0%)	30 (39.5%)	47 (33.8%)
Three	13 (20.6%)	20 (26.3%)	33 (23.7%)
Four or more	4 (6.3%)	--	4 (2.9%)

Table 3. Distribution of Students According to Their Knowledge about Contraceptive Methods, by School

	Medical School (n=63)	Educational Sciences School (n=76)	Total (n=139)
Contraceptive methods for men			
Condom	43 (68.3%)	63 (82.9%)	106 (76.3%)
Coitus interruptus	2 (3.2%)	2 (2.6%)	4 (2.9%)
Vasectomy	4 (6.3%)	--	4 (2.9%)
Contraceptive methods for women			
Oral contraceptives	42 (66.7%)	58 (76.3%)	100 (71.9%)
Intrauterine device	26 (41.2%)	27 (35.5%)	53 (38.1%)
Tubal ligation	3 (4.7%)	1 (1.3%)	4 (2.9%)
Contraceptive methods listed for men			
None	19 (30.2%)	13 (17.1%)	32 (23.0%)
One	39 (61.9%)	61 (80.4%)	100 (71.9%)
Two	4 (6.3%)	2 (2.6%)	6 (4.3%)
Three or more	1(1.6%)	--	1(0.7%)
Contraceptive methods listed for women			
None	20 (31.7%)	16 (21.1%)	36 (25.9%)
One	19 (30.2%)	36 (47.4%)	55 (39.6%)
Two	21(33.3%)	23 (30.3%)	44 (31.7%)
Three or more	3 (4.8%)	1 (1.3%)	4 (2.9%)

Table 4. Distribution of Students According to Their Knowledge about Prevention Measures of STDs, by School

	Medical School (n=63)	Educational Sciences School (n=76)	Total (n=139)
Condom using	51 (81.0%)	51 (67.1%)	102 (73.4%)
Obeying the hygienic rules	35 (55.5%)	33 (43.4%)	68 (48.9%)
Single sex partner	38 (60.3%)	31 (40.8%)	69 (49.6%)
Prevention measures of STDs listed*			
None	4 (6.3%)	9 (11.8%)	13 (9.4%)
One	13 (20.6%)	32 (42.1%)	45 (32.4%)
Two	24 (38.1%)	19 (25.0%)	43 (30.9%)
Three or more	22 (34.9%)	16 (21.1%)	38 (27.3%)

*P <0.05

The mean knowledge score of the whole group was 19.8±3.4 (10-26) over 30. There was no statistical significance based on gender or previous formal education. The “successful” group was composed of 70 (50.4%) students.

The mean knowledge score of medical students before and after R/SH lectures improved from 20.2±3.6 to 26.1±2.6 (p=0.000). Prior to the lectures, 36 medical students (57.1%) comprised the “successful” group. After the lectures, this number increased to 60 students (95.2%) (p=0.000).

In the second class of medical school after the R/SH lectures, students scored higher in their knowledge of STD prevention, contraceptive methods, and overall knowledge (p<0.001). There was no significant difference in their knowledge of STD prevention measures after the lectures.

Discussion

It is known that knowledge, opinion, and attitudes are related to behaviors, as knowledge and attitudes are predictive factors for reproductive behaviors 1. We planned to determine the knowledge, attitudes, and opinions in order to highlight the behavior of future public educators.

The mean age of our group when they had their first sexual experience was below 18, which is concordant with other studies 8,9. The rate of premarital sexual experience among university students in the literature varied widely from 12 to 86% 8,9. Our students' sexual experience rate of 25.2% can be considered as low, which may be due to the Turkish culture. In our study, we found that one-third of the sexually active students used contraceptive methods compared to 69-89% in the referenced studies. These differences can be due to a lack of awareness and the intimate nature of this subject in Turkish culture. Most of our students preferred condoms as the primary contraceptive method, which is concordant with these studies.

It is interesting that medical students stated that their R/SH knowledge was sufficient; because there was no significant difference between the mean knowledge scores of the two groups. Also, 35 medical students declared that they had no R/SH knowledge. This statement of sufficient R/SH knowledge can most likely be related to a lack of insight by the medical students, or to being overly confident because they are in medical school. 78.4% (109 students) of the whole group also revealed that during primary and high school, they did not get sufficient R/SH education. It can be considered a conflict that most of the medical students neither acquired their R/SH knowledge from school nor from another source, but they thought their R/SH knowledge was sufficient. Only 14.4% of the students preferred to talk about R/SH issues with health professionals. This may be due to the lack of experience by the physicians or possibly, due to the intimate nature of the subject. It is very important for primary care physicians to recognize and search for opportunities to educate patients regarding R/SH during their visits.

Because 13.7% of the students preferred multimedia as an information source, media resources have the duty to provide correct knowledge and to direct the public about this intimate subject. In a study conducted in Nigeria 9, the most common source for information is health workers, followed by TV-radio-newspapers, friends, and lastly parents. Contrary to this study, our students commonly preferred friends, parents, media, and lastly health workers as a source of information. This can indicate cultural differences and to miss the opportunity to use the patient visits as a source of education.

The most known STD was AIDS which was concordant with other studies 8,9. In our study, AIDS was followed by hepatitis B and C and gonorrhea. Chinese students named syphilis as the second most common STD 8.

The most commonly named contraceptive method in our study was the condom, followed by oral contraceptives, the intrauterine device, vasectomy, tubal ligation, and coitus interruptus. In a Nigerian study 9, the first common contraceptive method was also the condom (83.4%), but the second most common method was the calendar method (43.5%), which none of our students mentioned. In the Nigerian study, they indicated coitus interruptus as the third method (36.4%), but in our study, the rate of coitus interruptus was very low. It can be said that our students knew very much about effective contraceptive methods, despite the fact that the use of contraceptive methods among the sexually active students was low. This means that knowledge has not been converted into behavior.

Condom use was also the most commonly mentioned measure to prevent STDs, followed by obeying the hygienic rules, and having a single sex partner. In Zhang's study 8, having a single sex partner ranks first (40%), followed by condom use (22%), and obeying the hygienic rules (15%). The differences in the ranking between Zhang's study and ours could be dependent upon our students' attitudes because polygamy is illegal and having multiple sexual partners is a sin according to the Islamic beliefs,

and more than 90% of the Turkish population is Muslim.

Improvements in the results of the mean knowledge scores as well as higher scores in STD prevention and contraceptive methods indicate that our second class curriculum on R/SH was quite effective. However, the class material should be rearranged to emphasize those subjects in which the students have the least knowledge. The fourth class lectures on these subjects are taught by the obstetrics/gynecology training committee. This study can be conducted again with these same students at their fourth year level to determine if there is any improvement in their knowledge and attitudes after the fourth class lectures.

There are some limitations of this study: (1) the questionnaire was not validated; (2) the educational sciences students were taught only once, and there was no follow-up with absent educational students; and (3) as we did not perform the lectures in educational sciences school, we did not evaluate the effect of reproductive health lectures on that group.

We consider our study to be a beginning as it serves to identify the knowledge, opinions, attitudes, awareness, and experiences of our students in R/SH. This study pointed out that students had insufficient education about R/SH before continuing their education at the university level. Consequently, R/SH education should be provided earlier because it takes a long time for knowledge and opinions to change behaviors. As retention of knowledge about R/SH decreases year by year 10, we have to intensify it by additional lectures to the third year curriculum.

New strategies and educational programs should be planned to encourage the use of effective contraceptive methods and prevention of STDs among university students. Further studies are needed to assess their ongoing knowledge, improvements, and attitudes about this issue before graduation.

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RUPTURE OF NON COMMUNICATING RUDIMENTARY UTERINE HORN PREGNANCY

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ABSTRACT

Unicornuate uterus with rudimentary horn is a rare type of uterine malformation associated with obstetrical complications. It is difficult to diagnose early, and rupture of the pregnant rudimentary horn is the usual presentation resulting in severe haemoperitoneum with increased maternal morbidity and at times mortality.

Case of ruptured rudimentary horn pregnancy in a G2P1 24 years is reported along with signs and symptoms of acute adnexal pathology. Explanatory laparotomy revealed ruptured rudimentary horn pregnancy 14 weeks with haemoperitoneum. Excision of accessory horn was done.

Introduction

Unicornuate uterus with rudimentary horn is a result of abnormal müllerian duct development. The prevalence of unicornuate uterus with rudimentary horn is very rare 1:100,000(1). The rudimentary horn may consist of a functional cavity, or it may be a small solid lump of uterine muscle with no functional endometrium. It is usually associated with endometriosis and pregnancy complications including miscarriage, ectopic pregnancy, uterine rupture, preterm labour and malpresentations. Renal anomaly is found in 36% of cases(2).

The uterine anomalies present few problems in absence of pregnancy, provided there is no obstruction to menstrual flow. Pregnancy in a rudimentary horn is rare. Reported figures in literature are between 1 : 76000 and 1 : 140,000 pregnancies(3).

Case Report

A 24 year old Omani patient married for the last 4 years was referred from the local Health Centre to Rustaq Referral Hospital with acute onset of abdominal pain and bleeding per vaginum for the last three hours. She was at 14 weeks gestation and was G2P1. She had a previous caesarean section for breech presentation at another hospital. No records of previous delivery, of the patient were present. Patient on arrival was afebrile. Heart rate was 110 / min, Blood pressure 90 / 44 mmHg. Pallor was present. Abdominal examination revealed tenderness with guarding. Bi manual pelvic examination revealed a soft cervix, uterus size could not be made out. Bleeding per vaginum was present. Her investigations showed Haemoglobin 11.39 / dl with normal blood counts, urea, creatinine, electrolytes and coagulation profile were within normal limits.

Abdomino-pelvic ultrasound revealed free fluid with a fetus with no cardiac activity. Patient was taken for emergency laparotomy after arranging 4 units of blood. On laparotomy haemoperitoneum was encountered. About 2000 cc blood in abdomino pelvic cavity, with a dead fetus, was seen. Presence of ruptured left rudimentary

horn of uterus with placenta in situ was found. The ruptured rudimentary horn was excised. The left tube and ovary was attached to the uterus. Patient was managed initially in ICU and then shifted to the ward. She made an uneventful recovery and was discharged after 10 days in hospital. Patient had ultrasound examination of renal system which showed no abnormality. She was counseled regarding birth spacing.

Discussion

Pregnancy in the rudimentary horn arises either from a small communication with the uterine cavity or by transperitoneal migration of the fertilized ovum from the contra lateral side (4). The usual outcome of the rudimentary horn pregnancy is rupture of the rudimentary horn with severe intra peritoneal bleeding and shock. Most pregnancies in the rudimentary horn rupture in the first or second trimester.

Early diagnosis of rudimentary horn pregnancy remains challenging, few cases of early (first-trimester) pre rupture sonographic diagnosis of this condition, have been reported(5,6).

Fedelle et al(7) have found ultrasonography a useful tool in determining the presence of rudimentary horn.

In this case the patient presented with acute abdomen but due to no medical record of previous pregnancy, suspicion of rupture of rudimentary horn was remote. According to Shah and Khan(8) every pregnant lady with unexplained abdominal pain should be suspected to have ectopic pregnancy until proved otherwise.

Soundarajan and Rai(9) reported a case of rudimentary uterine horn pregnancy mimicking an ectopic pregnancy. In this case horn was removed laparoscopically. Excision is usually carried out at laparotomy, but has been increasingly successfully carried out at laparotomy in unruptured cases.

Laparoscopy is said to be the most accurate diagnostic tool by certain authors, with significant advantages in efficient surgical management and therapy avoiding laparotomy(10).

All cases of rudimentary horn pregnancy should be investigated, for any associated urinary anomalies, because of high incidence of associated urinary anomalies in the presence of genital anomalies. In this case no associated renal anomaly was seen.

Conclusion

Rupture of rudimentary horn pregnancy is one of the remote causes of acute abdomen. However missing the diagnosis can lead to fatal complications. Early detection on the other side can reduce the eventual morbidity and mortality. If ultrasonography remains inconclusive, use of magnetic resonance imaging (MRI) may be useful in centres where facilities for MRI are available.

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URGENT NEUROIMAGING IN CHILDREN WITH FIRST NONFEBRILE SEIZURES

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ABSTRACT

Objective: to determine the risk factors mandatory for urgent neuroimaging study in children with first nonfebrile seizures.

Methods: We reviewed medical charts of 105 children who were admitted with a new-onset nonfebrile seizure to the Pediatric Ward of Prince Rashed Hospital and underwent brain CT scan. Neuroimaging was performed for 95% (100/105) of these children over the first few hours of their arrival to the Emergency Department.

Results: In 90% (90/100) of them, the result was normal. There was a significant relationship between abnormal neuroimaging and focal seizure ($P < 0.001$), history of head trauma, and with age under 2 years ($P < 0.002$).

Conclusion: we recommended that urgent brain CT scan to be performed in children with first nonfebrile seizure who present with focal seizures, abnormal neurological findings, head trauma, and age less than 2 years.

Introduction

Seizures are common neurological disorders in the pediatric age group and occur in 3-5% of children¹; five percent of all medical attendances to accident and emergency departments are related to seizures. The role of

emergent neuroimaging for those children with first nonfebrile seizure is, however, not well-defined.

The purpose of performing an emergent neuroimaging study in a child with first nonfebrile seizure is to detect a serious condition that may require immediate intervention. The purpose of performing a nonurgent neuroimaging study, which can be deferred to the next several days or later, is to detect abnormalities that may affect prognosis and therefore have an impact on long-term treatment and management.² Guide-lines for obtaining emergent neuroimaging in adult patients presenting with seizures have recently been published.³ It is recommended that emergent brain computed tomography (CT) scan should be performed for most adults with a new-onset seizure, because of the large proportion of the structural lesions such as stroke or neoplasm in the adult population.⁴ The prevalence of abnormal neuroimaging in an adult with a new-onset seizure is 34% to 45%.^{4,5} However, the role of emergent neuroimaging in children presenting with first nonfebrile seizure is still not well-defined. Based on several studies, the prevalence of abnormal neuroimaging in pediatric patients with a new-onset nonfebrile seizure is estimated to be 0% to 21%.^{6, 7}

Nevertheless, the American Academy of Neurology⁸ states that these evidences are not sufficient to make a recommendation at the level of guideline for the use of routine neuroimaging in children with a new-onset seizure. The objective of this study was to determine those children with a new-onset nonfebrile seizure who were more likely to have abnormal neuroimaging findings.

Patients and Methods

Study design/patients

In this study, medical charts of 100 children aged between one month and 14 years, with a new-onset nonfebrile seizure, admitted to the Pediatric Ward of Prince Rashed Hospital, Irbid, north of Jordan between 2000 and 2005, were reviewed. We excluded neonatal seizures (before 28 days of life), first seizures lasting 30 minutes or more (status epilepticus), and febrile seizures, because these disorders

are diagnostically and therapeutically different. Patients with their first nonfebrile seizure and absence of any laboratory abnormalities were included in the study

Historical and clinical data included patient's age, sex, and the presence of any predisposing conditions, generalized or focal type of seizure, temperature, focal neurological signs, and any other abnormal findings in the neurological examination. The reports of CT scans performed over the first few hours of arrival to hospital were studied. All the emergent neuroimaging studies were conducted without the injection of contrast medium. Laboratory data included serum electrolytes, calcium, and blood sugar. Statistical analysis was conducted using SPSS software. Variables were reported as mean \pm SD. χ^2 analysis was performed to determine the correlation between age of the patients and type of seizure with abnormal findings on neuroimaging. A P value of <0.05 was considered statistically significant.

Results

There were 520 patients admitted with the diagnosis of seizure over this five-year period. One hundred and five (20%) of these patients had new-onset nonfebrile seizures; neuroimaging was obtained in 100 (95%) patients, by emergent CT scan and formed our study group. There were 54 (54%) females and 46 (46%) males. The mean \pm SD age of patients was 52 ± 48 months (range: one month – 14 years). Neuroimaging results were normal in 90 (90%) patients. Clinically-significant neuroimaging results were reported in 10 (10%) patients (Table 1).

Abnormal findings	Frequency
Hemorrhage Epidural (1) Parenchymal (3) Subdural (1)	5
Brain tumor (Medulloblastoma)	1
Calcification (Tuberous sclerosis)	1
SLE \diamond	1
Brain ischemia	1
Arachenoid cyst	1
Total	10

\diamond = systemic lupus erythematosus

CNS hemorrhage is the most common neuroimaging finding in those patients who presented with first attack of nonfebrile seizures.

One of five patients with brain hemorrhage had bleeding disorder due to thrombocytopenia, the other four had a history of head trauma, and one of them was due to child abuse.

Cyanotic heart disease with right to left shunt resulted in brain ischemia in one patient. Brain tumor, tuberous sclerosis, systemic lupus erythematosus, and arachnoid cyst were among the other predisposing factors for nonfebrile seizures. Seven of ten patients had abnormal findings on neurological examination.

Twelve (12%) patients were under two years of age, of whom 5 (41.6%) had abnormal neuroimaging findings. Based on the Chi-square test, there was a significant relationship ($P < 0.002$) between the age of patients and neuroimaging abnormalities.

Twenty two (22%) patients presented with focal and seventy eight (78%) with generalized seizures (Table 2). Out of 22 patients with focal seizures, seven (31.8%) and out of 78 with generalized seizures, only four (5%) had abnormal neuroimaging results ($P < 0.001$).

Neuroimaging	Seizure		
	Focal	General	Total
Abnormal	7 (7%)	5 (5%)	12 (12%)
Normal	15 (15%)	73 (73%)	88 (88%)
Total	22 (22%)	78 (78%)	100 (100%)

A significant relationship was also found between the focality of seizure and abnormal findings in neuroimaging (Chi-square test, $P < 0.001$) (Table 2).

Discussion

After stabilization of the child, a physician must determine if a seizure has occurred, and if so, if it is the child's first episode. It is critical to obtain as detailed a history as possible at the time of presentation. The determination that a seizure has occurred is typically based on a detailed history provided by a reliable observer. A careful history and neurological examination

may allow a diagnosis without need for further evaluation. Children can present with seizure-like symptoms that may not in fact represent actual seizures, but rather breath-holding spells, syncope, gastro-esophageal reflux, pseudoseizures (psychogenic), and other nonepileptic events⁸

The next goal of assessment is to determine the cause of the seizure. In many children, the history and physical examination alone will provide adequate information regarding probable cause of the seizure or the need for other tests including neuroimaging. The etiology of the seizure may necessitate prompt treatment or provide important prognostic information. Provoked seizures are the result of an acute condition such as hypoglycemia, toxic ingestion, intracranial infection, trauma, or other precipitating factors. Unprovoked seizures occur in the absence of such factors; their etiology may be cryptogenic (no known cause), remote symptomatic (pre-existing brain abnormality or insult), or idiopathic (genetic)⁸.

Approximately 4 – 6% of children are expected to have a seizure by the age of 16 years. About 70% of these children are admitted and undergo different investigations.⁹ The role of emergent neuroimaging for children with a new-onset nonfebrile seizure is not well-understood. This is because the prevalence of neuroimaging abnormalities in this group has yet not been determined. However, regarding the results reported in the literature for adults, there has been a relatively high prevalence (between 34 – 45%) of CT scan abnormalities in adults with a new seizure. As a result, a recommendation has been published to perform emergent neuroimaging in large populations of adults having their first seizure.³

So far, several studies have reported the prevalence of abnormal neuroimaging in children with new-onset seizures. The prevalence of abnormal neuroimaging in these studies ranged between 0 – 21%. The proportion of children with febrile seizures ranged between 17% and 71%.^{6,7} It is important to note that children with febrile seizures, either simple or complex, are at low risk of

neuroimaging abnormalities.⁸ Our study reviewed 100 patients with their first nonfebrile seizure. All patients with febrile seizures, as well as those with recurrent seizures were excluded. Neuroimaging was performed in 95 patients and abnormalities were found in only 10% of cases. The results showed that there was a significant relationship ($P < 0.001$) between focality of the seizure and abnormal neuroimaging. In addition, a significant relationship ($P < 0.002$) was found between an age of less than 2 years and abnormal findings in neuroimaging. The high-risk age was reported to be less than 24 months by Adamsbaum et al¹¹ and less than 33 months by Sharma et al.¹⁰

Seven (70%) out of 10 children with abnormal neuroimaging in our study had grossly abnormal findings on physical examination (coma, papilledema, focal neurological deficits, unilateral pupil dilation, etc), while five (50%) had history of head trauma.

Practice parameters, which have been recently published,⁸ recommend emergent neuroimaging to be performed in a child of any age, who exhibits a postictal focal deficit (Todd's paresis) not quickly resolving, or who is not recovered to the preictal state within several hours after the seizure.

Based on our study, a relatively small number of children (10%) suffering from their first nonfebrile seizure had abnormal neuroimaging and the majority of this group also had abnormal neurological examinations.

Although CT scan is more available in the emergency departments, MRI is accepted as a more sensitive neuroimaging modality for children presenting with seizure¹², unfortunately MRI study is not available in our hospital.

Conclusion

Urgent brain CT scanning is rarely necessary in children after a first seizure. Based on our findings, we recommend that emergent neuroimaging should be performed in children with their first nonfebrile seizure, if there are abnormal neurological findings, the child

presented with focal seizures, there is history of head trauma, and if the age is less than two years.

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