

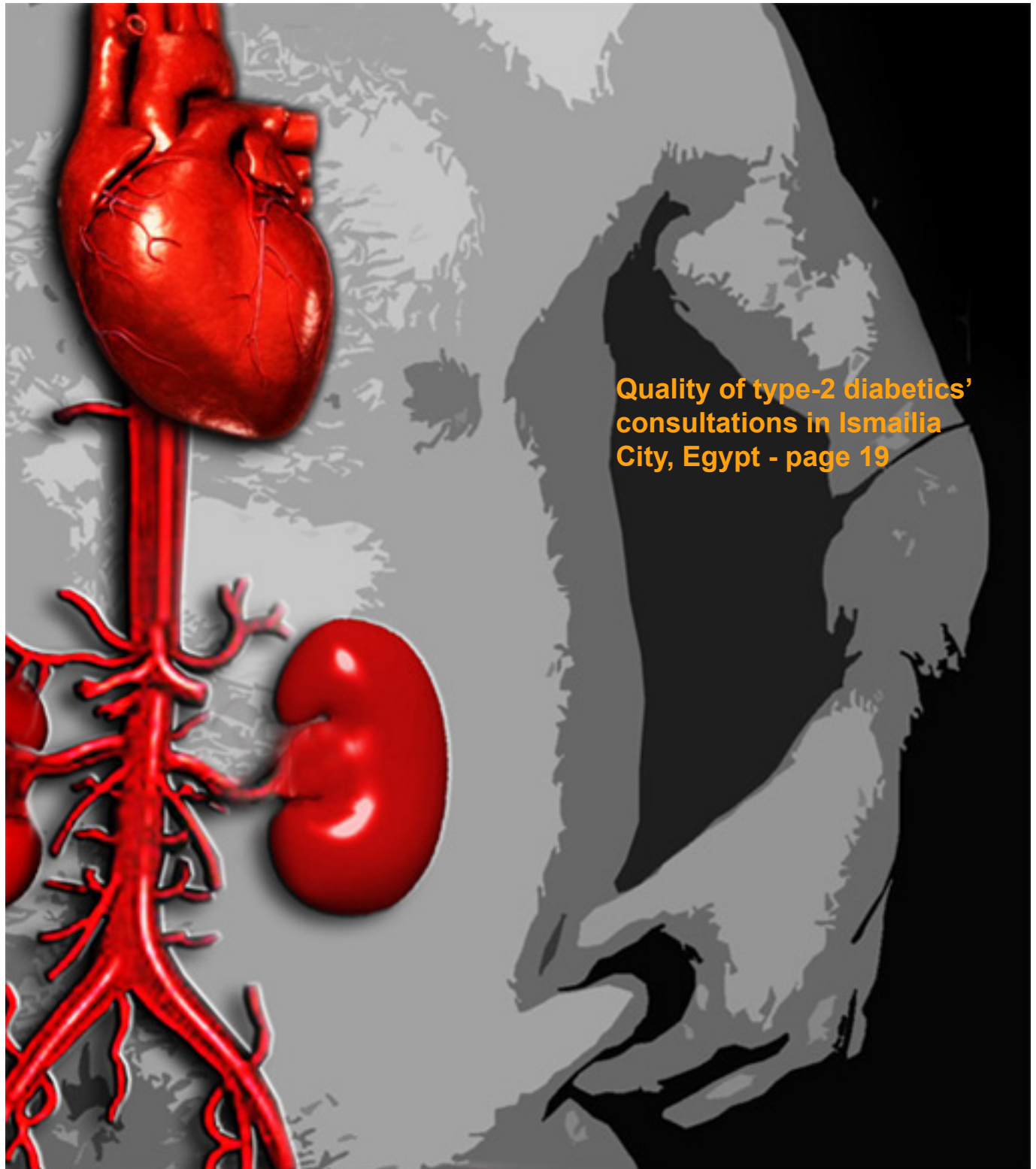


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Quality of type-2 diabetics' consultations in Ismailia City, Egypt - page 19

From the Editor

This is the seventh issue this year and rich with a number of good papers that deal with topics of importance to family physicians. A cross sectional study from Saudi Arabia attempted to assess the prevalence of smoking among medical students, their perceptions of health professionals' antismoking role and the risk of passive smoking. Overall 46.0% of all students had ever smoked and 25.4% were current smokers. Current and ever smoking prevalence was significantly higher among males and senior students. The prevalence of smoking is high among medical students particularly males. Students have favorable attitudes but their perception of the risk of passive smoking on certain diseases needs corrective intervention.

A paper from Iran discussed the Integration and Impact of Educational Media (Technologies) in the Teaching-Learning Process. The main goal of this research is to highlight how individual educational technology and media are being integrated and utilized by Elementary School Teachers (EST) in Tehran, Iran. A sealed questionnaire containing 125 answers (indicators) to evaluate/test six hypotheses was sent to a sample population of 400 teachers in Tehran. The results indicate that while the media knowledge of teachers was average, the level and quality of media utilization on the average was meaningful. However, use of more modern technology and media such as computers, video projectors, smart boards, and visualizers were below average. Based on the results, it can be stated that the main objectives of the teachers using the media were to focus students' attention on educational concepts, improve willingness and collaboration, and to motivate audio/visual cognitive senses. A second paper was on technology from assessed internet use and effects amongst general practitioner in non Metro cities of Hyderabad and Secunderabad. A cross sectional survey was conducted using questionnaires distributed randomly to healthcare professionals. This explorative study revealed

that higher numbers of patients are becoming internet savvy which is even influencing their information seeking behavior on medical information that is available. While the general practitioners have access to internet but cannot say about the quality of information on the website, the general practitioners usually avoid patients recommending viewing the website and extracting the information.

A Comparison Study from Iraq looked at use of Commercial Plant Essential Oils with Ethanolic Extract of Spearmint and Fenugreek Activity against Some Gram Positive and Gram Negative Bacteria. The ethanolic extracts of spearmint and fenugreek were better than commercial essential oils as antibacterial agents, and the ethanolic extract of spearmint was better than the ethanolic extract of fenugreek, while the antibacterial activity of pomegranate oil, spearmint oil, pumpkin oil and rosemary oil was better than other oils used in the study. The authors concluded that both extracts have antibacterial activity in addition to the pomegranate oil, and it is recommended that care be taken when buying the plant product, because it will reflect negatively on human health, if it is taken from humans.

A case report from Kuwait looked at cerebral venous sinus thrombosis in a child with Idiopathic nephrotic syndrome. CVST occurring in a child with steroid sensitive nephrotic syndrome is described in this article. He presented initially with non specific symptoms of headache, lethargy and intermittent vomiting after 4 weeks of initiating steroid therapy. These were initially attributed to steroid therapy. Initial CT brain and MRI of the brain were normal. He developed intermittent convergent squint. At this time CVST was strongly suspected and MR angiography and MR venography was done which confirmed the CVST. Anticoagulation therapy was initiated with heparin and after three weeks changed to oral warfarin. He made slow but complete neurological and radiological recovery.

A paper from Jordan looked at the approach to febrile infants in the peripheral hospitals. Specially designed medical records abstract forms were filled with data collected from 200 infants (over a period of 12 months) who presented with fever more than 38.2°C rectally to the pediatric emergency room at two peripheral hospitals in the southern part of Jordan (Princess Haya Hospital in Aqaba, and Prince Ali Hospital in Al-Karak). There was significant correlation noticed between positive Blood Cultures and/or positive chest X-ray findings with the symptoms of poor feeding, hypo-activity, convulsion and attacks of cyanosis. The most important signs were abdominal distension, irritability, respiratory distress and bulging anterior fontanel. The authors concluded that poor feeding,

hypo-activity, convulsion and cyanosis are considered indicators of serious illnesses, necessitating admission and treatment. Simple Laboratory investigations are very helpful to pediatricians and family doctors to spot the serious cases, and spare many young infants unnecessary admissions to the hospital.

Quality of type-2 diabetics' consultation in Ismailia City, Egypt : A cross sectional study from Egypt studied the quality of consultation using 'consultation length' and how well patients 'know the doctor' as process measures and 'patient enablement' as an outcome measure. The study included 310 type-2 diabetics attending the family medicine clinic in Ismailia University hospital. The mean enablement score was 3.6±1.6 (range from 1 to 7) while the mean duration of consultation was 10±4.2 minutes (range from 5 to 20). The authors concluded that at consultation level, enablement correlates best with the duration of consultations and how well the patient knows the doctor so we should improve our doctor-patient relationship and give more attention to the consultation length. Interruptions of the consultation should be avoided.

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Prevalence of smoking among medical students and their perception of the risk of passive smoking and the antismoking role of health professionals in a new Medical College

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Abstract

Objectives: To assess the prevalence of smoking among medical students, their perceptions of health professionals antismoking role and risk of passive smoking

Subjects and Methods: Cross-sectional study using anonymous, self-administered questionnaire among all students enrolled in the second semester of the Academic Year 2008/2009.

Results: Overall 46.0% of all students had ever smoked and 25.4% were current smokers. Current and ever smoking prevalence was significantly higher among males and senior students. No other significant differences according

to the other sociodemographics studied. Non smokers have more positive perceptions concerning antismoking role of health professionals and risk of passive smoking than smokers, but differences were not significant. The highest perception score among smokers was for the statement that "health professionals should routinely advise patients who smoke to avoid smoking around children" For non smokers the highest was for the statement " Health professionals should routinely ask about their patients smoking habits". The highest perception for both smokers and non smokers for the risk of passive smoking was for "passive smoking and lung disease",

while the lowest for both was for " passive smoking and neonatal death". Male and first year students gave significantly a lower risk for association of passive smoking and some diseases.

Conclusion: Prevalence of smoking is high among medical students, particularly males. Students have favourable attitudes but their perception of the risk of passive smoking on certain diseases, needs corrective intervention.

Key words: Smoking, prevalence, perception risk, passive smoking, medical students, Riyadh

Introduction

The harmful consequences of smoking on health have been well documented. Tobacco use is the leading global cause of preventable diseases. Studies have confirmed the quantitative relationship between smoking and many health hazards in the form of mortality, premature death and serious morbidity(1-3). Leading World Health authorities have emphasized the vital importance of participation and the positive attitude of health professionals in national and international tobacco control efforts. They encouraged physicians to be role models and provide their patients with regular tobacco interventions (2, 3). The same is expected from medical students as they are expected to be future physicians. They have to be non smokers themselves in order to be convincingly effective. Measuring perceptions and attitudes of health professionals and other sectors of the community towards smoking, provides valuable information in understanding the social acceptance of smoking in a society(4, 5). Many national and worldwide surveys have monitored the smoking behaviors, beliefs, and attitudes of medical students(6-14). They showed that smoking is a real problem among medical students irrespective of the level in which they are enrolled, educational strategies, or curriculum design.

This study aims to estimate prevalence of tobacco use and assess the perception of medical students of the role of health professionals in antismoking activities and the health risks of passive smoking in a new college of medicine in the Kingdom of Saudi Arabia (KSA). It is of interest and significance to see whether medical students in a new college of medicine will show similar or different trends compared to previous medical students in other colleges. This new college was established in year 2004 within King Fahad Medical City, a tertiary health facility of the Ministry of Health. As from the academic year 2009/2010 it became one of the colleges of King Saud Bin Abdulaziz University for Health Sciences. It is

adopting a problem-based integrated medical curriculum. It is hoped that the results will help in designing and implementing comprehensive corrective strategy if needed.

Subjects and Methods

This was a cross sectional study conducted in June 2009 in the Faculty of Medicine at King Fahad Medical City in Riyadh. All medical students, enrolled in the second semester for the Academic Year 2008/ 2009, were the population for this study. The study tool used was an anonymous, self-administered questionnaire. It was based on a modified WHO questionnaire surveying smoking habits of health professionals and was used previously in studying smoking habits of physicians and health students in Riyadh(15-16). The questions were grouped into categories related to demographics, prevalence of cigarette smoking, reasons for smoking, not smoking, and for quitting attempts. Perceptions of students towards the antismoking role of health professionals and the risk of passive smoking were measured using a Likert scale of one to five points measuring the level of agreement with the statements. Score five means full agreement; score 1 means full disagreement with the statement. The higher the score the higher and more positive the perception. Questionnaires were distributed during the classes by the authors. The students were informed that the results would be used for the stated research purposes only and their participation was voluntary. No identification was required. Filled questionnaires were collected and checked for completeness before being entered into a personal computer and analyzed using the Statistical Package for Social Sciences (SPSS) version 17. Descriptive statistics and t test, Mann Whitney test and ANOVA or Kruskal Wallis tests were used for continuous variables as appropriate after checking for normality.

Pearson Chi square and Fisher Exact tests were used for studying association of tobacco use and perception with the categorical

variables (sociodemographics) as appropriate. Level of significance was set to be < 0.05 throughout the study. The number of participants' responses used in the discrete statistical analyses varied due to missing data for certain variables and hence totals may vary. Reliability analysis for internal consistency of the specific statements was assessed using Cronbach alpha technique which was 0.862. Participation in the study was totally voluntary but students were encouraged to participate emphasizing that information collected will be useful for them, college and community at large. Confidentiality was assured written and verbally, no identification was required, and assurance was given that results will be used for the stated research purposes. An ever smoker was defined as someone who attempted smoking any tobacco product in the past. Ever smokers can be currently non smokers (ex-smokers) or current smokers. A never smoker was one who had never smoked before. The study was approved by the Institute Review Board (IRB) of King Fahad Medical City.

Results

Completed questionnaires were received from 252 students out of 300 students who were enrolled during the study period giving a response rate of 84%. Males constituted about 72% (182) and females the rest (70), 28%. Age ranged from 17 to 26 years with a mean of 20.74 \pm 1.73 years (21.35 \pm 1.57 for males and 19.19 \pm 0.97 for females). About 61 % of the students (males and females) were enrolled in the first and second year and the rest (males only) were enrolled in third, fourth and fifth years classes. Almost 99% of the students were single. Overall 116 students (46.0%) were ever smokers and 64 (25.4%) were current smokers. The age of initiation of smoking ranged from 8 to 23 years with a mean of 16.3 \pm 3.3 years and was significantly higher in males than females (16.8 \pm 2.8 compared to 14.00 \pm 4.4) years. Current and ever smoking prevalence was significantly higher among males and older

Sociodemographics N	Ever smoking Number smoking (%)	Current smoking Number smoking (%)
Gender Male =182 Female=70 P value	96 (52.7) 20 (28.6) 0.001	61(33.5) 3(4.3) <0.001
Age (years) <20 = 74 20-21 = 94 22+ = 84 P value	25(33.8) 44(46.8) 47(56.0) < 0.001	8(10.8) 25(26.6) 31(36.9) < 0.001
Father Education Intermediate = 41 Secondary = 133 University = 78 P value	19(46.1) 56(42.1) 41(52.6) 0.338	11(26.8) 35(26.3) 18(23.1) 0.850
Mother Education Intermediate = 93 Secondary = 126 University = 33 P value	43(46.2) 52(41.3) 21(63.6) 0.476	21(22.6) 32(25.4) 11(33.3) 0.476
Father Occupation Government Employee = 171 Self employed = 45 Retired = 33 P value	81(46.8) 18(40.0) 17(51.5) 0.578	42(24.3) 11(24.4) 11(33.3) 0.541
Mother occupation Employee = 121 Self employed = 10 Housekeeping = 121 P value	54(44.6) 7(70) 55(45.5) 0.298	33(19.0) 4(40.0) 27(22.3) 0.376

Table 1: Ever smoking and current smoking habit according to Sociodemographic characteristics

students. There were no other significant differences according to the other sociodemographics as shown in Table 1. Table 2 shows mean scores of the students' perception of the antismoking role of health professionals and risk of passive smoking according to their smoking status out of a maximum of 5 points. The highest perception score among smokers was for the statement that "health professionals should routinely advise patients who smoke to avoid smoking around children" The highest perception score among non smokers was for the statement that "Health professionals should routinely ask about their patients' smoking habits health". The highest perception

score for risk of passive smoking for both smokers and non smokers was for "passive smoking and lung disease" while the lowest for both were for "passive smoking and neonatal death". Non smokers have more favorable perceptions but the differences were not statistically significant. Tables 3 and 4 show the perception of students of the antismoking role of health professionals and the risk of passive smoking respectively, according to gender, age and class level. There were significant differences in the perception of risk of passive smoking and neonatal death. Females, older students and fifth year students gave a higher risk score. Females also gave a significantly higher

risk score for passive smoking and lower respiratory tract illness in children. Females, students aged 20 21 years and fifth year students were significantly more in favor of health professionals support for smoke-free health facilities. Overall female students have significantly more positive perception than males and students in first year have significantly less favorable perceptions than the other levels.

Discussion

The Faculty of Medicine at King Fahad Medical City adopted a problem-based, integrated curriculum which promotes students' active learning, interpersonal skills and

Statements	Smoker	Non smoker	P value
Q.37 Health professionals should routinely ask about their patients' smoking habits.	4.34(0.97)	4.54(0.69)	0.076
Q.38 Health professionals should routinely advise their smoking patients to quit smoking	4.28(0.99)	4.42(0.80)	0.266
Q.39 Health professionals who smoke should advise people to stop smoking	3.85(1.05)	3.91(1.11)	0.695
Q.40 Health professionals should routinely advise patients who smoke to avoid smoking around children	4.44(0.96)	4.51(0.87)	0.271
Q.41 Health professionals should support smoke-free health facilities	3.88(1.049)	3.89(1.77)	0.214
Q.43. Passive smoking increases neonatal death	3.76(1.00)	3.81(1.03)	0.726
Q.44 Parents smoking during pregnancy increases the risk of Sudden Infant Death Syndrome	4.22(0.89)	4.27(0.97)	0.748
Q.45 Passive smoking increases the risk of lung disease in non-smoking adults	4.28(0.81)	4.47(0.78)	0.084
Q.46 Passive smoking increases the risk of heart disease in non-smoking adults	4.03(1.02)	4.26(0.89)	0.093
Q.47 Parents' smoking increases the risk of lower respiratory tract illnesses in exposed children	4.17(0.91)	4.28(1.03)	0.409

Table 2. Perception of medical students of the antismoking role of health professionals and risk of passive smoking - Mean (SD)

problem solving abilities. Such students are expected to be less stressed and less involved in stress-related behaviors like tobacco smoking(9). The findings of this study, however, showed that tobacco smoking is highly prevalent among these medical students, particularly among males. This confirms the findings of previous national studies which showed that the trend is continuing irrespective of the period of survey, type of institution, curriculum or the educational

strategy(6-9). Similar results were reported from studies in different communities worldwide(10-12). Nonsmokers showed more positive perception than smokers in this study in agreement with many other previously reported studies (17-19). Most students were concerned with the hazards posed by smoking. They encouraged health professionals to enquire about their clients smoking habits and advise smokers to quit. Like other studies this appears to send a strong message to national

legislators to enforce appropriate regulations(12). Many studies showed high awareness of the hazards of smoking by medical students(9, 13, 14, 20). Other studies, on the other hand, reported deficiencies and poor knowledge scores of the risks of smoking for certain diseases including those of the lungs (21-23). Both the high prevalence of smoking and the low level of awareness about smoking-related diseases revealed by these studies is worrying and raises

Socio-demographics	Q.37*	Q.38*	Q.39*	Q.40*	Q.41*	MEAN Overall
Gender						
Male	4.42 (0.82)	4.39 (0.78)	3.75 (1.08)	4.39 (1.05)	3.36 (1.78)	4.11 (0.73)
Female	4.48 (0.85)	4.36 (0.98)	4.05 (1.03)	4.60 (0.83)	4.09 (1.45)	4.37 (0.61)
P value	0.617	0.767	0.038	0.121	0.001	0.006
Age (years)						
<20	4.41 (0.79)	4.34 (0.84)	3.59 (1.09)	4.51 (0.97)	3.16 (1.87)	4.08 (0.68)
20-21	4.40 (0.85)	4.45 (0.817)	4.00 (1.03)	4.49 (0.95)	4.04 (1.53)	4.30 (0.75)
22 +	4.47 (0.90)	4.32 (1.0)	3.99 (1.07)	4.51 (0.90)	3.89 (1.53)	4.28 (0.63)
P value	0.852	0.651	0.046	0.983	0.005	0.178
Class						
First	4.37 (0.87)	4.28 (0.86)	3.60 (1.16)	4.38 (1.10)	3.03 (1.83)	4.00 (0.72)
Second	4.41 (0.77)	4.43 (0.69)	3.92 (0.94)	4.39 (0.97)	3.79 (1.58)	4.19 (0.72)
Third	4.61 (0.78)	4.57 (0.95)	4.22 (1.17)	4.83 (0.49)	4.09 (1.68)	4.57 (0.48)
Fourth	4.48 (0.89)	4.32 (1.06)	3.90 (1.07)	4.56 (0.95)	3.90 (1.53)	4.29 (0.69)
Fifth	4.55 (0.87)	4.43 (0.92)	4.17 (0.93)	.59 (0.83)	4.45 (1.09)	4.47 (0.46)
P Value	0.729	0.669	0.058	0.312	0.001	0.003

Q.37* Health professionals should routinely ask about their patients smoking habits.

Q.38* Health professionals should routinely advise their smoking patients to quit smoking

Q.39* Health professionals who smoke should advise people to stop smoking

Q.40* Health professionals should routinely advise patients who smoke to avoid smoking around children

Q.41* Health professional should support smoke-free health facilities

Table 3. Mean perception scores of antismoking role of health professionals according to sociodemographic characteristics Mean - (Standard Deviation)

serious concerns. This may be due to deficiencies in terms of knowledge about the hazards of smoking in curricula of medical schools. Expert reviews have suggested that undergraduate medical students should be equipped with knowledge, and attitudes to promote smoking cessation skills and this is needed more urgently in developing countries(24-26). Although progress has been made

to address the teaching of tobacco in medical schools worldwide, more effort is required so that education on tobacco hazards and evidence-based smoking cessation is an ongoing part of the curricula of medical and other health institutes(27).

It is of concern that all students irrespective of their past or current smoking habits were not strongly advocating that "Health professionals

who smoke should advise people to stop smoking." It is vital that all health professionals, irrespective of their smoking habit, should enquire about the smoking habits of their patients and advise those who smoke, to quit. The perception of medical students towards the negative effects of passive smoking on neonatal health is of concern. Passive smoking had been reported to lead to high rates of morbidity and mortality in neonates

Socio-demographics	Q.43*	Q.44*	Q.45*	Q.46*	Q.47*	MEAN Overall
Gender						
Male	3.55 (1.02)	4.17 (0.98)	4.34 (0.90)	4.12 (1.05)	4.09 (1.09)	4.05 (0.72)
Female	4.08 (0.93)	4.37 (0.86)	4.37 (0.71)	4.18 (0.86)	4.38 (0.79)	4.27 (0.58)
P value	0.001	0.107	0.726	0.691	0.027	0.015
Age (years)						
<20	3.59 (1.07)	4.17 (1.01)	4.34 (0.91)	4.08 (1.12)	4.05 (1.12)	4.03 (0.73)
20-21	3.69 (0.95)	4.17 (0.99)	4.31 (0.85)	4.24 (0.87)	4.24 (0.90)	4.13 (0.69)
22 +	4.03 (0.99)	4.42 (0.78)	4.40 (0.71)	4.08 (0.95)	4.29 (0.86)	4.24 (0.56)
P value	0.003	0.200	0.777	0.558	0.312	0.205
Class						
First	3.48 (1.95)	4.12 (1.00)	4.34 (0.94)	4.00 (1.22)	4.02 (1.18)	3.98 (0.79)
Second	3.82 (1.00)	4.25 (0.93)	4.29 (0.87)	4.23 (0.82)	4.21 (0.99)	4.16 (0.65)
Third	3.87 (0.97)	4.35 (0.89)	4.57 (0.51)	4.38 (0.74)	4.43 (0.73)	4.31 (0.60)
Fourth	3.85 (0.95)	4.32 (0.96)	4.29 (0.81)	4.10 (0.92)	4.20 (0.87)	4.14 (0.61)
Fifth	4.31 (0.85)	4.52 (0.74)	4.41 (0.63)	4.14 (0.92)	4.59 (0.50)	4.39 (0.46)
P Value	0.007	0.421	0.674	0.537	0.082	0.052

Q.43* Passive smoking increases neonatal death
Q.44* Parents smoking during pregnancy increases the risk of Sudden Infant Death Syndrome
Q.45* Passive smoking increases the risk of lung disease in non-smoking adults
Q.46* Passive smoking increases the risk of heart disease in non-smoking adults
Q.47* Parents' smoking increases the risk of lower respiratory tract illnesses in exposed children

Table 4: Perception of the risk of passive smoking according to sociodemographic characteristics Mean - (Standard Deviation)

and infants(28, 29). Therefore all these aspects and facts have to be emphasized in the curriculum. Teaching medical students about smoking-related diseases and cessation intervention does result in an increase in knowledge, attitudes and their future behaviour as doctors in relation to advising smoking patients to quit(30,31).

Meanwhile, other aspects on tobacco use control, such as legislation and tobacco tax policies, are also strongly recommended and should be formally incorporated into the undergraduate medical curriculum as the medical model alone is inadequate for dealing with the tobacco epidemic(32, 33). This study confirms what other studies have found; that the superior

knowledge of senior medical students is not associated with lower smoking prevalence. In the present study fifth year students have a much more positive perception of the hazard of smoking, but their ever and current smoking habits were not significantly different from other levels. This may need further exploration.

Conclusion

In conclusion, this study revealed that tobacco use among medical students in this new college is prevalent particularly among males, similar to the situation among past medical students. The situation is not related to seniority of students, type of medical schools or educational methods. In general medical students have favorable perceptions and attitudes towards smoking and its hazards, particularly for children, but there is room for more improvement. It is recommended to include tobacco use hazards and anti tobacco use strategies and activities in the curriculum with emphasis on the role of students during and after graduation, in primary prevention of smoking and in smoking cessation activities.

Limitations:

As smoking behavior among students was self-reported there could have been reporting bias. Verification of self-reported smoking behavior could not be verified biochemically.

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CME Quiz

A 45 year old farmer, is brought to emergency by his wife after experiencing a sudden onset of profuse sweating, vomiting and feeling that 'his legs would not hold him up'.

Ramesh's wife informs you that during the journey he developed slurred speech and abdominal pains and the urgent desire to defecate.

On examination the patient has constricted pupils and is salivating. His pulse rate is regular at 65 beats per minute. There were generalised rhonchi on chest auscultation.

The wife brought a tin of pesticide that they were using. The label on the tin was "Metacid" (an organophosphorous compound) and the patient had wiped up some liquid that the farmhand had spilt earlier, without wearing gloves or overalls.

Question

In relation to this presentation which of the following are True or False?

1. "Metacid" is an organophosphorous compound with anti-cholinesterase action
2. Anti-cholinesterase pesticides are an uncommon cause of acute poisoning
3. Organophosphorous compounds readily penetrate the skin
4. Clinical features vary depending on the relative effects on parasympathetic nerves, sympathetic ganglia and neuro-muscular junctions.
5. Initial effects are due to parasympathetic activity
6. Weakness of skeletal muscle is due to enzyme suppression at neuro-muscular junctions
7. Atropine blocks parasympathetic overactivity

Answers and feedback are on page 18

A Comparison Study of Commercial Plant Essential Oils with Ethanolic Extract of Spearmint and Fenugreek Activity against Some Gram Positive and Gram Negative Bacteria

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Introduction

The increased role of antibiotic resistant pathogenic microorganisms is greatly mediated by the increased frequency of mutations, misuse of antibiotics and other factors. Evolving resistant microbial strains have compromised the use of newer generations of antibiotics. Combating such a situation has been so far dependent upon the traditional treatment of such microbial infections based on substances that kill or inhibit growth of causative pathogens [1].

During the past decade, traditional systems of medicine have become a topic of global importance. Current estimates suggest that, in many developing countries, a large proportion of the population relies heavily on traditional practitioners and medicinal plants to meet primary health care needs. Although modern medicine may be available in these countries, herbal medicines (phytomedicines) have often maintained popularity for historical and cultural reasons. Concurrently, many people in developed countries have begun to turn to alternative or complementary therapies, including medicinal herbs [2]. Plant essential oils may be an alternative source of natural compounds for pathogenic bacteria because they constitute a rich source of bioactive chemicals and are commonly used as fragrances and as flavouring agents for food additives. Indeed, the effectiveness of the activity of essential oils with respect to gram- and gram+ bacteria is largely documented in literature. [3]. Contrary to the synthetic drugs, antimicrobials of plant origin are not associated with many side effects and have an enormous therapeutic potential to cure many infectious diseases. Botanists, Phytochemists and Pharmacologists are increasingly turning their attention to folk medicine

Abstract

Objectives: screening the antibacterial activity of plant extracts against bacteria and comparing the effect of commercial essential oils with the plant extracts on bacteria.

Methods: (*Klebsiella pneumoniae*, *Proteus spp.*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Streptococcus mutans*) isolates were obtained from human infections, from Hawleri Ferkari hospital in Erbil city, Iraq

Results: The ethanolic extracts of spearmint and fenugreek were better than commercial essential oils as antibacterial agents, and the ethanolic extract of spearmint was better than the ethanolic extract of fenugreek. While the antibacterial activity of pomegranate oil, spearmint oil, pumpkin oil and rosemary oil was better than other oils used in this study.

Conclusion: Both extracts have antibacterial activity in addition to the pomegranate oil, and it is recommended that care be taken when buying the plant product, because it will reflect negatively on human health, if it is taken from human.

Keywords: Essential Oils, Ethanolic Extract, Antibacterial, G+, G-, Well Diffusion Technique.

looking for new leads to develop better drugs against cancer, as well as viral and microbial infections. There are more than 35,000 plant species being used in various human cultures around the world, for medicinal purpose. Although thousands of plant species have been tested for antimicrobial properties, the vast majority have not been adequately evaluated [4].

The antimicrobial activities of plant oils and extracts have formed the basis of many applications, including raw and processed food preservation, pharmaceuticals, alternative medicine and natural therapies. Moreover, the increasing use of plant extracts in the food, cosmetic and pharmaceutical industries suggests that in order to find active compounds, a systematic study of medicinal plants is very important [5 and 6].

Rosemary (*Rosmarinus officinalis* L.) is a spice and medicinal herb widely used around the world. Rosemary essential oil is also used as an antibacterial, and antifungal. The main compounds responsible for the antimicrobial activity are α -pinene, bornyl acetate, camphor and 1,8-cineole [7]. It is reported that rosemary plants are rich sources of phenolic compounds with high antimicrobial activity against both Gram-positive and Gram-negative bacteria. A high percent of the antimicrobial activity is attributed to carnosic acid and carnosol [8].

Mint (*M. spicata*) has formed from cross breeding of *M. longifolia* and *M. rotundifolia*. The leaves, herbs and essential oil of *M. spicata* were used much earlier than those of peppermint. The essential oils extracted from *M. spicata*, containing mainly carvone (50-70%) and menthone, which have shown strong insecticidal and mutagenic activity [9].

Cumin has a broad antibiotic spectrum against both gram-positive and gram negative bacteria. In particular the sensitivity of *Helicobacter pylori*, *Pseudomonas* and others has been shown to cumin

essential oil previously. Also in some reports it has been shown that the essential oil of cumin is equally or more effective [10].

Parsley is an annual herb indigenous to the Mediterranean region, but is now cultivated worldwide. It has erect stems and bright green leaves. The oil contains two components, apiol and myristicin, which are pharmacologically active. The plant also contains several antimicrobial furocoumarins: psoralen, 8-methoxypsoralen, 5-methoxypsoralen, oxypeucedanin, and isopimpinellin. Parsley extracts have shown slight antibacterial and antifungal activity when tested in vitro [11].

Pomegranate belongs to the puniceae family. It is one of the important horticulture fruits in the Mediterranean climate. The edible part of the fruit contains considerable saccharides, polyphenol and important minerals [12].

Radish seeds were found to contain alkaloid like coumarins, saponins, flavonoids and anthocyanins. Besides, radish seeds contain misoithiocyanate that has antimicrobial activity, antimutagenic, anticarcinogenic and antiatherosclerosis activity [13].

A pumpkin used in medical applications, is an annual plant with yellow flowers. It has a climbing stem up to 12 m long and a fruit with a round shape and fibrous flesh [14]. *C. pepo* has been known for its quality as an anti-helminthes. However, information on the antibacterial qualities of the seeds of these plants is unavailable and justifies the need for this research [15].

Henna (*Lawsonia inermis* Linn) is a plant which grows wild in abandoned areas. This plant is a worldwide known cosmetic agent used to stain hair, skin and nails. However, it is not only relevant to cosmetics. Alcoholic extracts of henna leaves showed mild antibacterial activity against *Micrococcus pyrogenes* var *aureus* and *Escherichia coli* [16].

Fenugreek (*Trigonella Foenum-Graecum*) found in nature and is cultivated in India and Pakistan, is a well known medicinal plant having properties of reducing blood sugar level, anthelmintic, antibacterial, anti-inflammatory, antipyretic, and antimicrobial. The important chemical constituents are saponins, coumarin, fenugreekine, nicotinic acid, phytic acid, scopoletin and trigonelline [17].

Sesame belongs to the family-Pedaliaceae (*Sesamum indicum* L.) and is a very old cultivated crop and thought to have originated in Africa; sesame oil has antimicrobial activity against gram positive and gram negative organisms [18 & 19].

The black cumin seeds contain thymoquinone that has antibacterial, diuretic, hypotensive and immunopotentiating activities via increasing neutrophil percentage and hence increasing the defense mechanism of the body against infection [20].

Eruca sativa Miller (Brassicaceae, synonym *Eruca vesicaria* Rocket), commonly known as "Tarmira", "Rocket salad" or "Garden salad" is a diploid annual herbaceous plant growing up to 80cm. It showed the highest antibacterial activity [21].

Brassica nigra is a member of the *Brassicaceae* family. The seeds are globular, black and about 1mm in diameter. It has a pungent taste and rich nutty odour. In addition to its importance as a food flavoring agent, the seeds of *B. nigra* also have important medicinal uses [15].

Almond (*Prunus amygdalus*) is a member of the Rosaceae family and yields fruit of great commercial value. Phenolic compounds may be regarded as one factor contributing to quality of fruits and juice because of high antioxidative effects [22].

This study aims to screen the antibacterial activity of plant extracts against bacteria and compare the effect of commercial essential oils with the plant extracts on bacteria.

Methods and Materials

Bacteria tested

The bacteria under study (*Klebsiella pneumoniae*, *Proteus spp.*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Streptococcus mutans*) were obtained from human infections from Hawlery ferkary hospital in Erbil city, Iraq. The isolates were inoculated on nutrient agar to obtain single colonies. These were sub cultured on the same medium to check for the purity of the isolated bacteria. Purified isolates were identified using morphological, cultural and some biochemical tests, as a more accurate method for identification.

Essential Oils

All essential oils were obtained from the local market in Erbil city, Iraq, as listed in Table (1).

Plant Extraction

Collection and preparation of plant samples

Both plants (spearmint and seeds of fenugreek) were obtained from the market in Erbil city. For spearmint, the leaves were washed with tap water, then with distilled water, then left for air drying until becoming completely dry, then both plants were converted into powder form and stored in polyethylene bags in the refrigerator at 4°C for further processing.

Extract preparation

The ethanolic extract of spearmint and seeds of fenugreek plants was prepared by maceration method according to [23] with slight modification, where 10 gm of plant powder was steeped in 100ml ethanol for three days then filtrated through eight layered muslin cloth then with filter paper (Whatman No.1), and centrifuged at 3000g for 10 minutes; then the supernatant

was collected, and stored in a sterile bottle at 4°C.

Well diffusion technique

Screening of antibacterial activity was performed by well diffusion technique [24]. The Nutrient agar (NA) plates were seeded with 0.1 ml of the inoculums of each tested organism. The inoculums were spread evenly over plate with a loop. A standard cork borer of 8 mm diameter was used to cut uniform wells on the surface of the NA and 100 µl of essential oils or each concentration of plant extracts was introduced in the well. The plates were incubated for 24 hours at 37 °C, and the zones of inhibition were measured to the nearest millimeter (mm).

Preparation of inoculums

Two to three colonies from pure growth of each tested organism were transferred to 5 ml of nutrient broth. Broths were incubated overnight at 37 °C [25].

Plant species	Common name	Family	Way of extracting
<i>Prunus amigdalus</i>	Almond	Rosaceae	Not mentioned
<i>Nigella sativa</i>	Black seed	Ranunculaceae	Not mentioned
<i>Cuminum cyminum</i>	Cumin	Umbelliferae	Steam distillation
<i>Trigonella foenumgraecum</i>	Fenugreek	Fabaceae	Not mentioned
<i>Lawsonia inermis</i>	Henna	Lythraceae	Not mentioned
<i>Brassica nigra</i>	Mustard	Cruciferae	Cold squeezing
<i>Petroselinum sativum</i>	Parsley	Umbelliferae	Not mentioned
<i>Punica granatum</i>	Pomegranate	Punicaceae	Cold squeezing
<i>Cucurbita pepo</i>	Pumpkin		Not mentioned
<i>Raphanus sativus</i>	Radish	Cruciferae	Not mentioned
<i>Rosmarinus officinalis</i>	Rosemary	Labiaceae	Cold squeezing
<i>Sesamum indicum</i>	Sesame	Pedaliaceae	Not mentioned
<i>Mentha spicata</i>	Spearmint	Labiatae	Not mentioned
<i>Eruca vesicaria</i>	Taramira		Not mentioned

Table 1: Plant oils

Results and Discussion

Historically, many plants oils and extracts such as tea tree, myrrh and clove, have been used as topical antiseptics, or have been reported to have antimicrobial properties [26]. It is important to investigate scientifically those plants which have been used in traditional medicines as potential sources of novel antimicrobial compounds [26].

The antibacterial activity of oil of plants that were used in this study is shown in Table (2). The oil of pomegranate inhibited the *Staphylococcus aureus*, *Proteus spp.* and *Pseudomonas aeruginosa*,

spearmint, pumpkin and rosemary inhibited *Staphylococcus aureus* and *Proteus spp.* and *Staphylococcus aureus* and *Pseudomonas aeruginosa* respectively, while mustard, almond and radish inhibited *Staphylococcus aureus*, but the other oils didn't inhibit any of the bacteria under study. There are many research studies that mention that pomegranate is a strong antibacterial agent, and this may return to the presence of phytochemicals in the phenols, tannins and flavonoids as major active constituents (95 percent punicic acid; other constituents, including ellagic acid and sterols) may be responsible for these activities [12].

Some researchers, such as [27, 28, 10, 18, 19 and 29] mentioned that parsley, seed oil of sesame, cumin and pumpkin have antibacterial activity against G- and G+ bacteria. The action mechanism of the essential oils is related to their chemical composition and their antimicrobial activity is not attributable to a unique mechanism but to a cascade of reactions in the entire bacterial cell. In fact, the action mechanism of the essential oils includes: degradation of the cell wall, cytoplasmic-membrane damaging and cytoplasm coagulation, damage to membrane proteins, leakage of cell contents, depletion of the

Plant oil	<i>Klebsiella</i>	<i>Proteus spp.</i>	<i>Pseudomonas aeruginosa</i>	<i>Saphylococcus aureus</i>	<i>Streptococcus mutans</i>
*Zone of inhibition in mm					
Almond	-	-	-	9	-
Black seed	-	8	-	-	-
Cumin	-	-	-	-	-
Fenugreek	-	-	-	-	-
Henna	-	-	-	-	-
Mustard	-	-	-	8	-
Parsley	-	-	-	-	-
Pomegranate	-	8	8	11	11
Pumpkin	-	9	-	10	-
Radish	-	-	-	9	-
Rosemary	-	-	8	10.5	-
Sesame	-	-	-	-	-
Spearmint	-	8.5	-	9	9
Taramira	-	-	-	-	-

* Values calculated as mean of triplicates.

- No inhibition zone or less than 8 mm.

Table 2: Antibacterial activity of essential oils of plants

protective force motrice, sharp reduction of the intracellular ATP pool through a reduction of ATP synthesis and increased hydrolysis [3].

The ethanolic extract of spearmint was better than the ethanolic extract of fenugreek as an antibacterial agent, as shown in Table 3. The antibacterial activity of spearmint returns to the presence of carvacrol in its structure and this substance seem to make the membrane permeable; its structure disintegrates the external membrane of G- bacteria, releasing lipopolysaccharides (LPS) and increasing the permeability of the cytoplasmic membrane to ATP. The presence of MgCl₂ does not influence this action, suggesting

a chelating mechanism of different cations on the external membrane [30]. And *Staphylococcus aureus* was the most susceptible organism, which was affected or inhibited by both extracts and also by some oils under study, where [15] and other researchers also showed that *Staphylococcus aureus* was more sensitive to the oil extract of *C. pepo* and other plant oils. While *Klebsiella spp.* showed resistance to all oils and to all concentrations of both extracts except the concentration 75% and 100% which inhibited the *Klebsiella*. This result agreed with the result of [6]. They also showed that *Klebsiella pneumoniae* was not inhibited by some medicinal plants and that rosemary is one of them but affected

on *Staphylococcus aureus*. It was also [25] found that the G+ were affected more than G-.

G- strains are generally more resistant than G+ strains in solid diffusion tests and this trait has been attributed to the external lipopolysaccharide wall that surrounds the peptidoglycan cell wall of the former, and which restricts the penetration of amphipathic compounds [6 and 25].

It is known that many essential oils kill bacteria by damaging the cell membrane's structure, inhibiting membrane function [31]. In this study it appeared that the ethanolic extracts were better than the plant

Spearmint ethanolic extract					
Plant extract con.	*Zone of inhibition in mm				
	<i>Klebsiella</i>	<i>Proteus spp.</i>	<i>Pseudomonas aeruginosa</i>	<i>Staphylococcus aureus</i>	<i>Streptococcus mutans</i>
100%	13	17	17	18	13
75%	11	17	15	17	-
50%	-	11	11	11	-
25%	-	8	-	9	-
12.5%	-	-	-	-	-
Fenugreek ethanolic extract					
Plant extract con.	*Zone of inhibition in mm				
	<i>Klebsiella</i>	<i>Proteus spp.</i>	<i>Pseudomonas aeruginosa</i>	<i>Staphylococcus aureus</i>	<i>Streptococcus mutans</i>
100%	13	13	16	17	13
75%	8.5	10	15	14	10
50%	-	-	12	11.5	-
25%	-	-	8	9	-
12.5%	-	-	-	-	-

* Values calculated as mean of triplicates.

- No inhibition zone or less than 8 mm.

Table 3: Antibacterial activity of Ethanolic extract of Spearmint and Fenugreek

oils and this is in contrast to the fact that generally the plant oils have the antibacterial activity. This may return to the fact that those oils used in this study were obtained from local market, were old, or the way of storing them is not in correct, or maybe it returns to the method of extraction. Furthermore, some oils with the same common name may be derived from different plant species.

It is concluded that both extracts have antibacterial activity in addition to pomegranate oil, and it is recommended that care be taken when buying the plant product, because it will reflect negatively on human health, if it is taken by humans.

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Answers and feedback to CME Quiz

1. Metacid is an organophosphorous compound with anti-cholinesterase action.

True

2. Anti-cholinesterase pesticides are an uncommon cause of acute poisoning.

False

3. Organophosphorous compounds readily penetrate the skin.

True

4. Clinical features vary depending on the relative effects on parasympathetic nerves, sympathetic ganglia and neuro-muscular junctions.

True

5. Initial effects are due to parasympathetic activity.

True

6. Weakness of skeletal muscle is due to enzyme suppression at neuro-muscular junctions.

True

7. Atropine blocks parasympathetic overactivity.

True

Feedback

Anti-cholinesterase pesticides (organophosphates) are a most common cause of acute poisoning in farmers.

Organophosphates bind to acetyl-cholinesterase enzyme, inhibiting it and causing symptoms of excessive cholinergic (parasympathetic) activity. The key signs of cholinergic overload are: frothy oral secretions, vomiting, abdominal pain, diarrhoea, constricted pupils, altered consciousness, bradycardia (or tachycardia) and muscle fasciculations.

Organophosphates also suppress enzymes at nicotinic receptors, thus inhibiting neuromuscular transmission at nicotinic synapses – the major cause of respiratory muscle paralysis.

Initial management should focus on managing and stabilizing airway, breathing and circulation (ABC).

There is a risk of contamination of health personnel, as well as ongoing absorption for the patient. Ramesh's clothing should be removed and washed thoroughly, and his skin washed with soap and water. Health workers must wear rubber gloves whilst doing this to protect themselves from contamination.

There is no role here for GI decontamination as the pesticide was not ingested by mouth, but absorbed through the skin.

While the above measures are being taken, definitive treatment should be started without delay.

Quality of type-2 diabetics' consultations in Ismailia City, Egypt

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Abstract

Background: Within general practice, work on quality and the development of performance indicators are important for practice organization and care of continuing health problems. However, the core activity of general practice remains the consultation.

Aim: The aim of the present work was to study the quality of consultation using 'consultation length' and how well patients 'know the doctor' as process measures and 'patient enablement' as an outcome measure.

Methods: A cross sectional design was used. The study was conducted in Ismailia City, Egypt, from February 2009 to October 2010. The study included 310 type-2 diabetics attending the family medicine clinic in Ismailia University hospital. A pre-consultation questionnaire was completed by all patients, to collect socio-demographic data. Also, patients were asked how well

they knew the doctor they were going to see. After the consultation, the patient completed the patient enablement questionnaire. Doctors completed information on the time the consultation started and finished (time in and time out), whether the consultation was booked, open, and whether a student was present.

Results: The mean enablement score was 3.6 ± 1.6 (range from 1 to 7) while the mean duration of consultation was 10 ± 4.2 minutes (range from 5 to 20). Patient's age over 60 was associated with high enablement and long consultations, and consultations for women lasted longer than those for men. Booked consultations were significantly longer than routine consultations. Knowing the doctor well resulted in considerably increased duration of the consultation. Interruptions increased, non-significantly, consultations by an average of 1.4 minutes, but significantly reduced enablement. The presence

of trainees in the consultation room did not affect the duration of the consultation but significantly increased the enablement.

Conclusion: At consultation level, enablement correlates best with the duration of consultations and how well the patient knows the doctor so we should improve our doctor-patient relationship and give more attention to the consultation length. Interruptions during the consultation should be avoided.

Keywords: consultation, duration, enablement, diabetes, Ismailia.

Introduction

The core values of general practice include holism and patient-centredness. Holism, the integration of physical, psychological and social components of health problems in making diagnoses and planning management, is well established as a central issue of good consulting practice,(1) and there is good evidence that this is promoted by longer consultations(2-4) and by greater continuity of care.(5-6) 'Patient-centredness' is harder to define. It indicates a commitment by doctors to value the contribution of patients to deciding what is wrong with them and how their care should be managed. Among other things, patients place great emphasis on being helped to understand the nature of their problems and made able to manage their own illnesses.(7) 'Enablement', measured by the Patient Enablement Instrument (PEI), is an outcome measure which captures these issues. (8)

Finding a way of assessing whether the goals of holism and patient-centredness are achieved at consultations by doctors has proved difficult, but it is a necessary part of assessing quality of general practice care across its full breadth. (9) Within general practice, work on quality and the development of performance indicators(10-11) is in hand on issues of practice organization, (12) care of continuing health problems, (13) and achievement of public health targets. (14) However, the core activity of general practice remains the consultation. Two areas of work in this discipline are particularly relevant to this paper: the use of time in consultations and its relation to "enablement," an outcome measure that seems related to, but different from, satisfaction (8-9); and continuity of care. (5-6)

Aim of the Work

The aim of the present work was to study the quality of consultation that reflects the core values of general practice. The Specific objectives included the following:

1. Measurement of the consultation length of type2 diabetics
2. Assessment of enablement of the diabetic patients
3. Determination of the principal correlates associated with enablement as an outcome measure.

Subjects and Methods

Study Area and Study Population

A cross sectional design was used. The study was conducted in Ismailia City, Egypt, from February 2009 to October 2010. Ismailia City is approximately 120 km from Cairo. It is the capital of Ismailia Governorate that is located along the coast of Suez Canal, midway between Port Said and Suez. The target population was type 2 diabetic patients in Ismailia City. The study population was type-2 diabetics attending the family medicine clinic in Ismailia University hospital. The following equation, according to Holland et al., 1985, was used for sample size calculation: (15)

$$N \geq [(1.96)^2 \times Sd^2] / (0.05 \times M)^2$$

N, number of cases;

S.d, standard deviation

M, the true value to be estimated and known from previous works

A pilot study was conducted to determine the mean and standard deviation of the PEI of type-2 diabetics. The pilot included 50 patients. The mean of the PEI was 3.58 1.6 (from the pilot study). So the sample size needs to be:

$$N \geq [(1.96)^2 \times 1.62] / (0.05 \times 3.58)^2$$

$$N \geq 303$$

The study sample (n=310) was selected randomly by systematic random sampling technique where every 3rd patient attending the clinic between February 2009 to May 2009 was included in the study. The study was completed in October 2010. Informed consent of the patients to participate in the study was one of the inclusion criteria. Type 1 diabetics were excluded from the study.

Description of the experimental manoeuvre

1. Pre-consultation questionnaire:

A pre-consultation questionnaire was completed by all patients, to collect socio-demographic data. Patients were asked how well they knew the doctor they were going to see.

2. Post-consultation questionnaire:

Doctors completed information on the time the consultation started and finished (time in and time out), whether the consultation was booked, open, and whether a student was present. After the consultation, the patient completed the patient enablement instrument that included the following items: Able to cope with life, Able to understand your illness, Able to cope with your illness, Able to keep yourself healthy, Confident about your health, and Able to help yourself. Responses of "much better," "better," and "same or less" or "not applicable" were scored 2, 1, and 0 respectively, giving a score range of 0-12. (16-17) Patients also indicated whether the consultation was interrupted. Some help for patients who had difficulty completing the questionnaire was available in the waiting room.

Statistical methods

All statistical analyses were performed by using the SPSS software package (SPSS, 1996) (18). Measures of central tendency and dispersion, as well as, appropriate significance tests were applied according to the types of variables. Group t-test was computed to detect the significance of difference in the age, enablement scores, and duration of the consultation between males and females. Multiple regression analysis was computed to detect the significant linear associations between the enablement scores of type 2 diabetics as dependent variable and other independent variables that were included in the study. The following variables were converted to dummy variables (coded 0.0 and 1.0) sex (male and female), know the doctor well, interruption of the consultation, consultation type (open

and booked) and presence of student during the consultation.

Results

The study included 310 type-2 diabetics. The total number of females was 201 (65%), while that of males was 109 (35%). The mean enablement score was 3.6 ± 1.6 (range from 1 to 7) while the mean duration of consultation was 10 ± 4.2 minutes (range from 5 to 20).

Table 1 illustrates that female patients were significantly older (55.03 ± 6.96 years) than male patients (55.70 ± 5.94 years). The consultation of female patients was significantly longer than that of the males. On the other hand the differences between female and male patients were insignificant regarding enablement.

Table 2 illustrates that after the consultation, the majority (92%) of patients were able to help themselves better or much better than before. Also, 68% of them were more confident about their health. However, a big proportion of patients had the same or less ability to cope with their illness (88%) and life (72%).

Patient's age over 60 was associated with high enablement and long consultations, and consultations for women lasted longer than those for men. Booked consultations were significantly longer than routine consultations. Knowing the doctor well resulted in considerably increased duration of the consultation. On the other hand knowing the doctor had no significant effect on enablement. Interruptions increased non-significantly consultations by an average of 1.4 minutes but significantly reduced enablement. The presence of trainees in the consultation room did not affect the duration of the consultation but significantly increased enablement (Table 3 - next page).

All dependent variables included in the model except sex were found to have significant linear associations with enablement. Knowing the doctor well was found to have a high significant linear association with enablement when it was included in the regression model (Table 4 - next page).

Discussion

The study included 310 type-2 diabetics. The total number of females was 201 (65%), while that of males was 109 (35%). The female patients were significantly older (55.03 ± 6.96 years) than male patients (55.70 ± 5.94 years). The purpose of our study was to measure enablement and to identify its principal correlates. After the consultation the majority of patients were able to help themselves better or much better than before (92%) and 68% of them were more confident about their health. However, a big proportion of patients had the same or less ability to cope with their illness (88%) and life (72%).

The differences in outcome and duration of consultation were related to age and sex of patients, to being added to clinic sessions without having appointments, and to having a consultation that was interrupted. As with any outcome measure it is hard to know whether reported enablement reflects true enablement. The desire to please a familiar doctor and differences between socioeconomic factors could create artificial differences.

	Male (n=109)	Female (n=201)	t-value	P
Age	50.7 (5.5)	55.0(6.9)	5.6	0.000
Duration of consultation	7.7 (3.2)	11 (4.3)	7.2	0.005
Enablement scores	3.7 (1.3)	3.5(1.7)	0.7	0.461

*, mean and standard deviation in parenthesis

Table 1: Distribution of the study group by age, duration of consultations and enablement scores*

Items	The patient response			
	Much better	Better	Same or less	Not applicable
1. Able to cope with life	0.0	87(28%)	223(72%)	0.0
2. Able to understand your illness	12(3.9%)	121(39%)	177(57.1)	0.0
3. Able to cope with your illness	12(3.9%)	24 (7.7%)	274(88.4%)	0.0
4. Able to keep yourself healthy	12(3.9%)	25 (8.1%)	273 (88%)	0.0
5. Confident about your health	25 (8.1%)	187(60.1%)	98(31.6%)	0.0
6. Able to help your health	84(27.1%)	202(65.2%)	12(3.9%)	12(3.9%)

Table 2: Patients' responses to consultation enablement items

	N	Enablement score [†]	Consultation length [†]	Mean difference (95% CI)	
				enablement score	duration of consultation
Age (Years)					
<60	254	3.4 (1.6)	8.4 (3.1)	0.8(0.3-1.3) [†]	7.8(6.9-8.6) [†]
≥60	56	4.2 (1.2)	16.2 (2.2)		
Sex					
• Male	109	3.7(1.3)	7.7(3.2)	0.1(-0.2-0.5)	3.3 (2.4-4.3) [†]
• Female	201	3.5(1.7)	11.0(4.3)		
Know the doctor well					
• Yes	69	3.7(1.1)	12.9(4.0)	0.2 (-0.6 – 0.3)	3.9(2.9-4.9) [†]
• no	241	3.5(1.7)	9.0(3.9)		
Doctor interrupted:					
• yes	19	3.4(1.4)	11.2(2.9)	3.2(2.6-3.9) [†]	1.4(-3.4-0.5)
• no	291	6.6(0.5)	9.8(4.2)		
Consultation type					
• Booked	82	3.7(1.3)	10.7(5.8)	0.2(-0.2-0.6)	1.2(0.1-2.3) [†]
• open	228	3.5(1.7)	9.5(3.4)		
Presence of students					
• Yes	170	2.4(0.9)	10.1(3.6)	2.7(2.5-2.9) [†]	0.5(-1.5-0.5)
• no	140	5.1(0.9)	9.6(4.7)		

N, number, *, significant 95% CI (confidence interval), and †, mean and standard deviation in parenthesis

Table 3: The relationship between single variables and mean enablement scores and mean duration of consultations

	Regression coefficient	Standard error	t- value	P
(Constant)	4.109	0.335.	12.256	0.000
age	1.927	0.265	7.258	0.000
sex	-9.460	0.168	-0.562	0.575
Duration of diabetes	0.305	0.086	3.532	0.000
Know the doctor well	1.008	0.186	5.412	0.000
Consultation was interrupted	3.437	0.308	11.14	0.000
Consultation duration	0.218	0.026	8.419	0.000
Consultation type (Booked and open)	0.466	0.168	2.771	.006

Table 4: Multiple regression: the relationship between the enablement score as a dependent variable and other independent variables

In the present study the mean duration of consultation was 10 ± 4.2 minutes (range from 5 to 20). These results were partially in agreement with many reported results which concluded that the mean of consultation time ranged between 2 and 21 minutes. (19-20) The variation of the results of the present and the above mentioned studies could be explained by the differences among different family practice settings regarding the flow rate and the existence of an appointed system that insures adequate time for consultation. Also, the family physician may behave in different ways according to the nature of sessions, as counselling sessions may need more time. This view was supported by Freeman (2001). (21)

In the present study the mean enablement score was 3.6 ± 1.6 (range from 1 to 7). This result is consistent with that of Howie et al (1999)17 who reported that the mean enablement score was 4.5. Also, the present study illustrates that patient's age over 60 was associated with high enablement and long consultations, and consultations for women lasted longer than those for men. These results are consistent with that of Kotic (2001) (22) who demonstrated that patient satisfaction had a positive correlation with age, sex and educational level.

The result of the present study confirmed that there was a positive linear association between duration of consultation and enablement score ($p < 0.05$). These results were supported by other studies (17, 23-24), that found significant positive correlations between duration of consultation and the enablement score. Also, it is reported that patients' preference for more consultation time is associated with patient' dissatisfaction and lower compliance to doctors recommendations.(2)

In the present study knowing the doctor well resulted in considerably increased duration of the consultation. Knowing the doctor well was found to have a high significant linear association with

enablement when it was included in the regression model. Similar results were detected in other studies. (9, 17) Recently, it was reported that Longitudinal care (seeing the same doctor) and consultation experiences (patients' encounters with the doctor) were found to be the main factors by which patient-doctor relationships are improved.(3)

In conclusion, at consultation level, enablement correlates best with the duration of consultations and how well the patient knows the doctor, so we should improve our doctor-patient relationship and give more attention to the consultation length. Interruptions of the consultation should be avoided. The presence of trainees in the consultation room did not affect the duration of the consultation but significantly increased the enablement. More research work is needed to study the impact of patient enablement on the glycemic state of type 2 diabetics.

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Approach to Febrile Infants in the Southern Peripheral Hospitals of the Royal Medical Services, Jordan

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Abstract

Objectives: The aim of this study was to help pediatricians and family doctors to triage young infants presenting with fever to the Emergency department, into serious and dischargeable patients. This will help in decreasing the unnecessary use of potent antibiotics, the number of admissions, as well as the unnecessary invasive and noninvasive laboratory investigations.

Methods: Specially designed medical records abstract forms were filled with data collected from 200 infants (over a period of 12 months) who presented with fever more than 38.2°C rectally to the pediatric emergency room at two peripheral hospitals in the southern part of Jordan (Princess Haya Hospital in Aqaba, and Prince Ali Hospital in Al-Karak).

Full detailed medical history and physical examination were performed. Laboratory tests were performed including Complete Blood Count, C-reactive protein, chest X-ray, urine analysis and culture, stool analysis and culture (if diarrhea is present), in addition

to Blood culture and Cerebrospinal fluid sampling in seriously ill admitted infants.

All candidates were closely followed up daily over the next two days if discharged from the emergency room, otherwise, they were admitted.

The final diagnosis was correlated with the preliminary findings and tests to define significance and possibility of depending on future assessment of similar patients.

Results: Significant correlation was noticed between positive Blood Cultures and/or positive chest X-ray findings with the symptoms of poor feeding, hypo-activity, convulsion and attacks of cyanosis.

The most important signs were abdominal distension, irritability, respiratory distress and bulging anterior fontanel.

The significant laboratory findings that we depended upon for admission were:

White Blood Cells count of more than 14,000, with more than 40% Neutrophils, urine analysis with White Blood Cells more than 6/High power field, positive C-reactive protein, and chest X-ray findings.

Conclusion: It can be concluded that poor feeding, hypo-activity, convulsion and cyanosis are considered indicators of serious illnesses, necessitating admission and treatment. Simple Laboratory investigations are very helpful to pediatricians and family doctors to spot the serious cases, and spare many young infants the unnecessary admissions to the hospital.

Key words: Fever, Complete Blood Count, CRP, Chest X-ray, Urine Analysis

Fever (pyrexia) is a common medical sign characterized by an elevation of temperature above normal range, mediated by an increase of the Hypothalamic head regulatory set-point.

A wide range of normal temperatures has been found, and fever is generally agreed upon to be present if:

- Temperature in the anus (rectally) is at/or over 38.2°C.
- Temperature in the mouth (orally) is at/or over 37.7 °C.
- Temperature under the armpit (axillary) or in the ear (otic) is at/or over 37.2 °C.

Types of fever in children include:

- Fever of short duration with localized signs.
- Fever without localized signs.

Core body temperature is normally maintained within 1°C in a range of 37-38 °C.

Famous fever patterns are:

- Remittent fever: temperature remains above normal throughout the day and fluctuates more than 1°C in 24 hours (e.g.: infective endocarditis).
- Intermittent fever: the temperature elevation is present only for a certain period, later cycling back to normal (e.g.: Kala azar, septicemia)
- Continuous fever: temperature remains above normal throughout the day and does not fluctuate more than 1°C in 24 hours.

In addition to Hectic fever, Relapsing fever, Biphasic and Periodic fever.

Fever is usually accompanied by sickness behavior, which consists of lethargy, depression, anorexia, sleepiness, hyperalgesia and inability to concentrate. Fever is a common symptom of many medical conditions: Infectious diseases, various skin inflammations, immunological diseases, tissue destruction, reaction to incompatible blood and blood products, malignancies, metabolic diseases and thrombo-embolic processes.

What is called “fever phobia” is the name given by medical experts to parents’ misconceptions about fever of their children. Among them, many patients incorrectly believe that fever is a disease rather than a medical sign, they are also afraid of harmless side effects like febrile seizures. Nelgum Erkek (1) and his colleagues published an article in 2010 concerning the importance of parental education about “fever in childhood”, which may positively affect parental knowledge and approach to fever. However, parental education may not be completely effective in removing their fear in our population.

Methods

This prospective non-blind quasi randomized study was conducted at two peripheral hospitals of the Royal Medical Services in Jordan over a period of 12 months at the Emergency Departments and Pediatric wards.

The population of the study was infants beyond the neonatal period and below 6 months of age, found to have rectal temperature at/or above 38.2°C at presentation.

I have chosen rectal temperature because it has the most accurate results at this age. Penning’s study in 2011 showed that the diagnostic accuracy of the temporal artery thermometer in detecting fever in children of all ages is low [2].

All candidates underwent thorough clinical examination after full history was taken. A cascade of Laboratory tests were performed including:

- Complete Blood Count and morphology, C-reactive protein, urine analysis and culture, chest X-ray, stool analysis and culture for those presenting with diarrhea, and for admitted cases Cerebro-spinal fluid sample was taken for cytology, protein, glucose and culture as well as Blood culture. Admitted patients were those ill looking, or in the presence of one or more of the following:

- White Blood Cells above 14.000 with neutrophils above 40%
- Positive C-reactive protein.
- Urine test analysis showing White Blood Cells of more than 6/high power
- Chest X-ray positive findings of infection

Special forms were filled with data collected from two hundred patients who presented to the pediatric emergency room. Simple descriptive statistics (frequency and percentage) were used to describe the study variables.

Results

200 patients were included in the study over a period of 12 months, and selected from two peripheral hospitals in the southern parts of Jordan (Aqaba and Al-Karak cities); 166 patients (83%) were considered as non-serious cases; although 12 of them (7%) were admitted to the pediatric ward for further evaluation or for non-medical reasons (living far away or very anxious parents). The other 34 patients (17%) were considered as serious cases according to their general conditions, history and positive laboratory findings, and were admitted to hospital.

The most common presenting symptoms in serious cases (34 patients) were as follows:

24 patients (70%) had poor feeding, 18 (53%) patients were hypoactive, 17 patients (50%) had abdominal distension, 15 patients (44%) had decreased primitive reflexes, 13 patients (38%) were irritable, 12 patients (35%) were tachypneic and finally 12 patients (35%) had cough and vomiting.

On the other hand, within the 166 mild cases, it was found that cough was present in 28 patients (17%), diarrhea in 27 (16%) patients, xanthematous skin rash in 20 patients (12%), tachypnea in another 20 patients (12%), and finally cough and vomiting each of them in 10 patients (6%).

Population of the Study	Non-Serious Cases	Serious Cases	Total
Admitted Cases	12	34	46
Out-Patients	154	0	154
TOTAL	166	34	200

Table 1: Population of the Study

Clinical Presentation		Prevalence in Mild Cases	%	Prevalence in Serious Cases	%
Symptoms	Cough	28	17%	12	35%
	DIARRHEA	27	16%	10	29%
	SKIN RASH	20	12%	7	20%
	VOMITING	10	6%	12	35%
	HYPOACTIVITY	7	4%	24	70%
	POOR FEEDING	5	3%	18	52%
	CYANOSIS	0	0%	3	9%
	CONVULSION	0	0%	2	6%
Signs	Tachypnea	20	12%	12	35%
	ABDOMINAL DISTENSION	8	5%	17	50%
	IRRITABILITY	4	2%	13	38%
	LUNG CRACKLES	2	1.2%	8	23%
	DECREASED REFLEXES	0	0%	10	29%
	BULGING ANTERIOR FONTANEL	1	0.6%	5	15%

Table 2: Clinical Presentations among the Study Group

The most detected Signs in admitted patients were: abdominal distension in 17 patients (50%), irritability in 13 patients (38%), decreased primitive reflexes in 10 patients (29%), Lung crackles in 8 patients (23%) and finally 5 patients (15%) with bulging anterior fontanelle (three of them were found to have meningitis).

Only two Blood Cultures were positive in the "mild cases group" and both were *Staphylococcus epidermidis*, in comparison to 10 positive blood cultures in the seriously ill admitted patients (5 with *Streptococcus pneumoniae*, 1 *Klebsiella*, 1 *E. coli* and 2 *Staphylococcus epidermidis* (coagulase negative) and 1 *Staphylococcus aureus*).

8 cases with mild inflammatory findings on chest X-ray were found in the group of mild cases; all of them were admitted to hospital in comparison to six cases of Pneumonia in the other group.

Discussion

We noticed that Pediatricians and Family doctors can reduce significantly the number of hospital admissions in the young infant age group presenting with fever to the emergency room, and without empiric antibiotic therapy or routine hospitalization, after performing simple laboratory tests and good clinical evaluation.

All infants were seen each day for the next 2 days as part of follow up, and those with positive screening results were hospitalized and treated.

We found significant relationship between positive cultures and/or positive Chest X-Ray and Laboratory findings, with the symptoms of: poor feeding, hypoactivity, abdominal distension, convulsions, attacks of cyanosis, and respiratory distress. Although, management of fever without source is still controversial, there should be a way to select those infants who need admission to hospital for further advanced investigations. "Martial M. Massin" found that the most common final diagnosis was acute febrile illness,

either bacterial or viral, and the management allowed the early diagnosis and treatment of serious bacterial infections.(3)

In a comparison between emergency and pediatric physicians, "Vei-ken Seow" showed that admissions for toxic cases and workup in those with body temperature more than 39°C was higher among pediatric physicians(4).

Treatment, for children with severe pneumonia, with oral antibiotics is not recommended in young infants admitted to hospital especially those with rapid respiratory rate because of high percentage of treatment failure(5), Haider and his colleagues at Aga Khan University(6) showed that a short course (three days) of antibiotic therapy is as effective as a longer treatment duration for non-severe pneumonias in children aged 2-59 months.

"Gray and his colleagues" at Liverpool children hospital, U.K. found that the most common apparent life threatening events presenting to pediatric emergency department were: convulsion, febrile convulsion, gastro-esophageal reflux, and lower respiratory tract infection and that all such infants should be admitted for a period of observation and further investigations.

Six cases of pneumonia were diagnosed in the serious 34 (17.6%) cases admitted to hospital, compared to 16% of patients who had radiographic pneumonia in the "Neuman" study in Boston, USA, where they also found that history and physical examination findings can be used to risk stratify children for risk of radiological pneumonia, and that history of focal rales, duration of fever and mainly oxygen saturation below 92% are the main predictors of pneumonia [8].

Infants with negative screening results and non-septic appearance were managed without antibiotics or either discharged and followed up as out-patients.

Yamamoto and Boychuck [9] found that the clinical setting has an effect on the diagnosis and treatment strategies chosen when evaluating a febrile child at risk for occult bacteremia with patients seen in the emergency department; and that was the case in our study.

Three cases of meningitis were diagnosed in addition to 12 positive blood cultures, 14 cases of pneumonia, 8 cases of urinary tract infection; all of them were treated with intra-venous antibiotics at hospitals.

Acute respiratory infection is one of the leading causes of morbidity and mortality in children under five years of age in developing countries.

When hospitalization is required, the usual practice includes administering parenteral antibiotics if a bacterial infection is suspected. On the other hand, Rojas and Granados [10] concluded that oral therapy appears to be an effective and safe alternative to parenteral antibiotics in hospitalized patients with pneumonia who do not have any serious signs or symptoms. In a recent Spanish study they found that infants under 3 months of age with fever without source, undergoing full invasive septic evaluation were found to have low prevalence of invasive bacterial infection in comparison with enterovirus infection which is mostly trivial and self limiting and shows high prevalence rate at this age, as shown by "Martinez" [11], and finally, it was shown that the incidence of occult bacteremia among highly febrile children is uncommon with continued use of pneumococcal conjugate vaccine [12].

Conclusion

It can be concluded that symptoms of poor feeding, hypoactivity, cyanosis and convulsion are always considered indicators of serious illness, necessitating admission and full investigation. On the other hand, the important signs that are considered alarming of serious cases are: abdominal distension, irritability, tachypnea, decreased reflexes and bulging anterior fontanel. Simple

laboratory investigations are very helpful to pediatricians and family doctors to spot the serious cases and spare many young infants from unnecessary admissions to hospital.

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Integration and Impact of Educational Media (Technologies) in the Teaching-Learning Process: A Case Study in Iran

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Introduction

Humans have always been in search of effective ways and methods to convey their messages to each other. Teachers and educators have been among the many in this quest to facilitate the simplicity and comprehension of content areas. Educational technologies are trying to accomplish these goals to convey the findings of the behavioral sciences and maintain effective, quick, and easy ways of teaching. Five revolutions in educational technologies have provided a suitable climate to identify and utilize modern media. Researchers in recent decades have made considerable contributions in developing remarkable methods of teaching/learning processes. However, the extent and effective utilization has been limited. Recently, to bring teaching and instructional technologies to the fore-ground and to foster their presence in instructional processes, some scientists have changed its name to learning technologies and emphasized their role beyond just being mere tools.

In this research the main goal is to analyze and evaluate the extent to which the teachers incorporate educational media in their teaching. Therefore, it is imperative to assess teachers' familiarity and knowledge, lack of which creates many obstacles and road blocks.

In this research paper knowledge and familiarity of the instructors have been examined and reasons for avoiding or not using the media have also been identified. It is important that educated and qualified teachers possess a wide knowledge of different media. Therefore, it is necessary to conduct research to identify the wide range of media applications and their impact on

Abstract

To a large extent, positive and improving impacts of the 'learning technologies' depend upon proper, knowledgeable, and rational use of educational media. Learners' diversified demands of the twenty first century and certain needs and requirements of the information age emphasize more and more use of learning technology to achieve and maintain a creative and dynamic education/learning process.

The main of goal this research is to highlight how individual educational technology and media are being integrated and utilized by Elementary School Teachers (EST) in Tehran, Iran. A sealed questionnaire containing 125 answers (indicators) to evaluate/test six hypotheses was sent to a sample population of 400 teachers in Tehran. The nonparametric testing procedure yielded meaningful single variable Chi-square (X²).

The results indicate that the media knowledge of teachers was average, the level and quality of media utilization on the average was meaningful. However, use of

more modern technology and media such as computers, video projectors, smart boards, and visualizers were below average.

Based on the results, it can be stated that the main objectives of the teachers using the media were to call on students' attention to educational concepts, improve willingness and collaboration, and to motivate audio/visual cognitive senses. Much less attention was paid to the media's concept simplification role. Most frequently utilized media and tools by more than 50% of the teachers are: posters, maps, oral explanation, white/black boards, plays, alphabet cards, and educational CDs. It must be added that the educators confronted numerous obstacles in using technology some of which are directly related to the shortcomings of the educational system in general. These problems and their adverse impacts on media utilization are discussed separately.

learning capabilities to help teachers improve their teaching.

To conduct this research and to evaluate the educators' familiarity, goals and expectations, a wide list of educational media was compiled. This research analyzes the levels of familiarity with and use of each learning technique by the educators with the following objectives in mind.

- a. To evaluate the extent of use of instructional media by teachers in general.
- b. To identify the objectives and goals of the EST from media utilization.
- c. To measure the extent of use of each media by teachers.
- d. To find the best and effective methods to increase teachers' media knowledge.
- e. To identify obstacles impeding media applications.
- f. Recommend solutions and remedies that authorities should pursue to foster better planning and improve human resource requirements.

The questions to be answered by the sampled teachers (400) are as follows.

1. What is the best pattern and model of media application?
2. At what stage in the learning process is the instructional media being used?
3. Which media at what stage is being adopted?
4. Which and to what extent instructional technique is used?
5. How much is your knowledge of modern computers and internet applications?
6. Do you need special training to improve your qualifications and knowledge of modern media?

Background

According to Simon (1983, p. 88), technological innovation has an intellectual basis that attempts to control, secure, and exploit the human physical environment by using the known scientific rules and laws. In other words, technology is any scientific capability that uses, manipulates, and adopts the accumulated scientific findings of the

past and present. Technology can also be defined as methodology or the knowledge of better and more effective applications of human sciences. Fardanesh (1991, p. 9) claims that Webster's definition of technology is as simple language of application of knowledge for scientific goals and purposes.

Instructional technologies are designed to have empirical and practical applications in the learning-teaching process. According to Raberd & Valiwer (1989), educational innovation is the outcome of systematic challenges that aim to diagnose and analyze the educational shortcomings and to offer solutions. Wager (1997), while emphasizing expansion of concept of technology, believes that the effective educational technology is not necessarily the hardware, but comprises all delicate steps of conducive educational planning as well. The National Academy of Engineering Instructional Technology on Education states that educational innovations are scientific findings that emerge from the actual classroom applications of tools, techniques, and methods assisting the learning process (Dieuzeide, 1971).

Importance and Necessity of Educational Technology

Experience shapes and molds learning capabilities, therefore, thoughtful and achieving educators will attempt to provide a basis for students to be able to understand and retain new concepts and experiences by drawing inferences from their previous knowledge. Technology affects the learners in their academic success in three distinguishable ways: a) success in learning the content area subjects; b) increase critical thinking and foster problem solving talents; c) prepare the human resource work force (Cradler, 2002).

Historical Development of Technology in the World

Human beings have always been in search of effective methods to communicate with each other. After the inventions of script and language and mitigating ease in

communications, the foundation for teaching/learning was laid down. Everyone could communicate his/her experience and findings and take advantage of those of others. However, the pace of this revolution was rather slow and piecemeal until the invention of the press industry. Revolutionary steps were taken in instructional innovations along with emergence of educational institutions that instituted the second revolutionary turn in school instructional education. Learning process was analyzed by scientists as an independent realm from psychology and elements affecting learning capabilities were identified. Sidney Pressey invented a simple machine in 1925 for the first time to evaluate the performance of students. That was the beginning point of mechanical teaching in the history (Zofen, Loffipour, 2002, p. 7). Burrhus F. Skinner, a well known psychologist, invented a "teaching machine" that could teach subjects in a simple manner and step by step (Skinner, 1954). The third revolution took place in the 1930's (Gange, 1985, pp. 11-14). Eric Ashby was one of the first thinkers who advocated the use of electronic media in education and visual media was accepted as the best substitute for direct experimentation and experience.

With the start of the WWII, the focus of audio/visual researchers was diverted from educational institutions to the United States Army. During the war, most learning/teaching tools such as overhead projectors were built for the first time and made their place along with slides, pilot simulations, and language labs (Fardanesh, 1991, p. 21).

Use of computers in classrooms started in the 1980's and marked the fourth revolution in educational innovations. A rise in teachers' confidence contributed to a wide application of computers. Its integration into the teaching/learning process started in 1990 and computers became an integral part of classroom settings and instructions. This contributed to a wide and daily use of computers by the students

(Zofen, Lotfipour, 2008, p. 10).

Towards the end of the 1990's and the beginning of 2000, introduction of internet in the classrooms, assessing information and a host of data became a reality and contributed to faster and better learning. Online learning and instruction constituted the fifth revolution in the world of education.

Emergence of instructional technologies in many countries started with A/V media (hardware) applications and the age of software found its way with an aid from psychology. Educational programs were designed and analyzed and efforts were made to find application bottlenecks and provide solutions (Fardanesh, 1991, pp.32-33). It has been said that educational technology as a "science" owes its development, in most parts, to the firing of a Russian Sputnik missile. Launching this missile during the Cold War shocked the Western block. The West began trying to eliminate the shortcomings of its own educational systems resulting in a branch of science with the brand name of "educational technology". The developments in hardware, software, and computers have kept pace with each other. The introduction of the internet in late 1990s and early 2000s has given way to amazing advancements in the teaching/learning processes.

Evolution of Technology in Iran

Development of educational technologies in Iran, as well as other developing nations, has been very slow. Educational television started its program in 1964. And then in 1966 along with overhauling the educational system, TV started putting on programs teaching physics, chemistry, algebra, natural sciences, and foreign (English) language grammar. After a few years of zero to no progress, because not too many people had access to TVs, a mandate was issued that learning materials be broadcast from both National Radio and Television stations (Aliabadi, 2001, pp. 25-32). After the Revolutions of 1979, the Ministry of Education joined the efforts and educational video

cassettes entered the schooling system. In 1985, to motivate the teachers "Education of Technology Magazine" started its publication. In late 1980s computers were introduced to schools for the first time and by the end of the 1980s and early 1990s ICDL certification and its skills improving programs became mandatory for the teachers. Pilot schools and models contributed to the enrichment of student/teacher skills spreading computers and their applications to other schools. It should be noted that educational hardware has been advancing much faster than software and human skills development. Skill development has always been lagging behind the introduction of hard core educational technologies due to the lack of teacher guiding plans and motivation. Utilization of techniques contributes to overall quality of teaching as well as learning. Therefore, knowledge of appropriate applications foster goal oriented education.

Implementing Educational (Learning) Technologies

Development of new learning systems requires preparing an intertwined plan to direct and guide the society in its use of learning technologies. The present century is the age of dynamic interchange of data, information, and knowledge (Richardson & Wolf, 2003). Intranet, extranet, and internet and other recent innovations have contributed to this exchange (Afzalnia, 2005, p. 62). However, levels and methods of applications require vigorous study of subject and teaching skills. Learning technologies in any educational system mandate the presence of physical/mechanical tools, skills, and coordination. Stoner (1996) produced a model of integrating technology and content areas based on a work by Lorillard (1993). The model was based on the following elements:

- 1) preparation,
- 2) analysis and evaluation,
- 3) choosing learning technology,
- 4) integration plan and guidelines,
- 5) execution,
- 6) quality control and coordination, and
- 7) execution assessment.

Learning technology has a mediating role in the learning process. Effective learning depends upon efficient planning and proper use of instructional techniques. According to Raber and Valiwer (1989) learning innovation is the regular and systemic outcome of investigation and identifying educational problems and shortcomings. They believe that to utilize the potential skills, educational innovations rather than being considered as an educational complement, must be viewed as an outcome of the search process. Thus, innovations begin with recognition of education problems and obstacles; they must support learning and be applicable in different settings (Raees Dana, 2009, p. 13).

Role of Media in Education/ Learning Technologies

Media is the set of all tools, instruments, and objects that provide a proper environment to foster and facilitate learning to obtain information, technical inclination, and new skills (Shabani, 2005, p. 188). According to scientific and professional viewpoints, educational media is one of the important subjects of the debates on the concepts of educational innovations which establish connections among the subject, learners, educators and learning environment. It plays a mediating and communicating role. With this in mind, teachers must first be able to identify the philosophical and psychological basis for selecting and incorporating certain media.

Philosophical Basis for Using Media

Discussions and theories about learning are in close contact with the philosophy of communication. As such, a branch of philosophy has been devoted to teaching/learning problems. One of these discussions circles around the philosophy and theoretical foundations of proper planning, introduction of appropriate teaching methods, as well as taking advantage of objective media experiences. Different schools offer different outlooks when it comes to teaching. But it must be emphasized that philosophical foundation of educational technologies lies with

pragmatism which has interest in applied teaching/learning that produces appropriate talent, skill, and behavior in the educated (Afzalnia, 2009, p. 26). Charles Sanders, William James, C. S. Peirce, and John Dewey, to name a few, were the forerunners and founders of the School of Pragmatism. They believed that thoughts and ideas are like tools to solve human problems and difficulties. As long as those ideas have their positive impacts they are real ([http://: falsafe-godfather.blogfa.com](http://falsafe-godfather.blogfa.com)).

Psychological Basis for Using Media

There are two psychological aspects of educational media. Discussions about psychology of learning through educational media have been centered between two issues.

- a) Emphasis on senses in the learning process: Senses and perceptions of learners act as communicating channels (Razavi, 2007, p. 32). For effective learning, the media that employs 75-88% of visual along with other senses must be adopted (Ahadian, 1995, pp. 65-66). This belief will entice the teachers to try and adopt different media.
- b) Status of learning media in learning theories: Every learning theory is a set of principles and learning rules that analyze and evaluate the learning process to identify the elements that foster and improve learning. Based on these elements application methods and models for media are constructed.

Some of the leading theories are briefly explained below.

1. Behaviorist Theory:

These theories are based on experimentation and claim that experience is the only source of knowledge and learning is acquired through experience. Thus they emphasize direct use of media. Robert Gange (1977) has the largest impact among those who hold this view.

2. Cognition Theory: Understanding the cognitive potentials that lead to

meaningful behavior and learning are a byproduct of visual and background knowledge. From Goshtalt's viewpoint, media in learning processes are those that students have some prior knowledge of through their teachers, friends, peers, relatives and some objects that have certain characteristics, colors, and shapes encompassing the subject materials and sensible environment of learners (Lotfi & Hosseini, 2009, p.13). Piage states that the learning process is based upon the learner's transactions with the environment and his/her stage of growth. An infant adapts itself to its environment through contacts with others, social and environmental conditions. Therefore, concepts and contents of subjects are important. Piage's theory tells us that educational experiences should be built around the cognitive makeup of the learners. For the learning to take place smoothly and effectively, the educational subjects, to some extent, should look familiar. To build such familiarity teachers should have a vast knowledge of cognitive capabilities of students (Hergenhan, Alison: Translated by Saif, 2006, p. 321). Lev Vygotsky, a pioneer in electronic education and social-cognitive development theories, believed that learning depends on the individual's prior knowledge of symbols and concepts (Mosheri, 2009, p. 15). He states that learning is a complex and reciprocal relationship between science subject, learner, and the problem to be solved. Thus, education is to prepare an environment in which the learners, by activating their prior knowledge, engage in a reciprocal exchange of knowledge that helps and activates cognitive skills (Ertmer & Newby, 1993). As such, principles that should have been established to plan and create such environments were previously overlooked (Oscooe, 2009).

3. Learning by Observation:

This approach to learning has many educational applications, but its use in a classroom requires teacher's assessment of students' attentiveness, retaining, memorization, and motivation.

Television, movies, documentaries, lectures, and audio cassettes can be used in this setting (Saif, 2003, p. 52).

4. Ultra-Cognition: Is the knowledge, control, and guidance of thought. Teachers help to learn methods of acquiring, organizing, retaining, and communicating the information, and, then, require the students to revisit their thoughts and revise them to make the necessary corrections. To accomplish these mental and physical activities, the educators need to incorporate new media into their teachings ([http://: science.dept.talif.sch.ir](http://science.dept.talif.sch.ir)). Of course teachers can also promote ultra-cognitive abilities in plans to use certain media for more talented students. Techniques to maintain connection can be adopted for the lesser talented by using Q/A strategy.

5. Constructivism: the theory emphasizes each and every student in the learning environment and calls on planners to pay more attention to this. Reigeluth (1996) believes that constructivism will help us to decide on software to be integrated into content areas. Anchored instruction emphasizes skills and prior knowledge. It expands complex and inadequately structured problems for the learners to decide where and how to use their prior knowledge.

6. Theory of Dual-Dilemma: It is a branch of cognition theories that is based on analyzing data and relying on memories (Scott, 2003). Data and information are organized through audio/visual channels. Each channel can analyze a certain amount of information in a certain period of time. Role of schema and cognitive skills must be taken into account. This means that visual tools should be used in planning for content areas (Dabbag, 2002). If the information is presented in both visual and auditory forms, it will facilitate and improve learning. In educational movies this is accomplished easily (Razavi, 2007, p. 32). According to Gardner, methods by which both audio and visual channels are combined are different (Gardner, H. 1999, p. 25). Therefore, teachers should employ

different media according to the dominant cognitive skill of each group. For example the students who have strong language aptitudes would enjoy books, audio cassettes, and DVDs; students with strong mathematical skills would enjoy computers; and students with strong space search capabilities would be on a fast track when it comes to solving puzzles and would show positive attitudes towards slides, diagrams, and maps (Aghazadeh, 2006, pp. 38-39).

7. Brain/Learning Process Theory:

The brain provides capabilities through nerve systems. Left and right hemispheres of the brain control and conduct different activities (Wolf, 2008, pp. 153-55). Teachers must do their best to entice students to use both sides by adopting media most appropriate to increase emotional attachment of students in the learning process (Raees Dana, 2009, p. 14).

Social Settings of Media Utilization

Advances in mass communications and modern technology have contributed to dynamic learning in the classrooms (Zofin & Lotfipour, 1991, p. 28). The benefits of such advances have been felt both in society and educational structure. Variety of information sources, cooperative and group learning, and independent studies are now widespread (Yadgharzadeh, 2007, p. 36). Moreover, it must be noted that the availability of various media and technology, per se, can not insure positive results unless attention is paid to training and educating qualified human resources. Preparing the students for the 21st century requires learning technology in all aspects of its meaning (Fall, 2009).

Dimensions of Media Utilization

It is necessary to acquire the following capabilities.

- a)** Skills required to construct and adopt the media by improving teachers' knowledge of educational media and to motivate them to accept the use of it as a 21st century reality.
- b)** Increase the knowledge of educators about the goals and benefits of media use in its different

forms and designs. Seminars, lectures, and workshops for teachers and proper guidelines for education planners are steps in the right direction.

c) Prerequisite skills to designing and application of media. Experts have recommended different models of designing plans for education. One of these models, so called, ASSURE, has been proposed by Russell. In selecting the media, teachers must be aware of the benefits, impacts, and shortcomings (Amir Teimouri, 2008, pp. 238-39). In most cases cost is an issue (Waldse, 2005). In all possibilities, coordination, goals to be achieved, content, teaching methods, learners' characteristics, and reliability of the techniques must be used as a criteria and starting point (Amir Teimouri, 2008, pp. 240-43).

d) Skills to design media for different levels of learners and audience. At different stages of planning counting for the makeup of audience, goals of teaching/learning, assessment, modifying, and taking advantage of previous works are riding principles. Altogether, balance, simplicity, room for discussions, unity and coloring, diagrams, pictures, maps, and simple attachments make media design more attractive and amusing.

e) The stage of media use, probably, is the most important because it not only keeps learners occupied but also displays skills, readiness, and competency of the teacher without losing the audience. Preparation, environment, and incorporating complement activities and make media use more effective and productive (Zofin & Lotfipour, 2004, p.53). The achieving educator will always attempt to keep abreast of new techniques and innovations. Computers have played enormous roles in the mental growth of our children, their education, problem solving talents, and searching for answers (Jilbert, 2005). According to Collis (1998), today, teaching at pilot schools, virtual teaching, and even network based teaching require special skills and qualifications. Electronic and network based instruction has the benefits of diversity and active participation; attention to individual differences; changeability; and availability of

scientific and professional guidance.

f) Ability to overcome obstacles and shortcomings of utilization. When using the media teachers are usually limited with problems such as lack of knowledge and impact of media, inadequate media, limited budget and cooperation of educational authorities, lack of coordination between the education systems and inappropriate rules inherited from the old and traditional system, and improper and inadequate teacher evaluation systems ([http://: festival.rash.ir](http://festival.rash.ir)) (Magazine).

Research

Research on educational media started immediately after innovations and their applications in educational environments. The pivotal concentration was to compare the impact and effectiveness of the new techniques to that of the traditional approach to education and draw inferences. Any new technology and innovation would initiate its own research and study. A study by Godfree (1967) titled "States of Audio/Visual Techniques, 1961-67" was the first systemic attempt to assess the effects of A/V innovations on learning. He collected information and data on 2,927 schools. The resulting report concluded a considerable and positive contribution of technology in elementary schooling. The same report indicated that the results were different for higher levels of schooling due to diversity of content subjects. Traditional tools such as films and audio cassettes were preferred by the teachers. A joint study by Joseph F. Kahalahan and Leonard H. Clark indicated that teachers preferred the traditional methods of teaching because the new methods demanded more efforts and skills (Vasheghani & Frahani, 1992, p. 92). Michael Simonson (1987) and his colleagues constructed a pilot research program to assess the impacts of film, slides, audio cassettes, and a control group to evaluate the view of students about handicapped students. Results indicated that compared to the control group the other groups that were exposed to films, slides, and audio cassettes showed positive signs on their view of the handicapped

(Simonson, 1983, p.36). McMahon and his partners studied the impact of television education in higher schooling. They concluded that incorporation of TVs in the classrooms improved eagerness, reciprocity, and students' independent learning. Hamel and Carol investigated and compared the role of computers and visual tools in improving visual capabilities. They concluded that effects were remarkably positive.

In short, the role of media in education, in general, has been emphasized throughout the world especially in the West. During the last two decades investment and outlays on classroom technologies in the United States alone, have amounted to more than \$5b. Attempts have been made to mandate media use in the classrooms. The effect of such decisions has been to increase the willingness of the teachers and to keep in close touch with the real world (Valdez-et.all, 2000). Learning environments that are rich in media facilities promote social cooperation models, better teaching methodologies, and better initiatives and collaborations (Tiny & Lotfi, 2001). Syrin and Bialo (1995) after reviewing and revisiting the previous works have emphasized the invaluable effects of technology on student performance and self-esteem. Canadian universities have a larger share in promotion and integration of technologies into teaching/learning processes which enable students to expand their information base, world view, and collaboration.

Research Conducted in Iran

Studies about media and its use in Iran are few, sporadic, and disconnected. According to Abdulreza Sohrabi, one of the major problems limiting use of media in Iran is lack of teachers' knowledge of media, and costs and budget considerations. A survey by Mashaallah Vasheghani and Ebrahimi titled "investigating obstacles of media/technology utilization in teaching/learning in the city of Arak, Iran" indicated that the lack of proper environment, tools, software, and inadequate human

resources are the pressing problems and issues (Vasheghani, 1992). In 2001-2002, Khodadad Khodamoradi studied the impacts of educating skilled and unskilled teachers on teaching English in a high school in Ravansar, Kermanshah province, Iran. They concluded that although educational videos are of some interest to students they cannot be a good substitute for skilled and knowledgeable teachers (Khodamoradi, 2002). Mrs. Akram Barati studied multimedia planning and designing process and proposed a model based on constructivism philosophy. She stated that utilizing new technologies in the learning environment helped students to find their own shortcomings. Findings of psychology can be used to identify and overcome these problems to increase self-esteem in learners. In her model, Barati, reiterates the importance of environment, proper technique, role of teacher, learners' creativity, collaboration, and motivation (www.trandoc.ac.ir). With the supervision of Dr. Abbas Heri, Mehdi Mahdavi studied the planning process of multimedia education software and methods of using library (Mahdavi, 1997). He suggested:

- 1) Teaching and expanding information on methods of textbook use;
- 2) Supervision of students in their quest for effective and fruitful research;
- 3) Introduction of new technologies as productive tools in education.

The Present Research

The methodology of this research paper is analytical-descriptive. It concentrates on analyzing and assessing the levels of media use by the elementary school teachers (EST) and obstacles and problems they face (Hafeznia, 2000, p. 69). Descriptive research relies mainly on establishing hypotheses and testing to solicit the relationships between the raw data and variables (John Bast, 2002, p. 43). Therefore, by using the scientific theories and their findings, the main goal of this research is to diagnose, as much as possible, the educational purpose, problems, and solutions. This is a

field research in Iran, to collect data and information from the statistical population of all elementary teachers in Tehran, Iran (Male/Female: 15,429). A random sample of 400 teachers has been selected using cluster sampling method. The levels of education in the sample are Diploma 8.7%, Associates 56%, BS 34%, and Masters 1.2%.

A sealed questionnaire containing five general questions each requiring 25 answers (options) was sent to each teacher in the sample. Only the answers to the first question (25 options) were calculated with the 5 point Likert scale (group of 5 at a time), and frequency of each answered option for the other four questions were assessed. It should be noted that designing the questionnaire was based on accumulated information about different media and its utilization at different stages of teaching process. The results were arranged in a matrix form. Fluency and credibility of the questionnaire was calculated to be 0.84 and 0.91, respectively. The data were analyzed using descriptive methodology. First the frequency distributions and histograms, and tables of statistical indicators were constructed. Non-parametric hypothesis and a single variable Chi-Square (X²) analysis were performed using SPSS and Pc+18 software. The following hypotheses were tested:

H1: The rate of media application by the EST is below the average. The statistical descriptions for each of 7 media groups, included in the questionnaire, were given. The groups are:

- A) writing media;
- B) visual;
- C) auditory media;
- D) new media;
- E) boards (smart and black);
- F) 3 dimensional media; and
- G) locational.

Testing X² with 4 degrees of freedom was meaningful for the writing media group, thus H1 is not accepted. With regard to visual media results indicated that the teacher used posters and films/pictures more

frequently above the average (92.8% and 66.6%) and overhead projector use was 59.3% ($p < 0.05$). Therefore, it can be said that the use of overhead and written materials is almost in line with H1 ($p < 0.05$) and H1 was not accepted for the visual media.

X2 with 4 degrees of freedom was meaningful for all auditory media indicating that teachers, in general, engage in descriptive activities (92.2%) to explain the content area and use audio cassettes (70.2%), therefore, were not in line with H1. But the use of summary boards was about the average (57%) which was almost in line with H1 ($p < 0.05$).

X2 with 4 degrees of freedom for other groups were meaningful ($p < 0.05$) indicating that teachers utilized computers, video projectors/visualizer, and smart boards less than average (31%, 19%, 14.5%) thus accepting H1.

Findings about the magnetic/electrical boards are in line with H1. Use of black boards is not supported by H1. The use of hand made 3D models is supported by H1. For other 3D media H1 was not supported. H1 only supports inviting the professional ($p < 0.05$). Other locational media were not supported by H1. In short, testing H1 indicates that utilization of different media groups by 50% of the teachers was meaningful. However, some media including newer media are infrequently used by the educators.

H2: More than 50% of EST use (incorporate) educational media in teaching/learning process.

If we divide all the stages of media use into 4, the pattern of media applications comes to light. It can be said that more than 50% of the EST in different stages used the media in the following manner: a) at the beginning of the session to motivate the students by using textbooks, posters, maps, CDs, oral orientation, white and black boards; b) to communicate the lesson (subject) textbooks, oral description, white/black boards, and laboratory tools were used; c) to give

assignments and home work black and white boards were used; and d) to summarize the materials covered in the session white/black boards and oral explanations were used ($p < 0.05$). H2 is accepted.

H3: To motivate and increase students' curiosity more than 50% of the ESTs adopt educational media in their teaching.

With 95% confidence level, it could be said that more than 50% of teachers used learning cards (58.7%), posters and maps (69%), oral descriptions (65.7%), white/black boards (68.1%), plays (56.9%), and laboratory tools (66.6%) to raise curiosity and increase student motivation ($p < 0.05$). Therefore H3 is accepted.

H4: To activate A/V senses more than 50% of the EST utilized educational media.

With 95% confidence level it can be concluded that more than 50% of the teachers used posters, maps and summary boards (52.4%), oral description (64.5%), white/black boards (64.5%), and laboratory tools (64.8%) to raise A/V senses of the students. Thus H4 is accepted ($p < 0.05$).

H5: More than 50% of the EST learned about educational media through self-education and taking a course.

With 95% confidence level more than 50% of the teachers increased their knowledge of media through books (58.7%, $p = 0.00$), magazines and other publications (59.6%, $p = 0.00$), field trips and laboratory experimentations (55.4%, $p = 0.048$). Therefore H5 is accepted.

H6: Due to bottlenecks in the educational systems more than 50% of the EST do not incorporate educational media in their teaching.

Reluctance and inadequacy or lack of media utilization, in most parts, is related to time factor and its inadequacy in relation to the volume and quantity of the materials

to be covered in the classroom. Furthermore, inaccessibility of media (usually locked up in the classroom storage), inadequacy of educational media, lack of teacher's confidence, skill, knowledge, negative opinions and disappointing recommendations from other teachers, irresponsibility of the principals in requesting media, and omission of this factor from teacher evaluation forms also contribute to low level of media utilization. However, less than 50% of the EST does not use media due to short supply. With 95% confidence level it can be stated that more than 50% of the teachers do not use overhead projectors (56.6%, $p = 0.042$), video projectors (62%, $p = 0.028$), visualizer and smart boards (55.7%, $p = 0.032$). H6, therefore, is accepted only in those 3 cases.

In general analysis, it should be noted that knowledge and level of media use by the EST were meaningful on their average levels. Unfortunately, teachers were not as successful in learning and using the newer media and technologies. In almost every case, when using the media, teachers were mainly concerned with motivating and increasing A/V capabilities and less concerned with simplifying difficult concepts.

Suggestions

Since any improvement in behavior and acquiring skills requires changes in views, opinions, and attitudes, the following suggestions, recommendations, and remedies are proposed for implementation.

1) Work shops should be arranged to change and improve beliefs and views of the teachers about the effectiveness and usefulness of media applications.

2) Some still believe that educational media are limited to educational tools and instruments and view them as extra to the teaching/learning process. To correct this view, it is necessary to conduct seminars and programs and even replace the term "educational technology" with learning technology to place

the media as an indispensable part and parcel of education. It is recommended for authors to incorporate the media and its applications into textbooks and exercises and make their use a requirement.

3) Authorities should provide standards and criteria to be used in designing and developing software. At the higher education institutions an "educational major" should be developed and designed to teach learning technologies at the colleges and universities making it possible for the skilled and professional technologists to enter the process of instituting the culture of scientific and appropriate media utilization.

4) Research should concentrate on studying the teachers view and opinion of the media and its use. Reports of such research and their assessments about the place, role, and usefulness of learning technologies can be guiding lights in the teaching/learning process, design, and planning.

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Cerebral venous sinus thrombosis in a child with Idiopathic nephrotic syndrome

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Abstract

Cerebral venous sinus thrombosis (CVST) is an uncommon complication of Nephrotic syndrome (NS). CVST occurring in a child with steroid sensitive nephrotic syndrome is described in this article. He presented initially with non specific symptoms of headache, lethargy and intermittent vomiting after 4 weeks of initiating steroid therapy. These were initially attributed to steroid therapy. Initial CT brain and MRI of the brain were normal. He developed intermittent convergent squint. At this time CVST was strongly suspected and MR angiography and MR venography was done which confirmed the CVST. Anticoagulation therapy was initiated with heparin and after three weeks changed to oral warfarin. He made slow but complete neurological and radiological recovery.

Key words: Cerebral Venous Sinus Thrombosis (CVST), Nephrotic Syndrome (NS), Anticoagulation, Magnetic Resonance Angiography (MRA), Magnetic Resonance Venography (MRV).

Introduction

Hypercoagulable state is a well recognized complication of nephrotic syndrome [1, 2]. Clinically significant thromboembolic complication is well known to occur in nephrotics [3,4,5,6,7,8,9,10,11,12,13,14,15,16]. These are more common in adults than in children [9]. Both arterial and venous thrombosis have been seen [8, 9]. Among the venous thrombosis, renal vein thrombosis is the most common type. Cerebral venous sinus thrombosis in children with NS is a well known but rare complication [5, 17]. CVST can present with non specific symptoms [18, 19]. It can also be missed by conventional diagnostic methods. It carries significant sequelae in the form of either neurological deficit or death in nearly half of the cases [3]. Hence early diagnosis and initiation of anticoagulant therapy is of critical importance. This case report describes a child with this rare complication.

Case Report

A four year old boy, a known case of idiopathic nephrotic syndrome, was admitted with history of headache, lethargy and intermittent vomiting of 4 days duration. He was diagnosed to have nephrotic syndrome a month earlier and had been started on oral prednisolone (2mg/kg/day). Proteinuria had improved and he had been discharged on oral steroids after 1 week in the hospital. There was no history of seizures, psychosis or focal neurological deficits. His urine output was good. At the time of admission, physical examination revealed an alert and cooperative child with cushingoid appearance. He was hypertensive (BP 134/90mmHg). His face was puffy, but he had no ascites or pedal oedema. His neurological examination was normal.

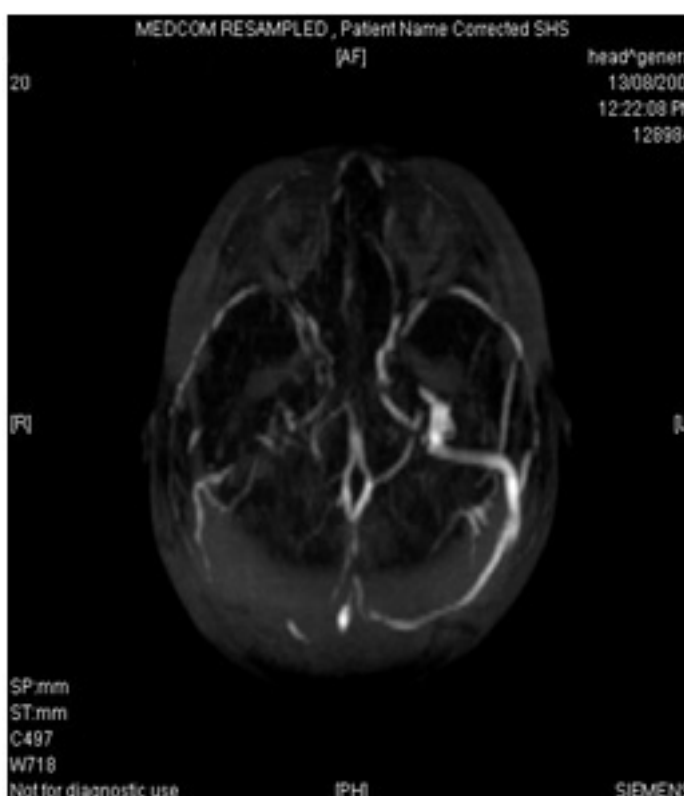


Figure 1

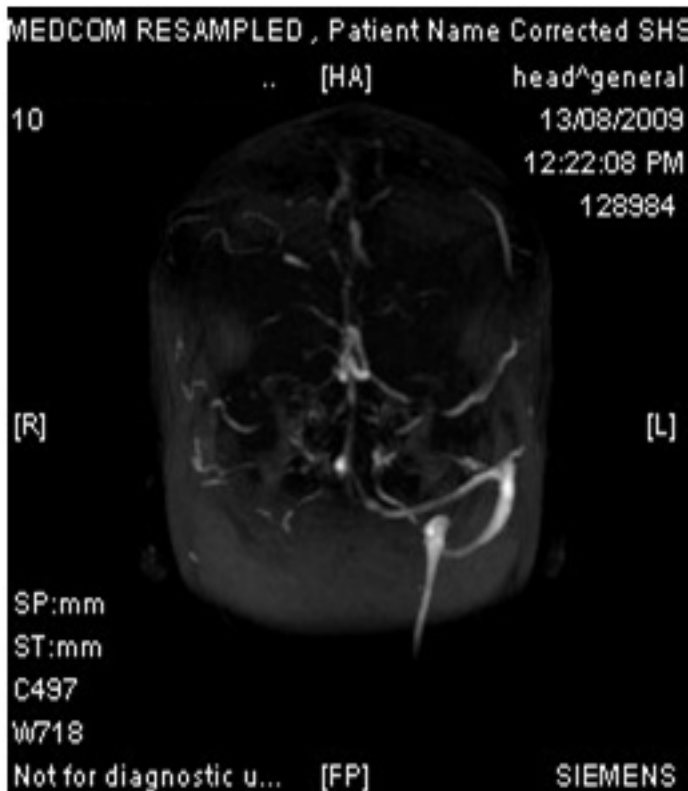


Figure 2

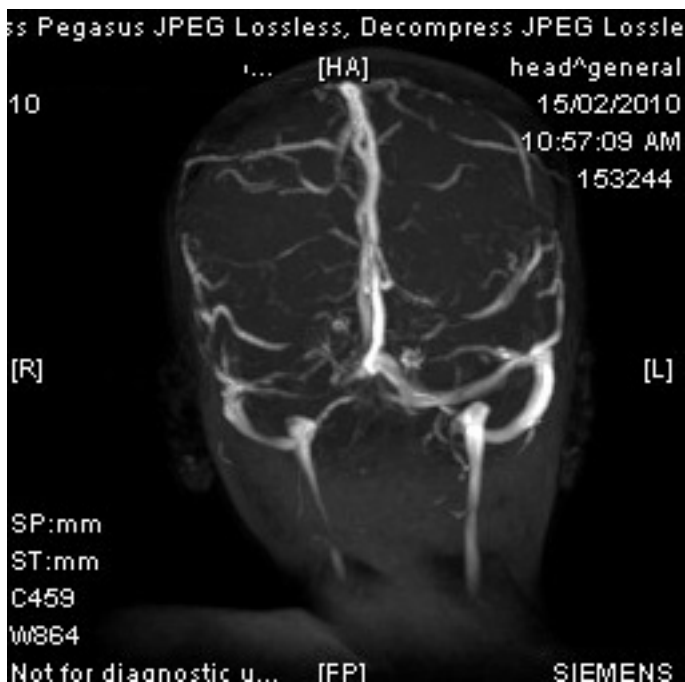


Figure 3

Urine analysis revealed 2+ proteinuria with no casts. Haemoglobin was 14.2 gm/L with hematocrit of 42.9. Leukocyte and platelet count were normal. ESR was 35 in the first hour. Prothrombin time and activated partial thromboplastin time were normal. Serum fibrinogen level was 4 gm/L (2.2-4.6gm/L) and FDP level was 200-400 ng/ml

(normal <200 ng/ml). Total protein was 44.8gm/L and Serum Albumin was 14gm/L. Lipid profile was elevated with a total cholesterol of 5.87 mmol/L, triglycerides of 1.34 mmol/L, LDL of 3.8mmol/L, VLDL of 0.6 mmol/L and HDL of 1.46 mmol/L. Serum osmolality was 290.9 mOsm/kg. Renal function tests were normal. Septic screen was normal.

Steroids were continued and Lisinopril was started. As there was no improvement by the third day, non contrast CT brain was done and was normal. Fundus examination showed no evidence of papilledema. Since his complaints still persisted, MRI of the brain was done on the sixth day and was reported normal. On the seventh day, he developed three intermittent episodes of convergent squint of the left eye. Neurological examination was completely normal at this time.

CVST was strongly suspected and MRA and MRV were done urgently. This revealed thrombosis involving the entire course of the superior sagittal sinus, right transverse sinus, right sigmoid sinus, proximal part of the right internal jugular vein, and a few related cortical veins. Left side sinuses were patent along with the inferior sagittal sinus and the straight sinus. Brain parenchyma was normal. Figures 1 and 2.

He was started on anticoagulant therapy with unfractionated heparin with the aim of keeping the activated partial thromboplastin time between 1.5-2.5 times the controls. He continued to be lethargic and have headache and hypertension. After 1 week of anticoagulant therapy, he complained of diplopia and decreased vision in the left eye. Examination showed left abducent nerve paralysis along with partial upper motor neuron type of paralysis of the left facial nerve. Progression of the CVST was considered, and so repeat MRV was done. However it showed appreciable partial recanalization of the previously thrombosed sinuses and new areas of thrombosis were detected. Abnormal T2 hyper intense and T1 hypo intense signal is noted involving the periventricular occipital region.

Therapy with Heparin and Lisinopril was continued. His headache, lethargy, diplopia and gait improved gradually. Heparin infusion was given for 3 weeks and then tapered. Warfarin was added at this time and was continued. International normalized ratio was kept between 2 and 3. Lisinopril was gradually

weaned off. Facial nerve paralysis recovered by 24 hours. Left abducent nerve paralysis took 3 weeks to recover. Repeat MRV done after 3 weeks showed further recanalization. He was discharged on Warfarin after 5 weeks with no neurological deficits. MRV repeated after 6 months showed normal venous circulation of the brain with no evidence of venous sinus thrombosis or venous malformation. (Figure 3) Warfarin was then stopped.

2 years later, the child has remained in remission and has had no further neurological complaints.

Discussion

Hypercoagulable state leading to thrombosis is one of the serious known complications of NS [9,20,21]. These include both arterial and venous thrombosis [8,9]. Venous thromboembolic complications include renal vein thrombosis, femoral vein thrombosis, pulmonary embolism and cerebral venous sinus thrombosis. [9, 12, 22]

CVST is a well known but rare complication. This complication is well known to occur in both children and adults [7, 8, 9,10,11,17,21,23]. It is less common in children when compared to adults [9]. Despite the lower incidence, thromboembolic complications tended to be more severe in children [9]. This may be linked to the more pronounced hypoalbuminemia that is seen in children [9]. CVST has been reported in children with congenital NS, Idiopathic NS, and secondary types of NS [8,20,22].

Few studies are available which study the incidence of CVST in paediatrics nephrotics. In the Canadian database for the Paediatric Ischemic Stroke Registry, CVST occurring in NS patients was identified in only 4 patients in this study from 1992 to 2004 [17]. The incidence of paediatric CSVT in Switzerland was 0.558 per 100 000 per year [24]. In most of the cases, CVST was reported in NS patients who were either steroid sensitive or steroid dependent [21]. Also, this complication occurred mainly in NS

patients during their first presentation or within the first six months [21]. This is similar to our case as he was steroid responsive and had just completed a month since his diagnosis.

The hypercoagulable state in NS is multifactorial [6]. It is due to a) The deficient state of the anticoagulant factors like antithrombin III, protein C and S, and plasminogen due to increased urinary losses. b) Increased production of procoagulant factors like fibrinogen, fibrinopeptides, alpha 2 antiplasmin, factors III and V. c) Increased platelet production and aggregability. The other contributing factors include circulating immune complexes, anaemia, corticosteroids, diuretic therapy, hyperlipidemia, hypoalbuminemia, intravascular volume depletion, infection, immobilization and elevated hematocrit [6,7,12,18,20,21,23,25,26]. The estimation of antithrombin III, protein C and S levels could not be done in our patient. We presume that the hypercoagulable state was responsible for the thrombosis in our patient. His D-dimer level was slightly elevated. Other authors have reported the association of elevated D-dimer levels with occurrence of CVST [27,28,29].

A high index of suspicion is needed to diagnose CVST in the early phase when only some personality changes may be seen [12,18,20,21,25]. These changes may be subtle like in our patient, with lethargy, decreased activity, increased sleepiness and headache. Hypertension may be seen and fundus examination may show evidence of papilledema. These early manifestations of increased intracranial pressure may progress to focal signs like abducent and facial nerve palsy as was the case in our patient [14]. Since the CT and MRI of the brain were normal, a diagnosis of benign intracranial hypertension was made at this point. The association of CVST with benign intracranial hypertension has also been reported in literature [30]. Without intervention, it will further progress to seizures, paresis and coma [20,21]. Persistence of the

symptoms made us evaluate the patient further and perform MRV which was diagnostic.

CT brain is the initial imaging modality that is usually performed. Thrombi in cerebral veins can be directly visualized by CT. Initial and transient hyper density of the thrombus (cord sign) is followed by hypo density, intensified by peripheral contrast enhancement, producing a filling defect (empty delta sign') [13,31,32]. These are pathognomonic for CVST. In a few studies, CVST has been frequently found in asymptomatic patients in the paediatric age group especially in young infants [33]. Whether this indicates the limited specificity of this sign in this age group, or whether unrecognized partial CVST secondary to dehydration is responsible, is to be studied further [33]. Spontaneous resolution of the thrombus has been seen in some patients with proven CVST [4,26,34]. It will also show any parenchymal lesion suggestive of venous infarct or bleed. CT scan may be normal in 16 -70 % of cases of CVST [17,20,31,35]. Therefore, a normal CT scan does not rule out the diagnosis of CVST [3,19,25,36,37]. Role of CT venography is emerging as an effective modality for the diagnosis of CVST [20,31].

MRI brain is superior to CT scan and will diagnose CVST in about 90 % of the cases [32,35,37,38]. The thrombus as well as haemorrhages can be visualised directly by MRI [11,20,31]. MRV is the diagnostic study of choice for CVST [18,20,31,35]. It will show lack of flow in the thrombosed areas of the venous system. Conventional angiography or digital subtraction angiography (DSA) is indicated when MRV is negative and the clinical suspicion of CVST is very high [31,32].

CVST most commonly involves superior sagittal sinus (72%) followed by lateral sinus (70%) [6,33]. In 30-40% cases, more than one sinus is involved with or without cortical venous thrombosis [25,35]. In our case, the superior sagittal sinus

along with the right sided sinuses where completely thrombosed.

Anticoagulation with heparin followed by oral anticoagulation is the treatment of choice for CVST [13,19,25,36]. Most of the studies have shown good results with this [5,12,14,15,20,21,25,34,36,37]. This should be continued as long as the patient remains in the nephrotic state. Other modalities that have been used include low molecular weight heparin, antithrombin III replacement, streptokinase, urokinase, warfarin, and surgical thromboectomy [4,14]. The preferred modality will depend upon the associated findings in the individual case and also upon the experience of the treating centre [19]. Low molecular weight heparin is being increasingly used as it has many advantages like subcutaneous administration, infrequent monitoring, good safety profile, longer plasma half life [12,15,19,20,29]. We used unfractionated heparin as the initial anticoagulant in our case followed by warfarin after 3 weeks when improvement was seen clinically and radiologically. Warfarin was stopped after 6 months after complete resolution of the CVST. This is in accordance to the guidelines of the American College of Chest Physicians [19].

Neurological outcome after treatment varies [8,17,21,24]. Early diagnosis results in a gratifying outcome [4,5,19,25,37]. Indicators of good cognitive outcome were early diagnosis, early initiation of anti coagulant therapy, older age of the patient, absence of brain parenchymal lesion and involvement of the lateral or sigmoid sinuses [25]. Patients with younger age, extensive thrombosis, seizures or altered sensorium at admission were associated with adverse outcome like epilepsy, neurological deficits, cognitive and behavioural abnormalities which was seen in about half of the patients [17,18,19,20,26,37]. Coma at presentation is usually associated with death [3,20,25]. Early diagnosis and treatment in our case resulted in complete clinical and radiological recovery.

Conclusion

Diagnosis of CVST should be considered in any child with NS who presents with symptoms suggestive of increased intracranial pressure or neurological symptoms and signs. CT and MRI of the brain may be diagnostic and should be the initial modality of choice. However if these are inconclusive, MRV should be done.

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Assessment of Internet Use and its Effects amongst General Practitioners

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Introduction

The Internet has significantly changed information management in developed countries through creating pressures to improve communication systems and develop more user friendly environments for information sharing. Now the Internet is penetrating developing countries, and it is changing information practices in various sectors. The Internet is changing traditional ways of conducting information business by establishing new sources of information and new methods of communication on a global basis. The Internet has an impact on developing countries, including major issues associated with electronic information access and delivery. If you focus on the two most populous countries in the world, China and India, the internet has been widely accepted and used in almost every sector of the industry (T. Kanti Srikantaiah & Dong Xiaoying, 1981). India is the 2nd largest in terms of size of population 1,173,108,018 and 4th in terms of internet users 81,000,000 with population penetration of internet at 6.9 % and expected growth of 1,520.0 % and in terms of world users we account for only 4.1 % (Internet users worldwide statistics report 2011). The Internet represents a technological revolution that is transforming our society. In the healthcare industry, physicians have been typified as slow adopters of information technology. However, young physicians, having been raised in a computer-prevalent society, may be more likely to embrace technology (Parekh et.al, 2004).

Increasingly numbers of individuals around the world are turning to the Internet for health-related knowledge. An increasing number of health-related Web sites are now becoming available providing up-to-date answers to medical questions. In response to this information-

Abstract

Several studies have explored the notion that patients use the internet for health information. In contrast the physician's perspective on the evolving internet environment is lacking. The purpose of this study is to assess and correlate the extent of internet use among general practitioners and examine its effects on clinical practice. The study is explorative in nature and a Cross sectional survey was conducted in the non metro twin cities of Hyderabad and Secunderabad using questionnaires distributed randomly to general practitioners. Multiple choices, dichotomous and contingency questions related to the trends of internet use and its effects on clinical practice were framed. The responses were extracted and analyzed. The main outcome measures are self reported rates of internet use, perceived effects, and the role of medical web sites in clinical practice. Percentages were used to summarize the categorical responses. A total of 100 survey respondents were taken all being medical practitioners. This explorative study revealed that more patients are

becoming internet savvy which is even influencing their information seeking behavior on the medical information that is available. While the general practitioners have access to internet they have no say about the quality of information on the website; the general practitioners usually avoid patients recommending viewing the website and extracting the information.

Key words: Internet, Information Technology, General Practitioners..

seeking activity, physicians have expressed concern regarding access to misinformation and patients' interpretation of available online content. Many doctors believe that only qualified medical professionals may adequately assess and interpret external sources of information. Defensive attitudes may arise from the Internet having a "leveling effect" on access to information and, subsequently, on the patient-physician relationship. People are likely to redefine their desires and intentions over time because they frequently are uncertain. Paradoxically, a patient's interest in knowledge may not always accompany an interest in the medical decision-making process (Ben S Gerber & Arnold R Eiser, 2001).

According to studies of patient-physician relationships, although patients typically express a high degree of interest in learning about their illnesses and treatment, their preference for actual participation in treatment decision-making is highly variable (J P Kassirer, 2000).

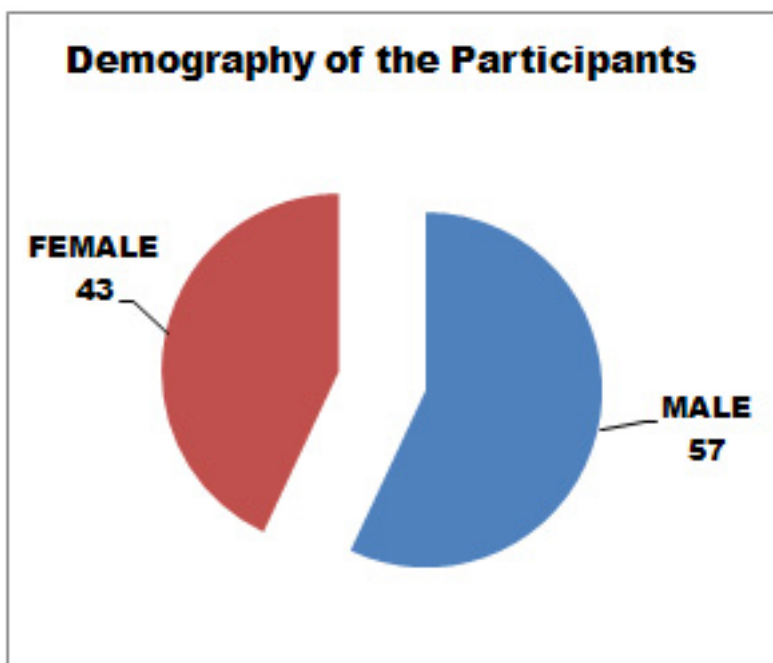
The internet is increasingly being used for healthcare delivery. Health promotion and education interventions have been successfully delivered online (Sharline Martin, et. al, 2002). Healthcare users are more willing to adopt the internet

for its many potential benefits, for example, increased efficiencies, lower cost, easier access to media-rich information and knowledge and faster decision making. Present-day healthcare consumers, for example, demand easy access to multi-media information and in-depth knowledge in order to make informed decisions. Similarly, healthcare providers and managers are interested in reducing costs while preserving and maintaining high quality healthcare (D. Keith McInnes, et.al, 2006).

The Internet will have a profound effect on the practice and business of medicine. Physicians, eager to provide high-quality care and forced by competition to offer online services, will introduce e-mail and patient-friendly Web sites to improve administrative services and manage common medical conditions. Patients will identify more health information online and will take more responsibility for their care. The doctor/patient relationship will be altered: Some aspects of electronic communication will enhance the bond, and others will threaten it. Patients will have access to vast information sources of variable validity. Many physician organizations are preparing for the electronic transformation, but most physicians are unprepared, and many are resistant (Akerkar SM et.al, 2005).

Methods

The present study is explorative in nature. A Cross sectional survey was conducted in the non metro twin cities of Hyderabad and Secunderabad during the month of January 2011 to April 2011 by using questionnaires which were distributed to 100 general practitioners. The sample consists of general practitioners with basic M.B.B.S qualification and having at least 1 year of experience. The entire greater Hyderabad city was divided into east, west, north and south regions and from each region equal sample respondents were selected. The questionnaire consists of multiple choices, dichotomous and contingency questions related to the trends of internet, and its effects on clinical practice were extracted and responses were analyzed. The main outcome measures are self reported rates of internet use, perceived effects, and the role of medical web sites in clinical practice. It is largely descriptive and categorized as a non-experimental qualitative study. The data is analyzed by Matrix Analysis which is in the form of flow charts, diagrams and pictorially representation as well as written descriptions.



Discussion

The Demography of the study is shown left:

Figure 1: Total Number of General Practitioners who were part of the Research Sex Wise

The female general participants were basically concentrating on gynecology and Obstetrics and all the female general Practitioners had been practicing for more than 3 years whereas the male General Practitioners were treating acute and chronic illnesses patients and all the male general Practitioners had been carrying out their practice for more than 1 year.

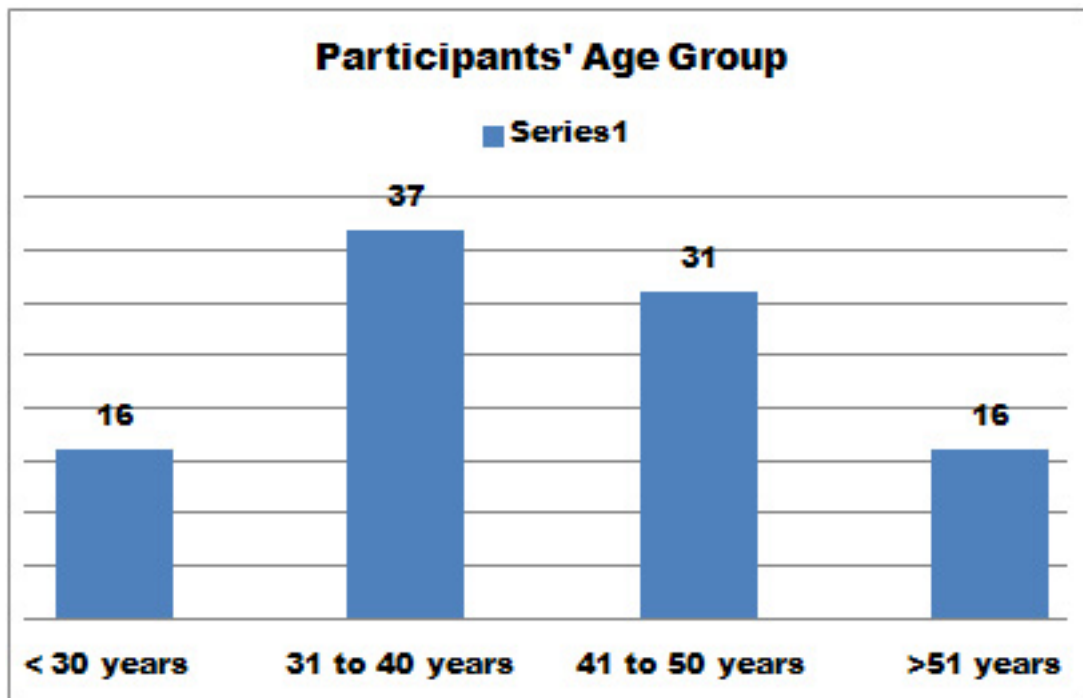


Figure 2: The Age Group of General Practitioners

The age group showed 16 respondents were less than 30 years old, about 37 respondents were in between 31 to 40 years age group, about 31 respondents were in age group of 41 to 50 and about 16 were in the age group above 51. It has been shown that the younger participants are more familiar with internet browsing and its features.

According to Figure 3 a total of 100 General practitioners were surveyed and 95% (95 in number) of them had internet access and 5% didn't have access to internet (5 in number). Those who didn't have access to internet were of age above 70 and felt accessing internet is difficult.

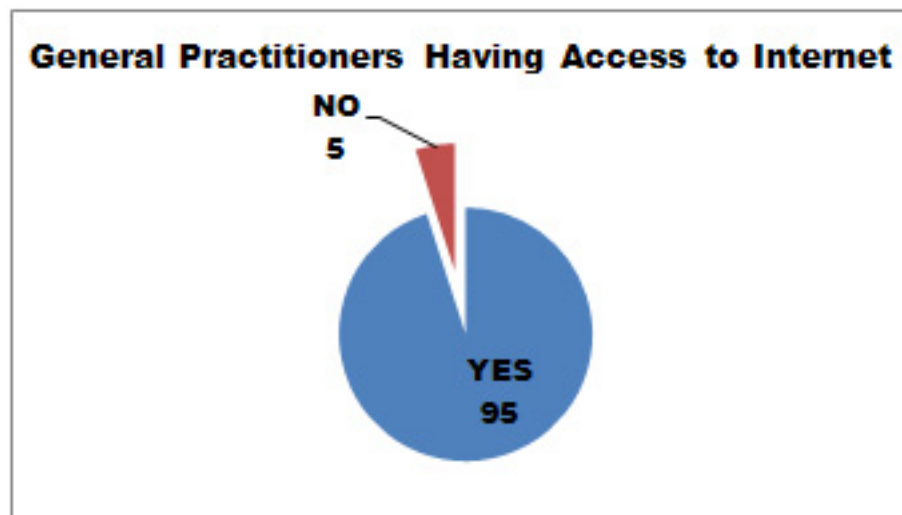


Figure 3: Numbers of General Practitioners with Access to Internet

Figure 4 reveals that out of the 95 General practitioners who confirmed they have access to internet 13% (12 in number) confirmed they had access to internet through Dial up telephone network about 29% (28 in number) confirmed that they have internet access through cable or broad band while 23% (22 in number) confirmed that they have net access through Leased lines. About 3% (2 in number) confirmed they have internet access via integrated service digital network and lastly 33% (31 in number) confirmed they have access to internet via wireless connectivity.

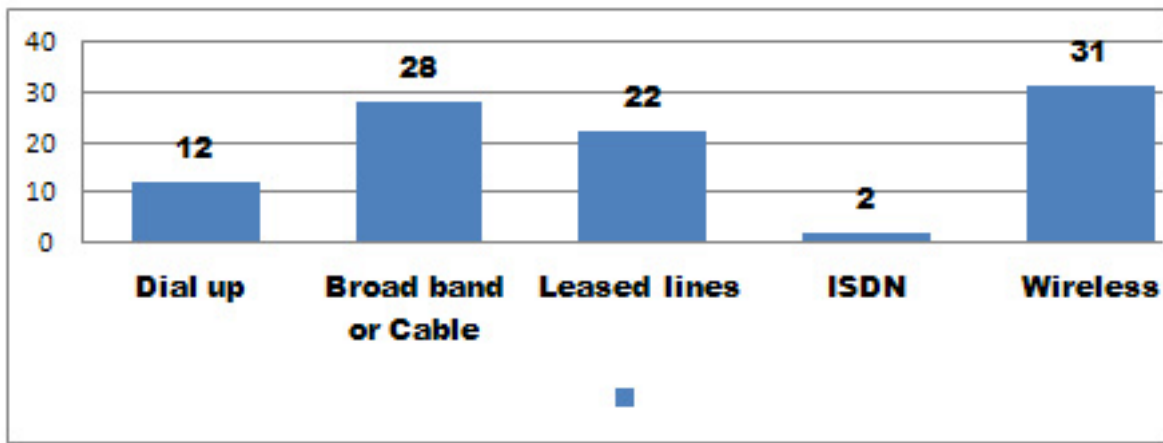


Figure 4: Type of Internet Connectivity the General Practitioners have while Accessing The Internet

Figure 5 illustrates that the general practitioners who were surveyed had revealed the following results: about 23% (22 in number) of them have access to internet just from home and about 22% (21 in number) of them have access to internet at hospital or clinic and about 55% (52 in number) of them have access to the internet both at home and in the work place.

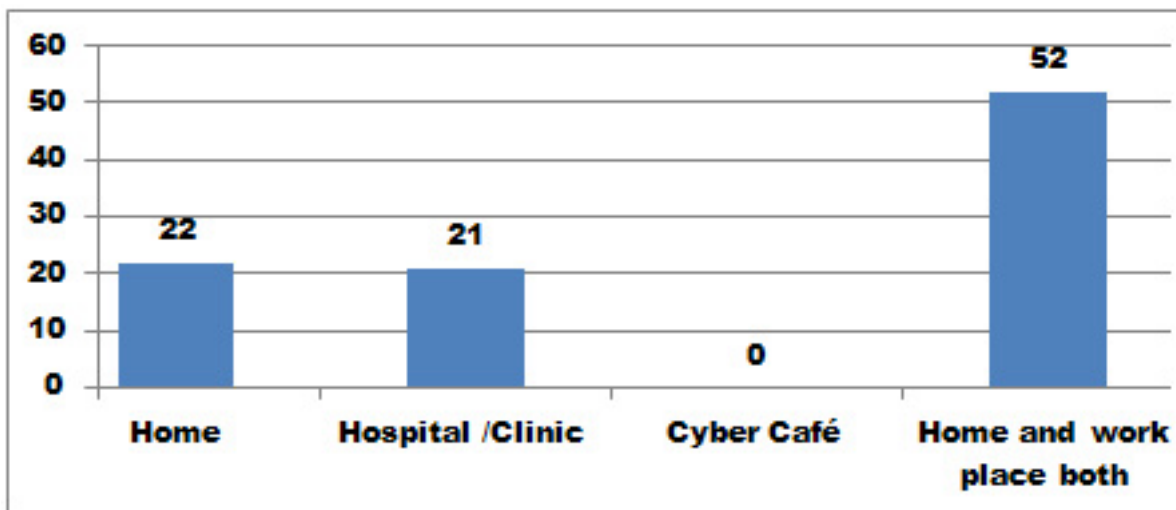


Figure 5: Place where General Practitioners Have Access to the Internet

Figure 6 focuses on do general practitioners use the internet for professional up grading in terms of clinical and new medical knowledge and the response was about 75% (71 in number) of the respondents said they access the internet for upgrading their domain and professional knowledge and about 25% (24 in number) of them do not use the internet for upgrading professional knowledge.

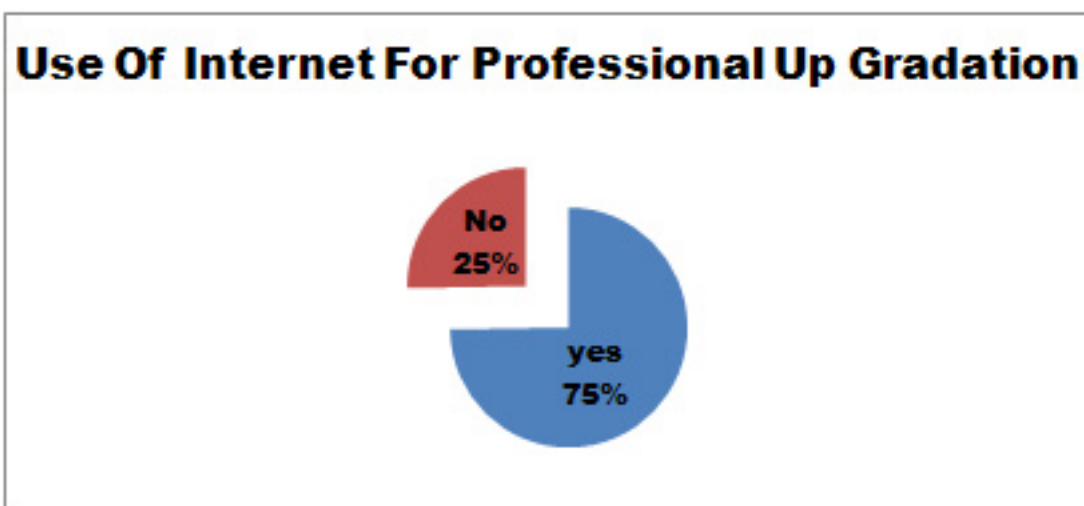


Figure 6: Do General Practitioners use the Internet for Professional up Grading

Figure 7 reveals that the general practitioners were asked questions regarding do they have their own website and the response was only 7% (6 in number) have a website about their practice while 93% (89 in numbers) do not have a website (but out of 89) 95% were willing to have their own website and about 5% did not prefer a web presence. The results were surprising as the general practitioners never focused on their own web page and were willing to have their internet presence.

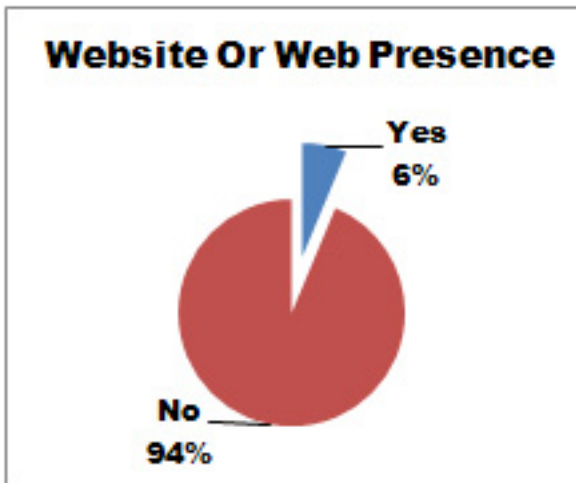


Figure 7: Do General Practitioners have their own Website or Web Presence

Figure 8 focuses on patients bringing web based information in the form of hard copy or soft copy when it is related to a disease or condition. The survey revealed that about 79% (75 in number) says that patients never brought in information from internet and 21% (20 in number) says that patients bring hard or soft copy with them.

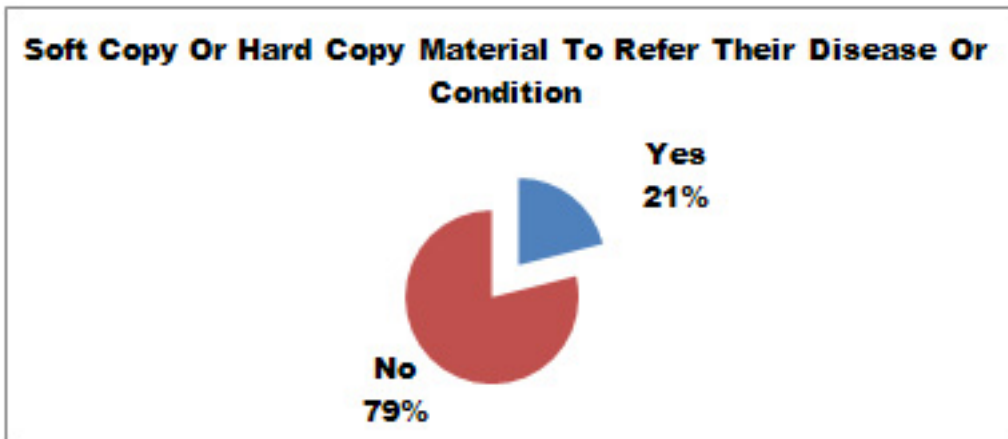


Figure 8: Do Patients Bring Soft Copy or Hard Copy Material in reference to their Disease or Condition

Figure 9 was a behavioral response question on General practitioners who were surveyed. When they were asked do you encourage patients to check and browse websites and bring information. The response was about 53% of them (50 in number) confirmed that they do not encourage the patients as the authenticity of the information on internet cannot be assured, while 47% (45 in number) of them confirmed that for general information seeking of the patient can assist.

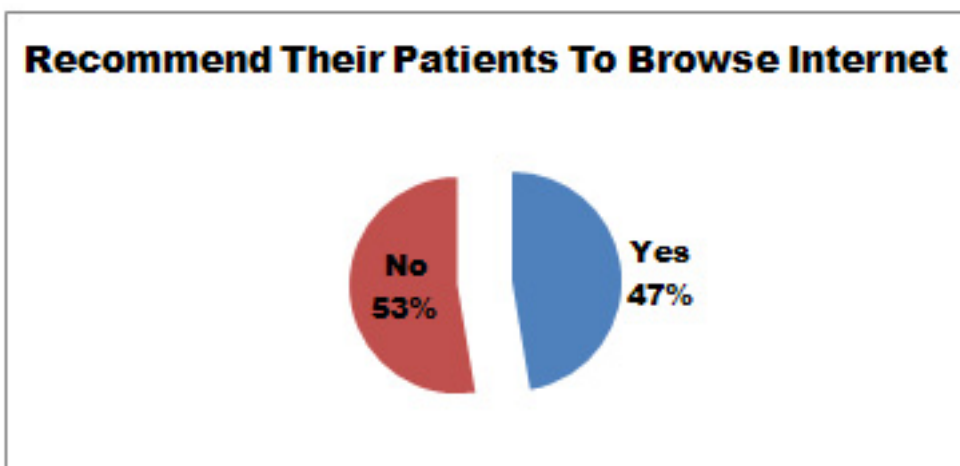


Figure 9: Do General Practitioners recommend their Patients to Browse the Internet to know more about their Disease or Condition

Figure 10 was again a behavioral response question on General practitioners who were surveyed. When the general practitioners were asked about obtaining a second opinion for patients the response was about 53% of them (50 in number) answered no, while 47% (45 in number) answered yes.

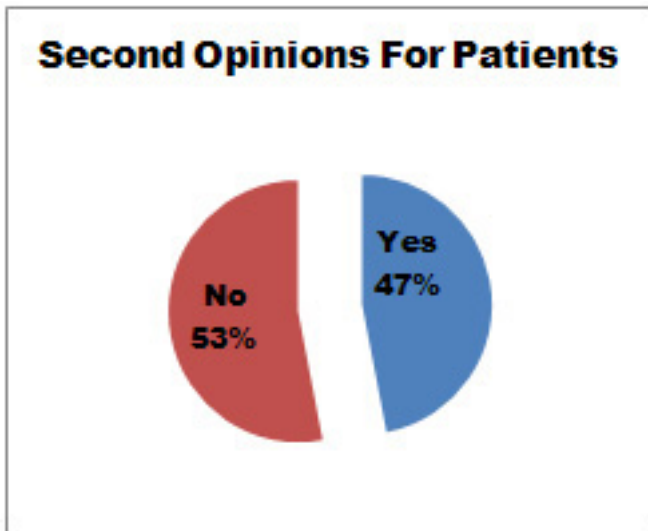


Figure 10: The General Practitioners Favor Second Opinions for Patients, via the Internet, on Specific Conditions, as a Valuable Resource For Patients

Figure 11 was again a behavioral response question on General practitioners who were surveyed. When general practitioners were asked has at any time a patient asked you about a website or a web page through which you can seek information about 73% of them (70 in number) said no and 27% (25 in number) said yes.

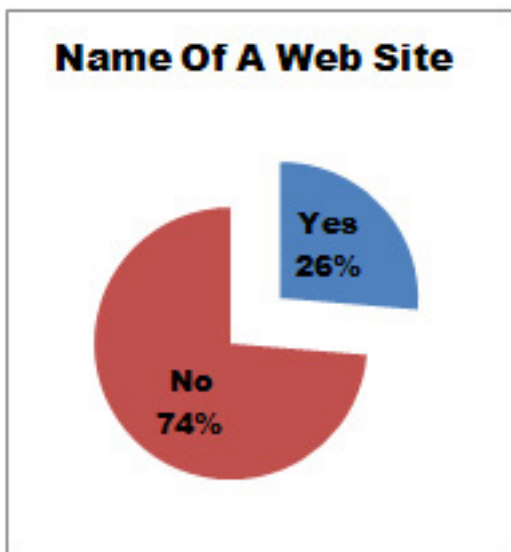


Figure 11: Had a Patient ever asked for the name of a Web Site for More Information on their Condition

Figure 12 was again a behavioral response question of General practitioners who were surveyed. When general practitioners were asked about quality of information on medical websites, about 13% (12 in number) said quality of information on websites is good and about 16% (15 in number) said quality of information on website is not good and about 72% (68 in number) said they can't say. On further investigation it was found that 'can't say' was the answer because the authenticity and the time line of the website may be deceptive

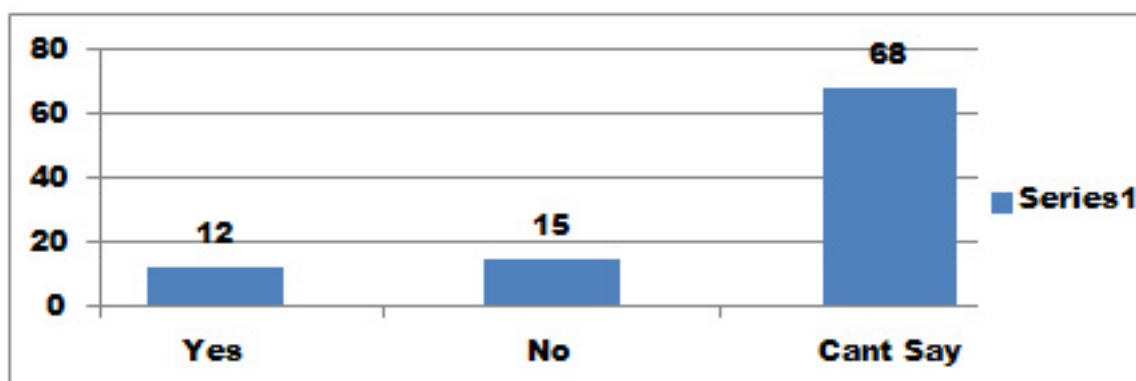


Figure 12: Questions regarding the Quality of Information on Medical Websites

Conclusions

The twin cities of Hyderabad and Secunderabad are expanding in all directions with increase in population. As the population is expanding it brings positive and negative effects. The positive effects being growth and expansion for general practitioners while the negative effects being a new breed of internet savvy population. The interview of general practitioners reveals that the internet is influencing the information seeking behavior of the common man. As the patients are becoming more health conscious, the internet is going to play an important role with both positive and negative effects, as the internet does not promise quality of information. The medical terms and procedures are difficult to understand by a common person and in relation to quality of information that is available, it does not guarantee authenticity. The general practitioners considered internet presence to be important but a lot of them do not have their own web site but are willing to have one.

List of abbreviations

IT - Information Technology
IS - Information Systems
ISDN - Integrated service digital network

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