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2016

November 2016, Volume 18, Issue 2, No. 40

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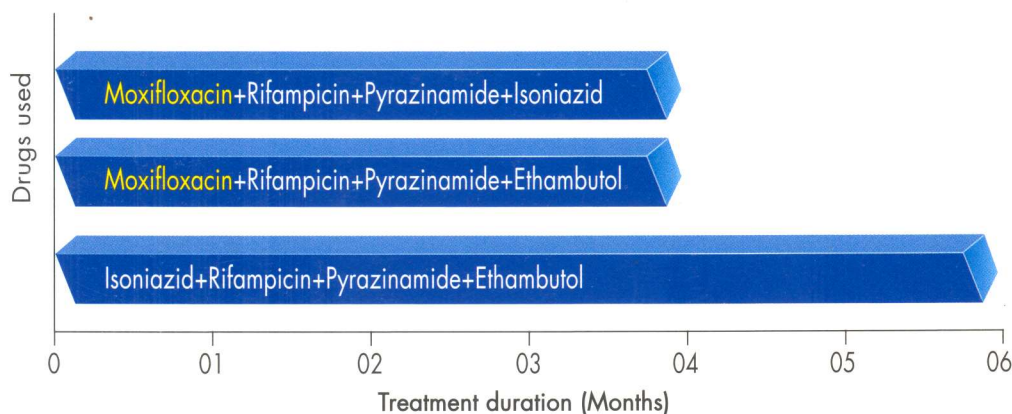


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Editor's Choice

The Orion Medical Journal is celebrating seventeen years of trust and service to the medical community of Bangladesh. The Orion accomplishes the choice of thousand readers nationally and in the international arena. In this issue we published One Editorial Article, Three Original Article, One Review Article, One Observational Article and Two Case Report through peer review. With adequate reference, latest and breakthrough news of the Medical Science are also incorporated.

Editorial article (P-02) of this issue "Genetic Susceptibility to Coronary Artery Disease". This study highlighted powerful markers and offered immediate improvement in the determination of risk for patient with CHD, the original expectations have now come to a halt.

The first original article (P-05) "Diagnostic Performance of Transcranial Ultrasonogram In Infantile Meningitis". In this study 50 patients gone through transcranial sonogram in the Department of radiology of Dhaka Medical College Hospital & Dhaka Shishu Hospital, Dhaka.

Next original article (P-012) "Knowledge On Breast Cancer among female College student in Dhaka city". A total of 182 female students were selected randomly from a female college. Semi structured questionnaire was used as a tool of data collection. This study things to see an inadequate & poor knowledge about breast cancer, its risk factor, sign and symptoms and way of early detection amongst female college students. They require an intensive health education program to improve their status of knowledge & to healthy life.

"Computed Tomographic Evaluation of Renal tumours and their histopathological comparison in adult population"(P-21). This cross sectional type of observational study was carried out at the department of radiology and imaging in Bangabandhu Sheikh Mujib Medical University, Dhaka Medical College Hospital and National Institute of Kidney & Urology (NIKDU).

The first review article (P-28) "Role of Adapalene and Benzoyl peroxide in the treatment of Acne Vulgaris". Next Observational study of this issue "Evaluation of Acute Viral Hepatitis by Ultrasonography" (P-32). Acute viral hepatitis is one of the common condition which get admitted both in Medical & Surgical wards of the hospital. Ultrasonography used as a valuable tool in diagnosing Acute viral hepatitis in spite of prevalence of expensive investigations like serological, nuclear based and molecular assay which reduce the cost of the treatment.

The first case report (P-38) "Successful Pregnancy in a Dwarf". Many type of dwarfism are impossible to prevent because they are genetically caused which may be identified with genetic testing. The second case report (P-42) "Pregnancy with Anti-Phospholipid Syndrome (APS)" - which is rare & it is one of the important factor that causes recurrent pregnancy loss at any trimester of pregnancy.

Every effort has been made to make this issue interesting & helpful to you. At the same time we thank all our readers, contributors and reviewers for their continued supports.

May the Almighty bless you with good health, give you long and happy life and may your all dreams come true.



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Genetic susceptibility to Coronary artery disease

The ORION Medical Journal 2016 November;18-2(40): p2-3

Coronary heart disease (CHD) is the leading cause of mortality worldwide, in both high- and low-income countries, according to the latest data of the World Health Organization. In a report updated in 2011, the death rate from ischemic heart disease worldwide amounted to 12.8%.¹ In the USA, according to a recent report of the American Heart Association, there was a reduction of cardiovascular mortality by 32.7% in the decade 1999-2009. But despite this decrease, deaths from cardiovascular disease in 2009 amounted to 32.3% of all deaths. For coronary disease per se, a coronary event occurs every 34 seconds and a death every minute, while one out of every six deaths is attributed to CHD.²

Coronary artery disease (CAD) is a multifactorial disorder that is thought to result from an interaction between genetic background and environmental factors such as diet, smoking, and physical activity. It is usually associated with conventional risk factors, including hypertension, diabetes mellitus, and hypercholesterolemia. However, in some individuals, CAD is not associated with such risk factors, suggesting that other genetic factors contribute to a predisposition to coronary atherosclerosis and its thrombotic complications. In general, individuals with hypertension, diabetes mellitus, and hypercholesterolemia and those with none of these factors are considered at high and low risk, respectively, for development of CAD. It is thus important to identify genes that confer susceptibility to CAD in these high- and low-risk individuals independently. Genetic epidemiologic studies have suggested that certain genetic variants, including polymorphisms in the genes encoding platelet glycoprotein IIIa³, methylenetetrahydrofolate reductase and plasminogen-activator inhibitor-1, are associated with an increased prevalence of CAD in high- or low-risk subjects. However, the genes that contribute to genetic susceptibility to CAD in individuals with three major conventional risk factors- hypertension, diabetes mellitus and hypercholesterolemia- or in those with none of these factors remain to be identified. In addition, because of ethnic divergence of gene polymorphisms, it is important to examine polymorphisms related to CAD in low- or high-risk individuals of each ethnic group^{4,5}.

Family history is the most direct evidence for the estimation of genetic susceptibility to CHD. The Framingham study reported that a family history of CHD or stroke is associated with CHD independently of other cardiovascular risk factors, showing a 2.4-fold increase in risk for men and a 2.2-fold increase in risk for women.³ Other studies reported that CHD in first-degree relatives raised the risk by 2-3 times more.^{4,5} A study in Danish twins revealed a higher incidence of CHD and deaths among monozygotic (44%) rather than dizygotic (14%) twins.⁶ Another study in twins highlighted the strong genetic basis of CHD and its main complication, myocardial infarction, in addition to other modifiable risk factors.⁷ Also, in a study of 20,966 Swedish twins over 36 years, the heritability of fatal incidents was estimated; the risk amounted to 0.57 for men and 0.38 for women.⁸ In the INTERHEART study, a family history of CHD raised the risk to 1.55 after adjustment for age, sex, smoking, and geographic region, while after correction for nine known factors it was slightly reduced to 1.45.⁹ Finally, the PROCAM study also found family history of myocardial infarction to be an independent risk factor. After adjustment for age, systolic blood pressure, cholesterol, smoking, triglycerides, and lipoprotein(a), the risk was 1.67.¹⁰

GWAS studies had considerable interest in identifying new genetic loci for CHD and myocardial infarction, whereas the responsible genes provided new insights into the genetic architecture of these diseases. Although these studies highlighted powerful markers and offered immediate improvement in the determination of risk for patients with CHD, the original expectations have now come to a halt. Regarding the findings so far, there are limitations based on the small percentage of disease risk, the unknown mechanisms of most variables, the possible interactions among them, and the discovery of new ones. These clearly give the impression that there are many missing parts to complete the puzzle of heredity. After more than 5 years of high-profile cellular and molecular experiments, the mechanism through which the 9p21.3 locus increases the risk of CHD remains undetermined.^{11,12} Further clarification and crucial information is expected as a result of next-generation DNA sequencing techniques. In this kind of genome sequencing, platforms from either the whole genome or selected regions of it are cut into small fragments, thus providing the potential for several different readings. This new strategy calls for the development of new bioinformatics tools to enable analyses of the large amount of resulting data. Nowadays various bioinformatics programs for different sequencing platforms are available. Generally the assessment of

genetics in CHD is still a tough, yet highly promising conundrum. Constantly increasing value through research and development will ultimately allow routine genetic screening, aiming at an attempt to reduce CHD risk using pharmaceutical or other approaches.

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Diagnostic Performance of Transcranial Ultrasonogram In Infantile Meningitis

The ORION Medical Journal 2016 November;18-2(40): p5-11

Abstract

This cross sectional study was carried out at the Department of Radiology and Imaging, Dhaka Medical College Hospital and Dhaka Shishu Hospital, Dhaka during the period of January, 2013 to December, 2013 to evaluate the diagnostic performance of transcranial ultrasonogram in infantile meningitis & its validity by determining sensitivity, specificity, positive predictive value, negative predictive value and accuracy. For this purpose, a total number of 50 patients with clinical feature suggestive of meningitis within the age 1 day to 12 months, were evaluated by transcranial ultrasonogram. The ultrasonogram was done by the investigator and reviewed by an expert radiologist and CSF examination report was then collected for co-relation.

Of the 50 patients, 31 were finally diagnosed as meningitis by CSF findings. Out of 50 patients 38% were in the age group from 1 day to 1 month & 56% were in the age group of 1 month to 6 months. Ultrasonographically 26 of the 31 patients correctly diagnosed as meningitis. echogenic sulci was the most commonly found abnormality which was 68%. Second most abnormality most commonly found in this study was ventriculomegaly which was 61%. Third most common abnormality found in this study was subdural effusion (35.48%). The validity of ultrasonogram was studied by calculating sensitivity, specificity, PPV and NPV which were 83.87%, 78.94%, 86.66% & 75% respectively. In this study it is revealed sensitivity, specificity, PPV, NPV were well co-related with CSF examination.

Thus, the study findings indicated that transcranial ultrasonography is one of the safe and effective modality for the diagnosis of infantile meningitis.

Key words

Meningitis

Introduction

Meningitis refers to an inflammatory process of the leptomeninges and CSF within the subarachnoid space. It is usually caused by an infection but chemical meningitis may also occur in response to an irritant introduced in the subarachnoid space.^{1,2} Infections of the brain, especially meningitis are one of the important cause of morbidity and mortality in infants. A noticeable amount of survivors are left with marked neurological sequelae despite adequate treatment. Early detection of intracranial pathologies and sequelae associated with acute bacterial meningitis are of utmost importance for timely intervention. Among the imaging modalities ultrasound has got its importance due to portability, lower cost, speed, no need for sedation, real time, multiplanar and most importantly lack of ionizing radiation. It is promising because the presence of open fontanel, a bone free window makes it possible to image the brain and CSF pathways accurately and also depict the normal brain structure in considerable detail.^{3,4} With the introduction of high resolution real time ultrasonography in 1980s, sonography become the primary imaging study in the evaluation of neonatal brain. High resolution real time sonography has proved extremely valuable method in identifying normal and pathological intracranial anatomy. It is now an ideal method for followup the complications of meningitis.^{5,6}

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Cranial sonography plays an important role in the initial evaluation of infants with suspected bacterial meningitis and in monitoring for complications of the disease. Echogenic widening of the brain sulci, meningeal thickening and hyperemia suggest the diagnosis in an at risk population. Sonography can identify the presence of extra-axial fluid collections. Intraventricular debris and stranding, and an irregular and echogenic ependyma are highly suggestive findings associated with ventriculitis.^{7,8} Despite potent new antibiotics and advances in case of the critically ill patient, neurological sequelae can develop in some children after an episodic of bacterial meningitis. A meta analysis of 1602 prospectively enrolled children from 19 studies reported at least one major adverse outcome (severe intellectual disability, spasticity, paresis, seizure, deafness) in 16.4% of survivors. Early study of late sequelae of meningitis reported that less than half of the survivors were normal in all respect. Nearly 30% had major disability, including hearing and visual loss, language disorder, intellectual impairment, motor abnormality and seizures.^{9,10}

Among Very Low Birth Weight Baby (VLBW) infants, meningitis is associated with acute complications, increased risk of death and late neurodevelopmental sequelae among survivors. One third of the VLBW infants with meningitis had meningitis in the absence of sepsis. Because CSF culture were performed only half as often as blood count this discordance in blood and CSF culture suggest that meningitis may be undiagnosed in VLBW infants.¹¹ Perivascular leucomalacia (PVL) is an ischaemic lesion of the neonatal cerebrum which occurs predominantly in the premature infant and is characterized by necrosis of periventricular white matter in areas adjacent to the external angles of the lateral ventricles. Real time ultrasonogram is a safe and reliable means of defining the topography of the two hemorrhagic lesions and thereby, of suggesting the correct diagnosis.¹²

This study was aimed to find out the sonographic findings in neonatal meningitis and its complication and its validity by determining sensitivity, specificity, positive predictive value, negative predictive value and accuracy. Even when signs and symptoms are vague or nonspecific ultrasound may allow for accurate definition. This will help to assess the possibility of development of further complications such as hydrocephalus, encephalomalacia and abscess.

Materials and Methods

This cross sectional study was carried out at Department of Radiology & Imaging of Dhaka Medical College Hospital and Dhaka Shisu Hospital, Dhaka. The study period was from January 2013 to December 2013. Patients aged below 1 year with clinically suspicion of meningitis referred to department of Radiology & Imaging for transcranial ultrasonography, were the study population.

About 50 patients were included in the study (33 male and 17 female). Patients those who had non availability of CSF report, non co-operation of guardians, if the baby is more than 12 months old and infants with co-existing neurological abnormality or anatomical cranial malformation. Consecutive type of sampling method was followed in this study. Prior to commencement of the study, the research protocol was approved. The aim and objective of the study along with its procedure, alternative diagnostic method, risk and benefits of this study was explained to the guardians with easy and understandable language and then informed consent was taken from their guardians. It was assured that all information and records would kept confidential and the procedure would be helpful for both clinicians and patients in disease management. Transcranial ultrasonography was done by the investigator and was reviewed by an expert radiologist of the department of Radiology & Imaging. CSF study was carried out by a pathologist at the respective department of Dhaka Medical College Hospital and Dhaka Shisu Hospital, Dhaka. Transcranial sonographic and CSF diagnosis were then compared.

All relevant collected data were compiled on a master chart first and then was organized by using scientific calculator and standard statistical formulae. Percentage was calculated to find out the proportion of the findings. The results were presented in tables, figures and diagrams. The validity of the study outcome regarding the role of transcranial ultrasonogram to evaluate meningitis was confirmed by calculating sensitivity, specificity, accuracy, positive predictive value and negative predictive values.

Scanning technique

Most patients were studied through the anterior fontanelle with scans in the coronal and sagittal planes using sector real time scanner with 5 and 7.5 MHz transducers and a 90 degree field of vision. The posterior fossa was also examined through the posterior fontanelle. The posterior fontanelle is smaller than the anterior fontanelle and usually closed by 6 months.

Ultrasound study may also be carried out successfully through open coronal suture, the thin parietal bone and the thin temporal squama, when attempting to detect the extra axial collections over the contralateral convexity. The 5 and 7.5 MHz short focus transducer are used when attempting to evaluate the superficial structure such as the near field brain convolutions, interhemispheric fissure and extra axial fluid space immediately beneath the transducer face.

The echoes of an ultrasound image are produced when the sound beam passes through tissues of different acoustic densities, that is, tissues of different acoustic impedance. Since normal fluid filled structures are completely homogeneous, they appear anechoic on ultrasound studies. Low and medium level echoes are normally produced within solid tissue, such as the brain, due to internal interfaces between component tissues. Subtle changes in normal, low level echoes will occur when localized or diffuse abnormalities develop such as edema or infiltration with edema cells.

A strong ultrasound signal is produced at the interface of soft tissue and fluid since these substances have significantly different acoustic densities. The prominent sonographic interfaces between (a) the normal choroids plexus and the cerebral spinal fluid within the lateral ventricle, (b) intact brain tissue and areas of brain necrosis, and (c) CSF and solid intraventricular debris surrounded by CSF are produced in this way.

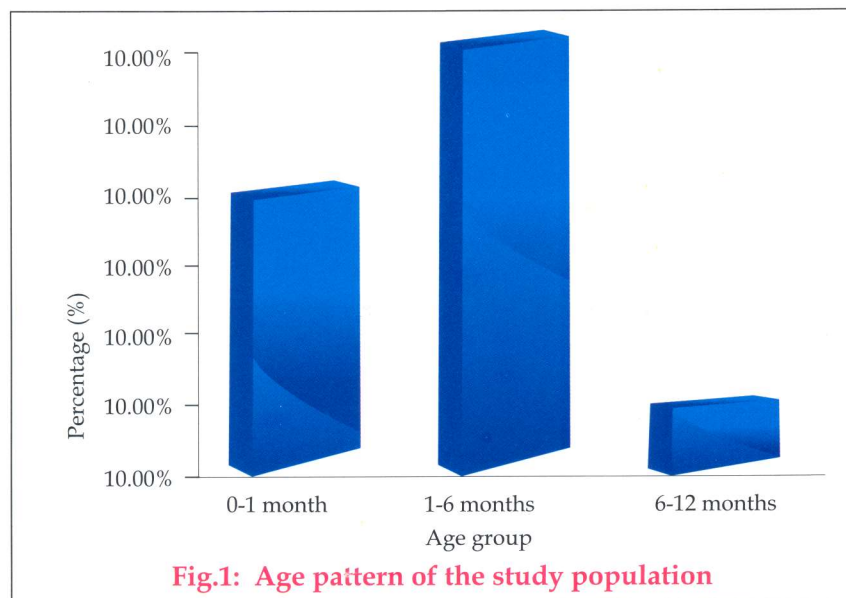
Intracranial inflammatory processes will thus be more or less difficult to detect depending on the magnitude of the difference in echogenicity of the structures involved. Mild differences in echogenicity are often difficult to appreciate, so their detection is subject to operator expertise. Pathologic processes that produce strong interfaces will be easier to detect, such as (a) abnormal fluid collections in areas normally occupied by solid structures (eg. abscess formation) and (b) solid tissue in a location normally occupied by fluids (eg. interventricular septation).

Results

A total of 50 patients with clinical diagnosis of meningitis were studied from January, 2013 to December, 2013. Ultrasonography suggested 30 cases as meningitis and rest 20 cases normal findings. All the 50 patients were gone through lumbar puncture (LP) method and cerebro spinal fluid (CSF) was investigated for cytology, microbiological test and biochemical tests. CSF report confirmed 31 cases as bacterial meningitis and rest 19 as normal. Among the 30 sonographically diagnosed meningitis patient, 4 patients showed normal CSF findings. Among the 20 sonographically normal patients 5 were diagnosed bacterial meningitis by CSF study. Rest 15 patients were diagnosed normal findings.

Age distribution of study population

50 patients were included in this study. Out of 50 patients 31 patients were diagnosed meningitis by CSF study. Their age range from new born to 12 months. The highest number of patients was 1 month to 6 months age group.



Ultrasonographic findings of meningitis

Ultrasonographically 26 of the 31 patients correctly diagnosed as meningitis. In this study, echogenic sulci was the most commonly found abnormality which was 68%. Second most abnormality most commonly found in this study was ventriculomegaly which was 61%. Third most common abnormality found in this study was subdural effusion (35.48%).

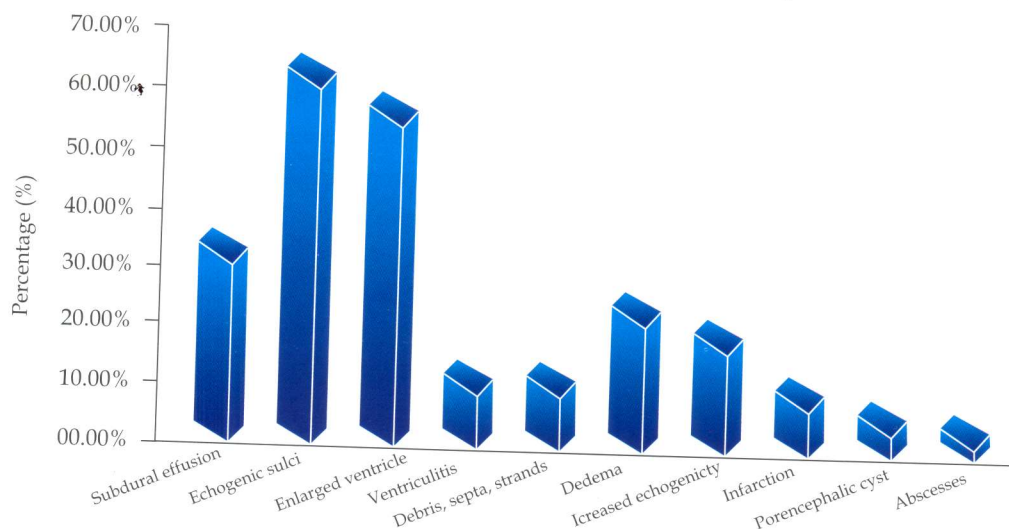


Fig. 2: Sonographic findings of meningitis.

Comparison between sonographic diagnosis with final diagnosis

The sonographic diagnosis of total 50 patients were correlated with the final diagnosis. Sonographically diagnosed 30 cases as meningitis and 20 cases other than meningitis. 26 of the meningitis patients were proven correct by CSF examination. 4 cases suspected of meningitis by ultrasonogram was proved wrong by CSF study. 5 cases of meningitis escaped diagnosis by ultrasonogram. Those 15 patients diagnosed other than meningitis by USG proved right by CSF examination.

Table- I: Sonographic diagnosis correlated with final diagnosis

Final diagnosis by CSF examination			
Sonographic diagnosis	Meningitis (Disease positive)	Other than meningitis (Disease negative)	Total
Meningitis (Test positive)	26 (True positive)	4 (False positive)	30
Other than meningitis (Test negative)	5 (False negative)	15 (True negative)	20
Total	31	19	50

Validity of the ultrasonogram to evaluate meningitis:

The validity ultrasonography were confirmed by calculating sensitivity, specificity, accuracy, positive and negative predictive values by using the standard formula. The results were shown in Table II.

Table - II: Validity of the ultrasonogram to evaluate meningitis.

Validity test	Percentage
Sensitivity	83.87%
Specificity	78.94%
Accuracy	82%
Positive predictive value	86.66%
Negative predictive value	75%

Discussion

In this study sampling was non-randomized, cases were diagnosed clinically as meningitis by expert pediatricians in Dhaka Medical College Hospital and Dhaka Shishu Hospital, Dhaka. Transcranial ultrasonogram was performed and CSF reports were collected. Transcranial sonographic and CSF diagnosis were then compared. In this study 50 patients gone through transcranial sonogram in the department of radiology of Dhaka Medical College Hospital and Dhaka Shishu Hospital, Dhaka. The age of the patients included in this study was 0-1 year age group. The incidence was found to be higher in 1 to 6 months (56%) followed by 0 to 1 month (38%). In this study, 50 cases were taken and among these 30 cases had abnormal (40%) and 20 cases had normal (40%) sonographic findings. Similar findings were also found by Han BK et al which are abnormal (62%) and normal (38%) sonographic findings.¹³ Connolly et al also reported abnormal (67%) and normal (33%) sonographic findings.¹⁴

In this study, echogenic sulci was the most commonly found abnormality which was 68%. Han et al, connolly et al and Bada et al found similar finding 40%, 62% and 63% respectively.¹³⁻¹⁵

Second most abnormality most commonly found in this study was ventriculomegaly which was 61% Bada et al, Allan et al and Hill et al found similar finding 59%, 47% and 62% respectively.¹⁵⁻¹⁷ Fisher et al performed transcranial ultrasonogram on 82 patients & found abnormal findings in 68% cases, ventricular dilatation was commonest abnormality & present in 57% cases.¹⁸ Edward et al. in his study found ventriculomegaly in 60%.¹⁹

Third most common abnormality found in this study was subdural effusion (35.48%). Han BK et al reported similar finding in 33.3% where as Talwar et al and Barkkovich et al, it was 7.5% and 1.7% respectively which are comparatively lower.^{13,20,21}

Reeder & Sander in a cross sectional study on 6 infants found increased parenchymal echogenicity in 90% cases. Increased periventricular echogenicity was found in 33% cases.²² Edward et al. in his study found increased cortical echogenicity in 33%.¹⁹ A prospective study was performed by Rosenberg et al.²³ He found diffuse parenchymal echogenicity in 22%. The incidence of parenchymal echogenicity in this study was 25.8%.

The percentage of identification and diagnosis of abscess by ultrasonogram has been very low in different reported series. Barkkovich et al states that abscess is uncommon in neonate and infantile meningitis and is usually caused by Staphylococcus and virulent gram negative organism. The incidence of abscess formation in this study was 3%.²¹

In my study the sensitivity, specificity, accuracy, PPV & NPV were 83.87%, 78.94%, 82%, 86.66% & 75% respectively. Han et al. in his study found that abnormal parenchymal echogenicity & ventriculomegaly were associated with significant neurologic sequelae; however echogenic sulci & extra-axial fluid collection did not appear to have any prognostic significance.¹³

In uncomplicated cases of meningitis, sonography was normal in about one third of cases by Talwar.²⁰ In this study, patients suffering from meningitis were complicated ones & so sonographic findings were more common.

Rosenberg *al.* recommended screening sonography at time of diagnosis of bacterial meningitis.²³ Han *et al.* found sonogram and CT scan produced fairly comparable images of infantile meningitis.¹³ The sonogram can be obtained rapidly at the bedside without removing the critically ill infants from intensive care unit. There is also no risk of ionizing radiation and cost of the examination is less than CT scan.

Therefore, transcranial ultrasonogram is strongly suggested in all patients in whom persistent fever, recurrent seizure, or focal or neurological signs indicating infantile meningitis.

Conclusion

In this study, the results of transcranial ultrasonography are nearly similar and the validity test are almost identical as observed by other investigators. Therefore, infantile transcranial ultrasonography has emerged as a very effective diagnostic tool for rapid, safe and fairly accurate evaluation of intracranial pathologies in relation to infantile meningitis and its sequale. Such a kind of evaluation helps in planning and timely intervention of the infants ensuring their future good health.

Recommendation

Further study with larger study population involving several investigators at multiple centers may give more precise results which may be the logical recommendation of this study. As the technology continues to improve with gradual increase of our experience and skill in this method transcranial ultrasonography is likely to have a greater role in the evaluation of infantile meningitis and it seems to be the most probable future direction of this study.

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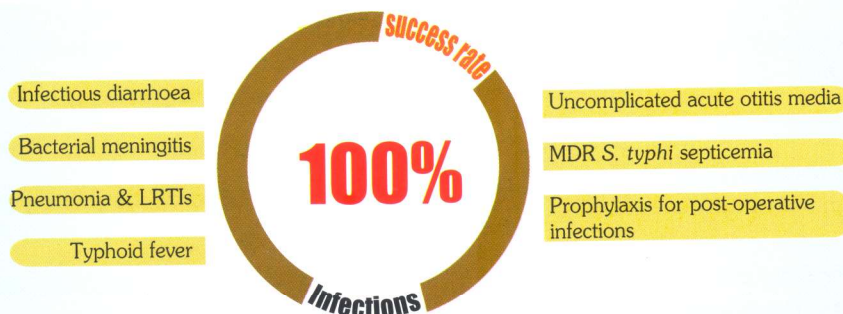
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Knowledge on Breast Cancer among female college students in Dhaka city

The ORION Medical Journal 2016 November;18-2(40): p12-19

Abstract

Background

Breast cancer is one of the major health problems among women in the world. In Bangladesh, breast cancer also poses a serious health problem and leads to death as in case of other developing countries.

Objective

To assess knowledge about breast cancer among the female college students in Dhaka city with a view to prevent the incidence of breast cancer.

Methods

This was a cross sectional descriptive type of the study. A total of 182 female students were selected randomly from a female college. Semi-structured questionnaire was used as a tool of data collection. The validity of questionnaire was ensured by piloting five percent of data in similar setting in other colleges before final data collection.

Results

The mean age of the respondents was 16.99 ± 0.69 years. Moreover, 95.7% of respondent did not know about contraceptives as causative agents, 4 (2.2%) knew oral pill responsible for breast cancer, 3 (1.6%) condom and 1 (.5%) told IUT (intra uterine tube) responsible for breast cancer. Among the respondents, 42 (23.1%) had knew that breast cancer is curable in primary stage, 128 (70.3%) didn't know whether breast cancer is curable or not, 2 (1.1%) told that last stage breast cancer was not curable and the rest 10 (5.5%) told that it was not curable but controllable. It was found that knowledge about breast cancer on risk factors was 6.6%, sign and symptoms 3.85% and way of early detection 15.4% among the students. The mean knowledge score of breast cancer among the respondents was 1.79 ± 1.31 . Of the respondents 164 (90.2%) had poor knowledge, 17 (9.3%) had fair knowledge and only 1 (.5%) had good knowledge.

Conclusion

It was concluded that knowledge on breast cancer was very poor of the female college students although the availability of mass media and health institutes is continuously influences them to have better knowledge towards breast cancer; hence enable them to informed decision about pro-creation later life.

Key Words

Breast Cancer, risk factors of breast cancer, knowledge of college student on breast cancer.

Introduction

Breast cancer forms a serious health issue, which creates a significant health burden in every country.¹ Recent global cancer statistics indicate rising incidence of breast cancer among women.² In Bangladesh, breast cancer also poses a serious health problem and leads to death as in case of other developing countries.³ Limited data on definite figures of breast cancer are

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available in Bangladesh; however it is estimated that around 1.2 million Bangladeshi women have been suffering from breast cancer and among them, 35,000 die every year.⁴ According to the 2008 annual report of the National Institute of Cancer Research and Hospital, Dhaka, the most common cancers were lung cancer (16.5%), breast cancer (12.0%), cervical cancer (9.0%), oral cavity cancer (4.1%) and ovarian cancer (3.8%). These data indicate that breast cancer is highly contentious fatal disease of women in Bangladesh.⁵

Breast cancer is a cancer that initiates in the tissues of the breast. There are two major types of breast cancers: a) Ductal carcinoma occurs in the tubes which carry milk from the breast to the nipple and b) Lobular carcinoma occurs in the fractions of the breast, called lobules, which produce milk. In exceptional cases, breast cancer can start in other parts of the breast.¹ Breast cancer causes are unknown, thus it is considered as a disease primarily associated with some risk factors. These factors are as follows: being a female, getting older, family history, early menarche at the age of 12, late menopause after the age of 55 and having the first child after the age of 30.⁶ Furthermore, women who were exposed to prior-thoracic radiotherapy at early childhood are at an increased risk, prolonged uses of oral contraceptive pills, hormonal therapy, and being overweight or obese have been found to increase breast cancer risk among menopausal women.⁷⁻⁸ Therefore, screening awareness is strongly recommended because the incidence of breast cancer is rising, the mortality rate was high due to delayed diagnosis and insufficient public awareness.⁹ However, there is an absence of proper breast cancer control program in Bangladesh e.g. awareness building campaign of Breast self examination (BSE), regular clinical breast examination (CBE) by professionals, or any population-based cancer screening program.

Therefore, the purpose of the present study was to assess the current extent of knowledge regarding the risk factors of breast cancer with a view to design a cancer educational intervention in future. The outcomes of present probable scenery of knowledge about the risk factors of breast cancer among the adolescent girls (10-19 years) will be helpful for the policy planners, health administrators and professionals, and researchers to take necessary steps to come forward and prevent breast cancer.

Methods

This cross sectional descriptive type of the study was conducted on 182 students to assess knowledge about breast cancer among the in female college students in Dhaka city named Khilgaon Girls' School and College, Khilgaon, from 1st January 2013 to 30th June 2013.

A total 182 respondents between age 15 to 17 years was obtained by using the formula: $n = \frac{z^2 pq}{d^2}$. The mean age of the respondents was 16.99 ± 0.69 years. Simple random sampling technique was followed in this study. Semi- structured pretested questionnaires was used to collect data in this study. A brief idea was given about the research and how to fill up the questionnaire to the study subjects in their respective class room. Then questionnaire was provided at a time to all the respondents for filling up by a given time (half an hour). After completing the questionnaires, the researcher and research assistants collected questionnaire from the study subjects. Scoring system of respondents' knowledge was done in two ways as follows: in single response, each question had a group of answer points 'one point' was awarded for any one or more correct answer; incorrect or missed answer took 'zero'. Those who answered incorrect or do not know option awarded 'zero point' for each questions. The scores obtained for each set of questions was summed up to get the total score for participants' knowledge. Total score for all questions reached 11 points. On the other hand, in multiple response that is if more than one correct answers, the respondents were awarded the proportion of score 1(one) point for each question. Such as if there was four correct options in a question and a respondent gave two correct answers, she was awarded 0.5 point for that question.

The knowledge scores were classified as the follows:

- Poor knowledge: less than 50% (the participant score <3 considered poor knowledge)
- Fair knowledge: 50 - 75% (the participant score 4 - 7 considered fair knowledge)
- Good knowledge: >75% (the participant score 8-11 considered good knowledge)

Ethical Consideration

The Institutional Review Board (IRB) approval was obtained from the IRB committee of Bangladesh Institute of Health Sciences. All subjects were received verbal and written explanation of the study. They were also informed that they could

withdraw from the study at any time. Confidentiality of their responses was maintained throughout the study. Only identification number was used on the questionnaire and the participant data file. Reports of the study were presented in aggregate form and for academic purpose only.

Data Analysis

Data was analyzed using SPSS software version 17. Demographic and general information data were analyzed using frequencies, percentages, means, and standard deviation. The relationship between demographic conditions and knowledge about breast cancer was analyzed using Fisher's exact test for test of significance at 5% level of precession

Results

The socio-demographic characteristics of the respondents were shown in table1. The mean age of the respondents was 16.99 $\pm$.69 years and most of them were in the age group of 15-17 years i.e. 151 (83%). Regarding respondents education level, 150 (82.4%) were in second year and 32 (17.6%) were in first year of college. Among them 99 (54.4%) were in commerce group, 46 (25.3%) in arts group and the rest 37 (20.3%) in science group. The educational level of the respondents father, 55 (30.2%) were graduate, 53 (29.2%) primary education completed, 14 (7.7%) SSC, 33 (18.1%) HSC and the rest 27 (14.8%) were master degrees holder. On respondents father's occupation, 146 78(42.9%) were businessman, 52 (28.6%) private service holder, 21 (11.5%) Govt. service holder and 31 (17.0%) were others (rickshaw puller, shop keeper, butcher and day labor). Regarding primary knowledge on breast cancer, 166 (91.2%) heard the term breast cancer. However, 147 (80.8%) did not know what type of disease breast cancer is, only 26 (14.3%) knew breast cancer is a disease of tissue (Table 2).

The knowledge on risk factors of breast cancer was listed in the table 3. It was found that 129 (70.9%) respondent did not know that breast cancer is inherited, while only 10 (5.5%) knew it was inherited and the rest 43 (23.6%) told that it was not inherited. Again only 10 (5.5%) had known the age of development of breast cancer. Furthermore, 171 (94.0%) did not know whether food is responsible for breast cancer, 2 (1.0%) of the respondents told that fatty food associated with breast cancer, 3 (1.7%) told alcohol and the rest 6 (3.3%) told both fatty food and alcohol were associated with breast cancer. Moreover, 95.7% of respondent did not know about contraceptives as causative agents, 4 (2.2%) knew oral pill responsible for breast cancer, 3 (1.6%) condom and 1 (.5%) told IUT (intra uterine tube) responsible for breast cancer. Among the respondents, 42 (23.1%) had knew that breast cancer is curable in primary stage, 128 (70.3%) didn't know whether breast cancer is curable or not, 2 (1.1%) told that last stage breast cancer was not curable and the rest 10 (5.5%) told that it was not curable but controllable. Regarding obesity, 174 (95.6%) did not know that it is responsible for breast cancer, 5 (2.7%) told that obesity before menopause is responsible and the rest 3 (1.6%) told that after menopause obesity responsible for breast cancer. Furthermore, 154 (84.6%) did not know the way of early detection, 12 (6.6%) knew about clinical breast examination, 7 (3.9%) knew about breast self examination, 8 (4.4%) knew about breast ultrasound and the rest 1(.5%) knew about mammography. On risk factors, 170 (93.4%) respondent did not know about it, 3 (1.8%) knew about medical radiation exposure, 3 (1.8%) told that avoidance of breast feeding is a risk factor, 2 (1.0%) told hormonal replacement therapy, 2 (1.0%) told early menarche<12years of age, 1 (.5%) told personal history and the rest 1(.5%) told that 1st baby born >30years of age is the risk factor of breast cancer.

Table 4 shows knowledge on sign and symptoms of breast cancer. It was found that 174 (95.6%) respondent did not know about the sign and symptoms, 1 (.55%) knew redness of breast is one of the sign of breast cancer, 1 (.5%) of the respondents told that change size of breast symptoms of breast cancer, 1 (.5%) told that watery or bloody discharge from nipple, 1 (.5%) told lump of breast, 1 (.5%) told under armpit lump, 1 (.5%) told pain in breast and the rest 1 (.5%) told freckles of breast is the sign and symptoms of breast cancer. Regarding knowledge on way of early detection, it was found that 154(84.6%) respondent did not know the way of early detection, 12 (6.6%) knew about clinical breast examination, 7 (3.9%) knew about self examination, 8 (4.4%) knew about ultrasound and the rest 1 (.5%) knew about mammography is the way of early detection of breast cancer (Table 5).

However, parent's occupation was not found significant for the increasing knowledge about breast cancer among the female college students (Table 6). Furthermore, majority of the respondents 164 (90.2%) had poor knowledge of breast cancer, 17 (9.3%) had fair knowledge and only 1 (.5%) had good knowledge about breast cancer (Table 7). Figure 1 showed that the participants considered source of information about breast cancer as news paper 35%, TV 20%, friends 20%, relatives 12%, parents 5%, magazine 3%, text book 3%.

Table 01: Frequency distribution of socio-demographic condition of the respondents

Socio-demographic condition	Frequency
Age of the respondents(in years)	
15-17	151(83)
18-20	31(17)
Year of study	
First Year in HSC	32(17.6)
Second Year in HSC	150(82.4)
Group of Study	
Science	37(20.3)
Arts	46(25.3)
Commerce	99(54.4)
Education of father	
Primary education	53(29.2)
SSC	14(7.7)
HSC	33(18.1)
Graduate	55(30.2)
Masters	27(14.8)
Occupation of Father	
Govt service	21(11.5)
Private service	52(28.6)
Business	78(42.9)

Table 2: Primary knowledge about breast cancer among the respondents (n=182):

Primary knowledge about breast cancer	Frequency
Hearing the name of breast cancer	
Yes	166 (91.2)
No	16 (8.8)
Type of disease of breast cancer	
Blood disease	4 (2.2)
Disease of tissue	26 (14.3)
Skin disease	5 (2.7)
Don't know	147 (80.8)

Table 4: Distribution of the knowledge regarding sign and symptoms of breast cancer:

Knowledge on sign and symptoms	Frequency
Redness of breast	1 (.55)
Change of size	1 (.55)
Watery or bloody discharge from nipple	1 (.55)
Lump of breast	1 (.55)
Under armpit lump	1 (.55)
Pain in breast	1 (.55)
Freckles on breast	1 (.55)
Don't know	175 (96.15)

Table 3: Distribution of the knowledge regarding risk factors of breast cancer

Knowledge regarding risk factors	Frequency
Is breast cancer inherited?	
Yes	10 (5.5)
No	43 (23.6)
Don't know	129 (70.9)
Age of development of breast cancer	
Before 40 years	39 (21.4)
After 40 years	10 (5.5)
Don't know	133 (73.1)
Age of obesity responsible for breast cancer	
Before menopause	5 (2.7)
After menopause	3 (1.6)
Don't know	174 (95.6)
Contraceptive responsible for breast cancer	
Oral pill	4 (2.2)
Condom	3 (1.6)
IUD	1 (.5)
Don't know	174 (95.7)
Is breast cancer curable?	
Primary stage curable	42 (23.1)
Not curable but controllable	10 (5.5)
Last stage not curable	2 (1.1)
Don't know	128 (70.3)
Type of food associated with breast cancer	
Fatty food	2 (1.0)
Alcohol	3 (1.7)
Both fatty food and alcohol	6 (3.3)
Don't know	171 (94.0)
Basic knowledge on risk factors	
Personal history	1 (.5)
Medical radiation exposure	3 (1.8)
Hormone replacement therapy	2 (1.0)
1st baby >30yrs of age	1 (.5)
Avoidance of breast feeding	3 (1.8)
Early menarche<12yrs of age	2 (1.0)
Don't know	170 (93.4)

Table 5: Distribution of the knowledge regarding way of early detection of breast cancer:

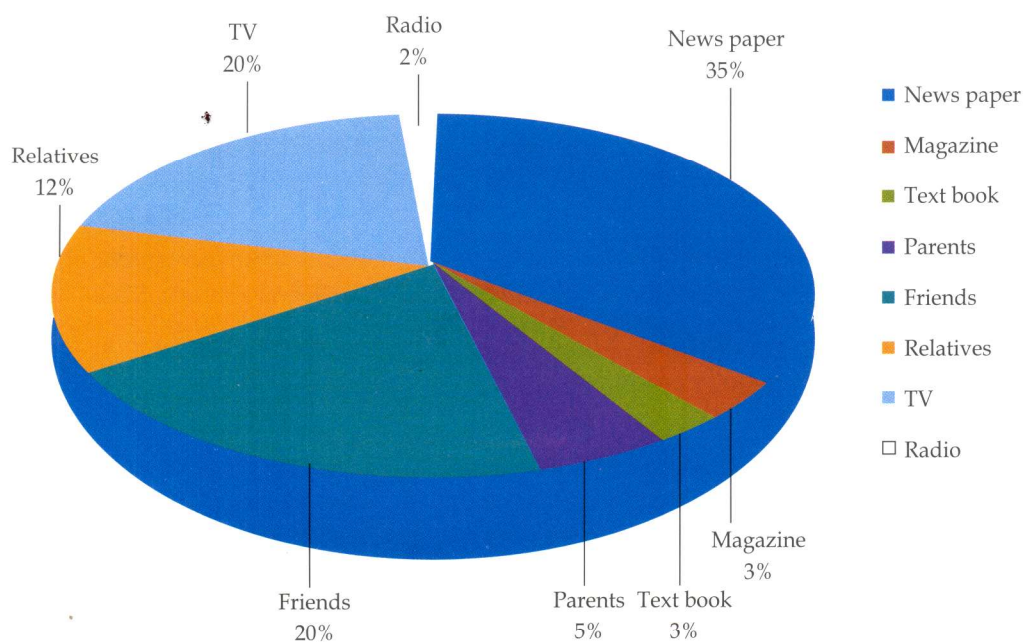
Way of early detection	Frequency
BSE(breast self examination)	7 (3.9)
Clinical breast examination	12 (6.6)
Breast ultrasound	8 (4.4)
Mammography	1 (.5)
Don't know	154 (84.6)

Table 6. Association between socio demographic condition and knowledge on breast cancer among respondents (n=182)

Variables	Knowledge level regarding breast cancer among the respondents			
	Poor (3or<3)	Fair (4-7)	Good (8-11)	P value
Age of the respondents				
15-17	134 (88.7%)	16 (10.6%)	1 (.7%)	ns
18-20	30 (96.8%)	1 (3.2%)	0 (.0%)	
Group of study of the respondents				
Arts	36 (97.3%)	1 (2.7%)	0 (0%)	0.05
Science	37 (80.4%)	8 (17.4%)	1 (2.2%)	
Comers	91 (91.1%)	8 (8.1%)	0 (.0%)	
Education year				
1st year of HSC	30 (93.8%)	2 (6.2%)	0 (.0%)	ns
2nd year of HSC	138 (89.3%)	15 (10.0%)	1 (.7%)	
Age of the respondents				
15-17	134 (88.7%)	16 (10.6%)	1 (.7%)	ns
18-20	30 (96.8%)	1 (3.2%)	0 (.0%)	
Educational level of father				
Up to five	51 (96.2%)	2 (3.8%)	0 (.0%)	ns
Six to HSC	43 (91.5%)	4 (8.5%)	0 (.0%)	
graduate and above	70 (85.4%)	11 (13.4%)	1 (1.2%)	
Occupation of father				
Service	66 (90.4%)	6 (8.2%)	1 (1.4%)	0.05
Business	67 (85.9%)	11 (14.1%)	0 (.0%)	
Others	31 (100%)	0 (.0%)	0 (.0%)	

Table 7 : Knowledge of breast cancer among respondents (n=182)

Knowledge	Frequency	Mean $\pm$ SD
Poor(0-3)	164(90.2%)	1.79 $\pm$ 1.27
Fair (4-7)	17(9.3%)	
Good(8-11)	1(0.5%)	
Total	182(100%)	

Fig I: Source of information about breast cancer among the respondents (n=182)

Discussion

The study found that the average age of the college students was 16.99 ± 0.69 years. A similar finding was found in another study conducted on female senior secondary school students in Nigeria to assess the knowledge of breast cancer. 10 Out of 182 (100%) respondents, 166(91.2%) had heard the name of breast cancer which was higher than the result of study conducted in Northeast Nigeria.¹¹ The major source of information on breast cancer in this study was the news paper 35%, followed by friends 20%, TV 20%, relatives 12% and parents 5%. These findings were very much consistent with two other studies conducted in Saudi Arabia and in Nigeria.^{10,12}

Breast cancer is usually develop at old age among the women.⁶ In this study, only 10 (5.5%) had correct knowledge regarding age of development, while 172 (94.5%) had no knowledge. A similar finding found with two other studies conducted in Dhaka Medical College, Dhaka, Bangladesh and female university students in Muscat.^{13,14}

Only 54 (29.7%) had knowledge on curable of breast cancer. A cross sectional descriptive study carried out in Dhaka Medical College Dhaka found more than half had knowledge on curable of breast cancer.¹³ Another study carried out in India where more than eighty percent respondents knew breast cancer is curable disease.¹⁵

Of the respondents, 10(5.5%) had knowledge regarding breast cancer inherited. A little more correct knowledge found in a study conducted in Northeast Nigeria and in Dhaka Medical College.^{11,13} Two other study conducted in India and Jordan found more than half had knowledge regarding breast cancer inherited.^{15,16} The findings of five studies found much more contrast regarding breast cancer inherited.

Use of contraceptive pills is one of the established risk factors for breast cancer. In the present study, 4(2.2%) had knowledge regarding roll of contraceptives responsible for breast cancer. Studies carried out in Oman on university students found that more than half and among Jordanian found half of the respondents had knowledge.^{14,16} The findings of these studies found much more contrast regarding oral contraceptive pills associated with breast cancer.

Knowledge on sign & symptoms was found very low; 174(95.6%) had no knowledge. A community based cross sectional study carried out in South Delhi found that more than half knew about at least one of the sign and symptoms.¹⁷ These

findings were further corroborated with the study conducted on female secondary school students in Nigeria on nurses and midwives in Metro Manila, respectively.^{18,19}

Knowledge regarding way of early detection of breast cancer was also found very poor. Only 28(15.4%) had knowledge. Similar finding found in a study conducted in Ethiopia.²⁰ A study carried out in Nigeria found that among the respondents 54.5% knew that early detection of breast cancer manageable.¹⁸

Knowledge on type of food associated with breast cancer, many literatures found that generally fatty food is responsible for breast cancer. In the study, 11 (6.0%) had correct knowledge regarding type of food associated with breast cancer. Two studies carried out in the Muscat region of Sultanate of Oman and in Ethiopia, found more than half the respondents had correct knowledge.^{14,21} The findings of these three studies found much more contrast regarding type of food associated with breast cancer.

Many study found that age of obesity is a risk factor for breast cancer especially after menopause obesity. In this study 3 (1.6%) had knowledge on age of obesity. Almost similar results were found in Nigeria and Iraq.²²⁻²³

The overall knowledge on risk factors was 12(6.6%). A cross sectional study was conducted in India found that the average knowledge was 49%.²⁴ A cross-sectional study conducted in governmental hospitals of Addis Ababa, Ethiopia where found knowledge more than eighty percent. ²¹

On the basis of knowledge on breast cancer this research indicates that 164 (90.2%) had poor knowledge, 17(9.3%) had fair knowledge and 1(.5%) had good knowledge. A cross section study conducted in India 2014 found that highest 40% had average knowledge, 36% had adequate knowledge regarding breast cancer.²⁵ A descriptive cross sectional study carried out in Nigeria on secondary school students found that 56.7% had poor knowledge, 37.6% had good knowledge and 5.6% had excellent knowledge regarding breast cancer.²⁶ The findings of these two studies found much more contrast regarding knowledge regarding breast cancer.

The mean knowledge level of the respondents was 1.79 ± 1.31 . One group pretest and post test design study was carried out in Manipal, India, the pretest mean knowledge score was 7.41.²⁷

A descriptive type of cross sectional study on female senior secondary school, Nigeria found there no statistically significant (p value 0.5) association between the socio-demographic characteristics of the respondents and their knowledge of breast cancer.²²

Conclusion

This study highlights inadequate and poor knowledge about breast cancer, its risk factors, sign and symptoms and way of early detection amongst female college students. There are needed to take appropriate measures to improve the situation. They require an intensive health education program to improve their status of knowledge and to lead a healthy life.

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Computed Tomographic Evaluation of Renal Tumours and Their Histopathological Comparison in Adult Popultion

The ORION Medical Journal 2016 November;18-2(40): p21-26

Abstract

Background: With modern computed tomography (CT), the diagnosis of most renal masses is usually straightforward and accurate. Therefore, preoperative imaging is most important for the planning of the surgical approach and strategy. In diagnosis of renal mass CT scan has 96% sensitivity and 90-95% accuracy in staging. So we have designed the present proposed study to evaluate the performance of CT scan for detecting and staging of renal tumors compared with histopathological diagnosis.

Methods: This cross-sectional type of observational study was carried out at the departments of Radiology and Imaging of Bangabandhu Sheikh Mujib Medical University, Medical College Hospital, and National Institute of Kidney Diseases and Urology (NIKDU), Dhaka during the period of January 2009 to June 2010. Adult patients, who was suspected as having renal tumor and who have been diagnosed as having renal tumour in ultrasonography were selected for the study. Data was collected by taking history, by physical examination of the patient, performing laboratory investigation and from CT scan and histopathological report and CT findings were compared with the histopathological reports.

Result: The sensitivity, specificity, positive predictive value, negative predictive value and accuracy of CT scan in detecting renal tumors were 95.6%, 61.5%, 89.7%, 80.0% and 88.1% respectively.

Conclusion: Multidetector CT scan is a non-invasive and accurate modality in the preoperative evaluation of renal tumors.

Introduction

Computed tomography is a promising noninvasive method of detecting adult renal tumors. Radical cancer surgery remains the only curative treatment in localized and advanced RCC. Therefore, preoperative imaging is most important for characterization and proper planning of the surgical approach and strategy.¹⁻⁴

The accurate diagnosis of a renal mass is dependent on many factors, including the clinical history, the nature of the imaging findings, the experience of the radiologist and the quality of the examination. A high-quality imaging examination, which is under the control of the radiologist, is essential. In diagnosis of renal mass CT scan has 96% sensitivity and 90-95% accuracy in staging (Craig). Density measurement in HU can be made before and after contrast, and an assessment can be made for unequivocal enhancement, which is indicative of solid mass and neoplasm (Donoghue, McSweeney and Jhaveri 2010).⁵ Simple renal cysts can be reliably diagnosed noninvasively on the basis of well defined radiologic criteria. Macroscopic fat within a renal mass, identified by means of CT or magnetic resonance imaging (MRI), is diagnostic of angiomyolipoma (a benign mass), unless calcification is present, which would indicate a malignant condition.⁶

Multidetector computed tomography and magnetic resonance imaging are comparable and more effective than abdominal ultrasound in diagnosing inferior vena cava tumour thrombus in renal cell carcinoma.⁷ With modern computed tomography (CT) and magnetic resonance (MR) imaging equipment, the diagnosis of most renal masses is usually straightforward and accurate. The most important factor is to evaluate a surgical or nonsurgical lesion or if follow-up studies are necessary. This evaluation usually can be accomplished if a high-quality examination is performed by CT and MR imaging.^{4,8}

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The challenges of renal tumor imaging include not only reliable differentiation between benign and malignant lesions but also accurate delineation of the extent of the disease to ensure optimal treatment planning. Spiral computed tomography (CT) has significantly improved imaging of renal masses by decreasing volume averaging artifacts and respiratory misregistration artifacts and allowing image acquisition during optimal contrast enhancement. Advances in multidetector CT can provide better resolution and data acquisition speeds at least four times greater than those of single-detector spiral CT. 2,9 So the present study was designed to evaluate the performance of CT scan in diagnosis of renal tumors.

Methods and Materials

This cross-sectional type of observational study was carried out at the departments of Radiology and Imaging of Bangabandhu Sheikh Mujib Medical University, Dhaka Medical College Hospital, and National Institute of Kidney Diseases and Urology (NIKDU), Dhaka during the period of January 2009 to June 2010 on consenting adult patients suspected to have renal tumors who were referred from the outpatient and inpatient departments of these hospitals for evaluation.

The study was carried out after the protocol of this study was submitted to and was approved by the "Ethical Review Committee" of Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. All patients were informed about the nature of the procedure and about the harm and benefit of the study. Then written consent was taken from every patient. Consecutive type of non-probability sampling technique was employed in this study. All the patients were advised to undergo renal biopsy for their final diagnosis. All patients underwent CT scan which was evaluated by the investigator and was confirmed by a radiologist and the findings were noted. Both CT and biopsy reports were available in 59 cases who were the study population finally. Appropriate data was collected by using a preformed structured data collection sheet. Data was collected by taking history, by physical examination of the patient, performing laboratory investigation and from CT scan and histopathological report. Histopathology was considered as gold standard for the diagnosis of renal tumors. So CT findings were compared with the histopathological reports. The data was expressed as frequency, percentage, mean ($\pm$ SD) and range. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) was calculated for CT scan using histopathological diagnosis as the gold standard. SPSS version 16.0 statistical software was used for all data entry and statistical analysis.

CT scans were performed by a third generation helical CT machine (Hitachi W-2000) and a spiral CT scan machine (Duel slice, Siemens, Germany). Patients were scanned in supine position. The used technique was 5-10mm section with every 10mm spacing. Thin slices (2mm) with 10 mm spacing in the area of interest were done. Contiguous slice was taken. CT scan of KUB was performed at 120kv and 175 mA. All patients were given oral contrast (30 ml of Iopamidol diluted in 750 ml of water). About 300-500ml of contrast media was administered 30minutes before CT scan and further 200-300ml was given just before the scan begins. In all double scans were performed before and after iv infusions of 50ml iopamidol (370mg iodine/ml). The images were photographed and viewed in axial slice at conventional window setting (window center +30 and window width 300-400).

Diagnostic approach

Following features were considered for the CT diagnosis of different renal tumors.

Renal cell carcinoma (RCC): 8.

- The pre-contrast CT appearance hyper dense, isodense or hyper dense as compared with normal renal parenchyma.
- Calcification occurs in as many as one third of cases and the form of amorphous internal calcification or curvilinear calcification, which may be peripheral or central.
- After intravenous contrast administration, most renal cell carcinoma enhance, but usually to a lesser extent than normal renal parenchyma.
- Enhancement is often heterogeneous because of tumor hemorrhage or necrosis.
- The mass often shows an indistinct interface with the surrounding parenchyma and frequently has a lobulated or irregular outer margin.
- Small renal carcinomas, however, often have distinct, smooth margins. Invasion to renal vein or IVC is common in RCC.

Transitional cell carcinoma (TCC): 9

- The pre-contrast CT appears as ill-defined mass slightly denser than urine but hypo dense compared with normal renal parenchyma. Tumor calcification is rare (2%).
- After intravenous contrast administration, the enhancement of TCC is poor as it is less vascular than RCC.
- But similar density and enhancement to RCC may be seen when TCC infiltrate into renal parenchyma. Invasion to renal vein or IVC is uncommon in TCC.
- Tumor calcification is seen in one third of cases. After intravenous contrast there is mild to moderate heterogeneous enhancement.

Metastasis: 8

- Renal metastases are usually clinically silent and detected incidentally.
- The CT features are indistinguishable from primary renal cell carcinoma.
- Presence of multiple malignant renal masses is in favor of metastasis. But certainly does not exclude multifocal hypernephroma.
- Rarely there is diffuse infiltration with obliteration of the normal parenchyma. Then the imaging features are similar to infiltrating TCC.

Angiomyolipoma: 9

- On CT presence of fat is virtually diagnostic of angiomyolipoma.
- The non fatty areas of the lesions are intensely vascular and show marked enhancement with IV contrast.
- Acute hemorrhage may be evident on CT as areas of high density within the lesion and in the perinephric space.

Result

Table I shows the age group of the patients. The highest number of patients was in 35-44 years and 55-64 years followed by 45-54 years.

Table I: Distribution of patients by age group (n=59)

Age group (years)	Frequency	Percent
25-34	8	13.6
35-44	15	25.4
45-54	11	18.6
55-64	15	25.4
65-74	4	6.8
≥75	6	10.2
Total	59	100.0

Figure 1 shows that heterogenous enhancement was present in 45(76.3%) cases, homogenous enhancement was present in 11(18.6%) and no enhancement in 3(5.1%) cases.

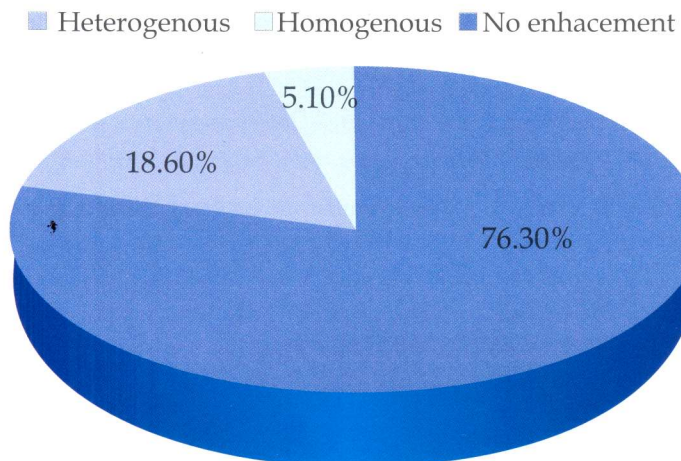


Table II shows that calcification was present in 9(15.3%), renal vein or IVC involvement in 5(8.5%), lymph node involvement in 4(6.8%), invasion of adjacent viscera 7(11.9%) and distant metastasis in 3(5.1%) cases.

Table II: Distribution of patients by presence of calcification, renal vein or IVC involvement

Tumor characteristics	Frequency	Percent
Calcification	9	15.3%
Renal vein or IVC involvement	5	8.5%
Lymph node involvement	4	6.8%
Invasion of adjacent viscera	7	11.9%
Distant metastasis	3	5.1%

Figure 2 shows the CT scan findings of renal tumors. CT scan revealed 10 benign tumors, 4(6.8%) was angiomyolipoma and 6(10.2%) patients were diagnosed as benign neoplasms. Forty-nine patients were detected as having malignant tumors, renal cell carcinoma in 47 (79.6%) patients and transitional cell carcinoma in 2 (3.4%) patients.

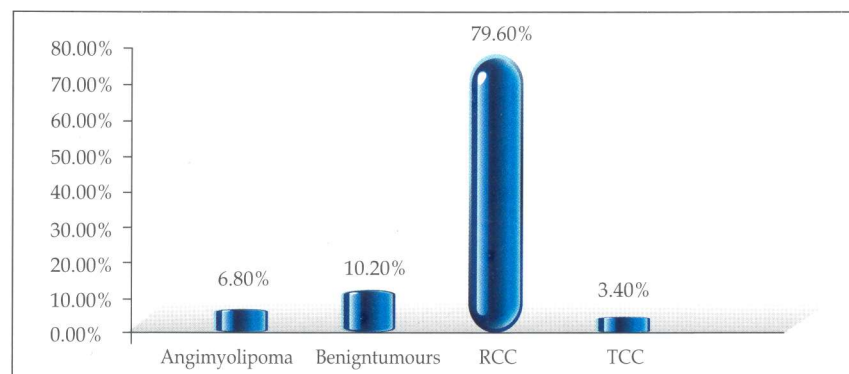


Figure 2: Bar diagram showing CT findings

Figure 3 shows the histopathological report of renal tumors. Histopathology revealed 12 benign tumors, 3(5.1%) was angiomyolipoma, 7(11.9%) leiomyoma and 2 (3.4%) chronic pyelonephritis with renal abscess. Histopathology detected 47 patients as having malignant tumors, among them renal cell carcinoma in 44 (74.6%) patients and transitional cell carcinoma in 2 (3.4%) patients and adrenal pheochromocytoma in 1 (1.7%) patient.

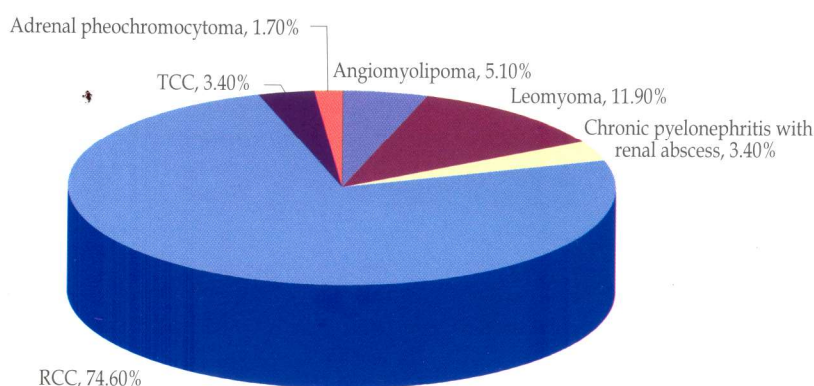


Figure 3: Pie chart showing finding of histopathology

Figure 4 shows the sensitivity, specificity, positive predictive value, negative predictive value and accuracy of CT scan in detecting renal tumors were 95.6%, 61.5%, 89.7%, 80.0% and 88.1% respectively.

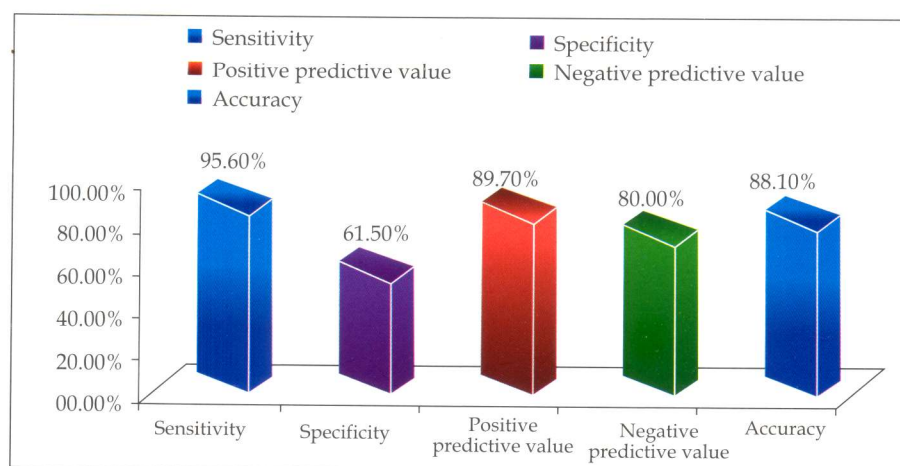


Figure 4: Showing sensitivity, specificity, positive predictive value, negative predictive value and accuracy of CT scan

Discussion

The study found that the mean ($\pm$ SD) age of the patients was 50.6 ± 14.9 years with a minimum of 25 years and maximum of 84 years. The highest number of patients was in 35-44 years and 55-64 years age group. Our finding was supported by Pascual and Borque and Wayne et al.^{10,11} they stated that the peak incidence of renal tumors occurs in the sixth decade, with 80% of cases within the 40 to 69 years old population.

The present study found that calcification was present in 9(15.3%), renal vein or IVC involvement in 5(8.5%), lymph node involvement in 4(6.8%), invasion of adjacent viscera 7(11.9%) and distant metastasis in 3(5.1%) cases. This observation was supported by Padovan et al.¹² They stated that MDCT represent fast, relatively inexpensive, and reliable diagnostic method for evaluating the venous spread of RCC as well as the level of its upper extent. The present study found that the CT scan revealed 10 benign tumors, 4(6.8%) was angiomyolipoma and 6(10.2%) patients were diagnosed as benign neoplasms. Forty-nine patients were detected as having malignant tumors, renal cell carcinoma in 47 (79.6%) patients and transitional cell carcinoma in 2 (3.4%) patients. Our findings were supported by Kabala; Pascual and Borque; Wayne et al.^{3,10,11} They stated that RCC is the single most common renal malignancy accounting for 85% to 90% of adult renal malignancy.

The histopathological report of renal tumors revealed 12 benign tumors, 3(5.1%) was angiomyolipoma, 7(11.9%) leiomyoma and 2 (3.4%) chronic pyelonephritis with renal abscess. Histopathology detected 47 patients as having malignant tumors, among them renal cell carcinoma in 44 (74.6%) patients and transitional cell carcinoma in 2 (3.4%) patients and adrenal pheochromocytoma in 1 (1.7%) patient. The sensitivity, specificity, positive predictive value, negative predictive value and accuracy of CT scan in detecting renal tumors were 95.6%, 61.5%, 89.7%, 80.0% and 88.1% respectively. Our finding was similar to the findings of Angthong et al (2010); Kim et al; Waters et al; Walter et al and Sheth et al. 13-16,2 Angthong et al described that the sensitivity and specificity of CT scan in preoperative staging of renal tumors are 87% and 50% respectively. They conducted a study with 29 histopathologically proven renal cell carcinoma. 13 Kim et al described that MDCT was accurate for preoperatively predicting the tumor staging of RCC with almost perfect inter-reader agreement. They studied 144 RCC patients and found the accuracy of MDCT more than 87%.14 Waters et al conducted a study with 42 RCC patients and found that CT is an accurate pre operative indicator for the diagnosis, stage, and extension of renal of renal cell carcinoma.15

Walter et al, in their study with 41 consecutive patients with a suspected renal lesion compared qualitatively and quantitatively the diagnostic potential of triphasic acquisition helical CT and fast multisequential MRI for the detection and characterization of renal masses. They demonstrated that the optimized examination protocols allowed excellent detection and correct characterization of all suspicious renal lesions. Therefore, both imaging modalities can be reliably recommended for clinical routine application in these cases. Sheth et al (2001) stated that the accuracy of CT for staging the renal tumors has been reported to be 91%.16

Conclusion

Multidetector CT scan is a non-invasive and accurate modality in the preoperative evaluation of renal tumors. A study with large sample size in different district level hospitals of the country should be carried out to generalize the study result.

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Role of Adapalene and Benzoyl Peroxide in the Treatment of Acne Vulgaris

The ORION Medical Journal 2016 November;18-2(40): p28-31

Abstract

Acne vulgaris is an exclusively follicular disorder of the pilosebaceous unit, characterized by comedones, papules, pustules, nodules and often scars. The condition usually starts in adolescence and frequently resolves by the mid twenties. However some levels of disease activity may persist upto the 30-40 year range. It can lead to significant psychological distress and cosmetic disfigurement. The pathogenesis of acne is multifactorial. Combination therapy utilizing agents with complementary mechanisms, such as a topical retinoid and an antimicrobial, can be used in the management of acne, since most anti-acne medications do not act against all of the major pathophysiologic features of acne. Recently a unique combination gel with Adapalene 0.1% and Benzoyl peroxide (BPO) 2.5% has been developed for treatment of acne. Here, an endeavor has been made to explore the efficacy and safety of Adapalene 0.1% and Benzoyl peroxide (BPO) 2.5% combination gel related to Adapalene 0.1% monotherapy and Benzoyl peroxide (BPO) 2.5% monotherapy in the treatment of acne vulgaris.

Introduction

Acne vulgaris is a disease of the pilosebaceous follicles that is seen primarily in adolescents. 1 Lesions of acne vulgaris can be divided into non-inflammatory (open and closed comedones) and inflammatory (papules, pustules and nodules). 2 Although the course of acne may be self-limiting, the sequelae can be life long, with pitted or hypertrophic scar formation. Pathogenesis of acne involves excessive sebum production, abnormal epithelial hyperkeratinization in sebaceous follicles, the presence of microbial organisms, notably the anaerobic *Propionibacterium acnes* and inflammation 3. In acne, the host response to *P. acnes* can result in the production of proinflammatory cytokines, such as tumor necrosis factor- α (TNF- α), interleukin (IL)-1 α , and IL-8 and contribute to the clinical manifestations of the disease. 3, 4 The treatment of acne contains many different therapeutic options, including topical and oral antibiotics, topical and oral retinoids, topical benzoyl peroxide, Azeleic acid, hormonal agents and surgical modalities 5.

Topical treatments are generally recommended for mild to moderate acne. The most frequently prescribed products are retinoids and benzoyl peroxide. 6 Adapalene is the 3rd generation retinoid. The chemical name of adapalene is 6-[3-(1-adantyl)-4-methoxyphenyl]-2-napthoic acid. Adapalene binds to specific retinoic acid nuclear receptors but unlike tretinoin does not bind to the cytosolic receptor protein. It inhibits the chemotactic and chemokinetic responses of human polymorphonuclear leukocytes in vitro assay models. The activity of adapalene in the epidermis appears to be mediated mainly by its specific binding to beta and gamma nuclear RARs that normalize the differentiation of follicular epithelial cells resulting in decreased micro-comedone formation. Adapalene is stable on the skin in the gel formulation, restriction of particle size to 3-10 nm has been shown to optimize delivery to the pilo-sebaceous unit. Very little drug penetrate the skin and only traces of parent substance have been found in the plasma following chronic application. It inhibits the metabolism of arachidonic acid by lipoxidation and reduces the inflammatory components of acne. These agents target comedogenesis by normalizing desquamation of the follicular epithelium, preventing the formation of new micro-comedo precursor lesions, thus minimizing the formation of both inflammatory acne lesions and comedones. 7 During the first month of therapy adverse effects like erythema, scaling, burning sensation, stinging sensation, dryness and irritation, pruritus, acne flares etc are most commonly encountered. The safety and efficacy of adapalene in the treatment of acne vulgaris have been studied in numerous clinical trials. 8

Benzoyl peroxide (BPO) is a safe and effective anti-microbial agent for the treatment of acne. It acts through oxidation and the formation of free radicals causing a reduction of *Propionibacteria*. This mechanism helps to prevent an induction of

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resistance in *Propionibacterium acnes* often observed during long term acne treatment with antibiotics. Approximately 5% of topically applied benzoyl peroxide is absorbed through skin and completely metabolized to benzoic acid in the skin. Systemically absorbed benzoic acid so rapidly cleared by the kidneys that no systemic toxicity due to drug accumulation can be expected. However, benzoyl peroxide can cause skin irritation and drying 9 and in 1% of patients, contact allergy may develop.¹⁰ Redness, desquamation and burning of treated skin are the dose dependent major symptoms of therapy.¹¹ A combination gel with adapalene 0.1% and benzoyl peroxide 2.5% has been developed for the once-daily treatment of acne.⁸⁻¹¹ It is recognized as an effective topical retinoid with a favorable tolerability profile and is therefore a rational selection for combination therapy with an antimicrobial agent.¹²

Discussion

A randomized, double-blind, parallel group study was conducted in which adapalene 0.1% + BPO 2.5% gel, adapalene 0.1% gel, benzoyl peroxide (BPO) 2.5% gel, or vehicle gel used nightly for 12 weeks involved 517 acne patients enrolled in a 2:2:2:1 ratio, respectively. Evaluation included success rate (subjects "clear" or "almost clear"), lesion count, cutaneous tolerability, and adverse events. As with the success rate analysis, the lesion count analysis revealed a greater response for combination therapy relative to the other study groups. At week 12, the adapalene- benzoyl peroxide (BPO) was significantly superior to adapalene, benzoyl peroxide (BPO), and vehicle for change from baseline in total, inflammatory, and noninflammatory lesion counts ($P=.001$). Significant differences in total lesion count reductions for adapalene- benzoyl peroxide (BPO) were demonstrated as early as week 1 (adapalene- BPO, 19.7%; adapalene, 13%; BPO, 11.3%; vehicle, 7.8%). For full-scale IGA, differences between adapalene-BPO and all other treatments were statistically significant ($P=.001$) at week 12, at the end of the study adapalene-BPO subjects had an IGA of mild, almost clear, or clear (70.5%) at week 12 relative to adapalene (54.1%), BPO 53.7%), or vehicle (47.9%). They concluded that fixed-dose combination of adapalene and benzoyl peroxide (BPO) provides significantly greater efficacy for the treatment of acne vulgaris as early as week 1 relative to monotherapies, with a comparable safety profile to adapalene. Local cutaneous tolerability was good for all treatments, with all mean tolerability scores at each visit and worst post baseline scores for erythema, dryness, scaling, and burning/stinging less than 1 (mild). A majority of subjects in all of the groups experienced mild or no irritation. Mean tolerability scores, based on erythema, scaling, dryness, and stinging / burning, peaked at the first week and declined thereafter. They concluded that fixed-dose combination of adapalene and BPO provides significantly greater safety for the treatment of acne vulgaris as early as week 1 relative to monotherapies, with a comparable safety profile to adapalene.¹³

A subsequent larger Phase III double-blind, randomized-controlled trial (RCT) with similar trial design involving 1668 patients randomized into the same 4 treatment arms in a 1:1:1:1 ratio was performed in 2009. Results demonstrated that the combination was more effective in achieving clear/almost clear global scores (30% vs. 20% for adapalene 0.1% gel, 22% for BPO 2.5% gel and 10% for vehicle gel), and in reducing acne counts. Total acne counts were reduced by 56% (median 76 at baseline to 35 at end of study), inflammatory lesions by 62% (27 to 11), and noninflammatory lesions by 54% (44 to 20). A significant reduction in all lesion counts were noted within the first week of treatment compared with vehicle. Over all, more patient in adapalene- benzoyl peroxide (BPO) arm experienced local tolerability sign and symptoms compare to other arms. However, these were transient and mostly mild to moderate in severity. The most frequent treatment-related adverse event was dry skin, which was higher in the combination and adapalene groups than in the BPO monotherapy and vehicle groups (i.e., 6.0%, 4.3%, 1.9%, and 2.2% respectively). Adapalene-BPO gel is superior to individual components and gel vehicle in efficacy and has rapid onset of treatment.¹⁴

A trans-Atlantic randomized , double-blind, controlled study was carried in patients 12 years of age and older with moderate facial acne vulgaris rated on the Investigator's Global Assessment (IGA) , 20 to 50 inflammatory lesions(IL) and 50 to 100 non-inflammatory lesions(NIL) for 12 weeks (1:1:1:1 randomization).¹⁷ Efficacy criteria included success rate (percentage of patients with IGA rated clear or almost clear) and percentage changes in IL, NIL and total lesion counts. Safety evaluation included assessment of local tolerability and adverse events. Of 1670 patients enrolled, 87.4% completed the study. The mean was 19 years and 56.2% of patients were female. At the end point success rate was significantly greater with adapalene-BPO compared to adapalene, BPO or vehicle: 37.9%, 21.8%, 26.7% and 17.9% respectively ($P<.001$). Success rates increased throughout the course of the study, with significant differences in the percentage of patients 'clear' or 'almost clear' by week 8 for adapalene-BPO vs. all other comparators. Adapalene-BPO subjects had an IGA of 'mild', 'almost clear' or 'clear' (75.0%) at week 12 relative to adapalene (62.5%), BPO (58.8%) or vehicle (52.6%). A significant early treatment effect was observed starting at week 2 for success rate The net beneficial effect (active minus vehicle) obtained from adapalene-

BPO (20%) was greater than the sum of net benefit obtained from the individual component (12.7%), indicating a synergistic therapeutic activity of these substances in fixed-dose combination. The percentage reductions from baseline IL, NIL and total lesions were significantly greater in the patients in the adapalene-BPO group compared to the other arms ($P < .001$) and Significant early effect of adapalene-BPO was observed within week 1 and was sustained until the end of study. The local cutaneous tolerability of adapalene-BPO was comparable with adapalene and was good for all treatments, with all mean tolerability scores at each visit and worst post baseline scores for erythema, dryness, scaling and burning ?stinging consistent with mild scores (score of < 1). Adapalene-BPO provides significantly greater and synergistic efficacy in the treatment of acne vulgaris combined with a good safety profile when compared to vehicle and the adapalene and BPO monotherapies. 15

Adapalene 0.1% -benzoyl peroxide 2.5% (adapalene-BPO) provides significant benefit in efficacy compared to its monotherapies and gel vehicle. Data were pooled from three randomized, double-blind, controlled studies in which the efficacy and safety of adapalene-BPO were compared to those of adapalene alone, BPO alone, and the gel vehicle. For each type of lesion (total, inflammatory and noninflammatory), three lesion count subgroups (low, medium, or high) were defined based on the number of lesions at baseline. Efficacy and benefit of each treatment relative to vehicle (efficacy of treatment minus efficacy of vehicle) were evaluated on the entire population (3853 subjects) and in each lesion count subgroup. At week 12, adapalene-BPO provided significant benefit relative to vehicle and monotherapies in the entire population ($P < .001$) and in all lesion count subgroups ($P < .05$). For each type of lesion, the benefit of adapalene-BPO relative to vehicle was the greatest in the high lesion count subgroups. For example, the benefit of adapalene-BPO in total lesions was 19.4%, 26.4%, and 29.1% in the low, medium, and high lesion count subgroups, respectively. This effect was unique to adapalene-BPO and was not observed with BPO (7.7%, 14.1%, and 13.1% in the low, medium, and high total lesion count subgroups, respectively). Greater lesion counts at baseline did not lead to more treatment-related adverse events or worse tolerability scores for adapalene-BPO. The subgroups with higher lesion counts at baseline contributed most to the benefit of adapalene-BPO relative to vehicle in the entire population. Adapalene-BPO is unique in providing greater benefit when more acne lesions were present at baseline. 16

A three weeks, randomized, controlled, investigator-blinded, single-center, bilateral (split-face) , dose assessment study was done comparing the cutaneous tolerability of adapalene-BPO fixed dose combination products versus various concentrations of BPO monotherapy applied once daily. 60 patients were randomized to one of the following treatment groups: adapalene 0.1%-BPO 2.5% combination products versus 2.5 % BPO monotherapy ; adapalene 0.1%-BPO 2.5% combination products versus 5 % BPO monotherapy ; adapalene 0.1%-BPO 5% combination products versus 5 % BPO monotherapy ; adapalene 0.1%-BPO 5% combination products versus 10 % BPO monotherapy .Assessments included total sum score (TSS) of irritation signs / symptoms (erythema, scaling , dryness, pruritus, stinging/burning). The overall cutaneous tolerability profile of the adapalene 0.1%-BPO2.5% combination was better than the combination with BPO 5% and similar to BPO 2.5 % or 5% monotherapy. The combination product with BPO 5% induced significantly more irritation than BPO 5% ($P < .001$) or BPO 10% monotherapy $P = .001$. In summary it can be said that the combination of adapalene and BPO provides additional efficacy and better overall cutaneous tolerability profile compared with either agent alone, for the treatment of acne. 17

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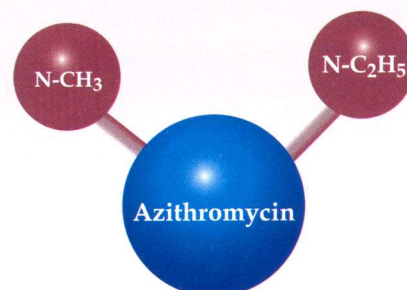
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Evaluation of Acute Viral Hepatitis by Ultrasonography

The ORION Medical Journal 2016 November;18-2(40): p32-37

Abstract

Introduction

Because of the typical prodromal symptoms like fatigue, nausea, abdominal pain, darkening urine and then developing jaundice diagnosis of acute viral hepatitis is often easy. But it can be confirmed by serological test like HAV immunoglobulin M (IgM) antibody, HBV surface antigen (HBs Ag) and HBV core IgM antigen, Anti HBc IgM and Anti HEV IgM (by ELISA). Since the diagnosis involves costly serological and molecular assay test, in a poor country like ours where all people cannot afford it or due to non-availability of the above mentioned test ultra sonogram (USG) may be very useful to back-up the diagnosis.

Objectives

To evaluate the role of ultrasonography in the diagnosis of Acute Viral Hepatitis by observing the sequential sonographic changes in hepatobiliary system.

Study Design

Observational study.

Settings

Department of Radiology and Imaging, Medicine and Surgery of Medical College for Women and Hospital (MCWH) Uttara, Dhaka and Cathersis Hospital Pubail, Dhaka.

Duration of Study

24 months from 1st May 2014 to 30th April 2016.

Methods

In this study we performed abdominal ultrasonography of 137 patients admitted with clinical presentation suggestive of Acute viral hepatitis both in Medical and Surgical Ward. USG was done on day 1, day 7 and day 14. These patients were subjected to varieties of serological tests to confirm the diagnosis and thus the competency and the role of ultrasonography were assessed.

Results

In our study Hepatitis E (84.82%) was most common followed by Hepatitis B (10.71%) and Hepatitis A (4.46%). Increased gall bladder wall thickness was found in 89.28% and contracted or collapsed gall bladder in 59.82% cases. In HEV patients increased wall thickness was in 92.63% and contracted gall bladder in 88.42% cases whereas in HBV patients these were 40% and 60% respectively. Surprisingly in HAV hepatitis these ultrasonographic findings were present in all patients.

Conclusion

Proper clinical assessment and serological test is the mainstay of diagnosis of acute viral hepatitis but a non-invasive and readily available test like USG can also contribute a lot in clinching the diagnosis of the disease.

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Key words

Ultrasound, acute hepatitis, gall bladder.

Introduction

Viral hepatitis is a common form of liver disease which is caused by a diverse group of hepatotropic that leads to liver inflammation and cell death. Five hepatitis viruses have been well characterized : hepatitis A (HAV), B (HBV), C (HCV), D (HDV) and E (HEV) viral hepatitis. It demands a varieties of serological and molecular assays for diagnosing Acute viral hepatitis. A physician's test selection, diagnosis and patient management decisions should be based on clinical expertise, test availability and financial capability of the patient. Ultrasonographic features of Acute viral hepatitis includes:

- Hepatomegaly (most sensitive sign) - > 15.5cm at mid clavicular line.
- Starry sky appearance.
- Gall bladder wall thickening.
- Periportal oedema.
- Accentuated brightness of portal vein radicle walls
- Color/spectral Doppler: normal.

Material and Methods

The study was conducted in the MCWH Uttara, and Cathersis Hospital Pubail Dhaka over a period of about 2 years from 1st May 2014 to 30th April 2016. A total of 137 clinically suspected patients of acute viral hepatitis were taken as study group. They were evaluated by clinical examination, relevant laboratory investigation, abdominal ultrasonography and subsequent serological confirmations. Serological test of Anti HAV IgM, Anti HBC IgM plus HBsAg and Anti HEV IgM (by ELISA) were done to confirm the diagnosis. The exclusion criteria includes the presence of chronic liver disease, dual pathology, morbid conditions, congestive heart failure, pregnancy, diabetes, negative serology and cirrhotic patients. Considering these exclusion criteria 25 patients (negative for serological marker 9, pregnancy 7, congestive cardiac failure 5 and diabetes 4) were excluded. Every patient was kept on overnight fasting and then ultrasound examination was done in supine position. Repetition of ultrasonography was done on day 7 and day 14. In a suspected cases of portal hypertension Doppler examination was done.

Table 1: Distribution of patients according to age and sex.

Demographic Variables	HEV (95)	HAV (12)	HBV (05)
Male	69 (72.64%)	7 (58.34%)	05 (100%)
Female	26 (27.36%)	5 (41.66%)	0
Age (years)	28 (17-75)	13 (8-55)	30 (18-45)

Table 2: Clinical presentation of the patient (n=112)

Clinical features	HEV (95)	HAV (12)	HBV (05)
Jaundice	88 (92.63%)	12 (100%)	3 (60%)
Dark urine	83 (87.36%)	10 (83.33%)	3 (60%)
Fever	16 (16.84%)	3 (25%)	1 (20%)
Anorexia	92 (96.84%)	11 (91.66%)	5 (100%)
Nausea/ Vomiting	70 (73.68%)	9 (75%)	3 (60%)
Pain abdomen	64 (67.36%)	8 (66.66%)	1 (20%)
Pruritus	52 (54.73%)	4 (33.33%)	0 -
Arthralgia	3 (3.15%)	0 -	2 (40%)
Myalgia	8 (8.42%)	0 -	3 (60%)

Table 3: Laboratory Investigations (n=112)

Laboratory parameters	HEV (95)	HAV (12)	HBV (05)
Total bilirubin (mg/dl)	17 (1.6-37.5)	10 (3.9- 19.6)	19 (13.8-28)
Conjugated bilirubin	10 (0.6-25.2)	9 (1.9- 16)	14 (11.5-18)
Alanine transaminase (IU/L)	580 (75- 2950)	460 (68- 1767)	590 (93-1260)
Aspartate transaminase (IU/L)	430 (50- 2830)	395 (76-1580)	310 (90-480)
Alkaline phosphatase (IU/L)	150 (130-950)	210 (209- 810)	168 (140-278)
Prothrombintime (sec)	18 (13-47)	15 (13-17)	14 (13-26)

Table 4: Sonologic Findings in Acutes Viral Hepatitis (n=112)

Findings in Ultra sonogram	HEV (95)	HAV (12)	HBV (05)
Hepatomegaly	52 (54.73%)	9 (75%)	4 (80%)
Splenomegaly	33 (34.73%)	4 (33.33%)	3 (60%)
Collapsed/ contracted GB	84 (88.42%)	12 (100%)	4 (80%)
Gall Bladder Wall thickening	88 (92.63%)	12 (100%)	2 (40%)
Pericholecysticoedema	48 (50.52%)	3 (25%)	4 (80%)
Gall Bladder Sludge	36 (37.89%)	2 (16.66%)	3 (60%)
Enlarged Hilar Node	13 (13.68%)	6 (50%)	1 (20%)
Ascitis	4 (4.21%)	00	00

Table 5: Sonographic Changes of Gall Bladder on different days (n=112)

Parameters	Day 1	Day 7	Day 14
Thickening of GB (>3mm)	100 (89.28%)	26 (23.21%)	4 (30.57%)
Normal thickness of GB	12 (10.71%)	86 (76.78%)	108 (96.42%)
Well filled GB	45 (40.17%)	98 (87.5%)	107 (95.33%)
Contracted GB	67 (59.82%)	14 (12.5%)	5 (4.46%)

Results

In Table-1 the demographic variables are given where it is shown that Hepatitis A is common in lower age groups excepting a patient aged 55 years who also suffered from this disease. HBV Hepatitis was exclusively in young male patients. The commonest prodromal symptoms were anorexia, nausea and abdominal pain which all were present in almost all of our cases. About 52% cases HEV Hepatitis had pruritus. Milder liver dysfunction was shown in anicteric HEV Hepatitis patients. Other presenting complaints were shown in Table-2. Table-3 shows that there was derangement of liver biochemistry in all patients. It is evident that transaminase raised with an average of 14 times the upper level of normal limit. In HEV Hepatitis aspartate aminotransaminase (AST) has been shown to be as high as alanine aminotransaminase (ALT) and in few cases AST was found to be more than ALT. In majority of cases the prothrombin time was within normal limit. Table-4 shows that contracted gall bladder and increased wall thickness were the commonest findings in USG. Among HEV Hepatitis 88.42% cases showed contracted gall bladder and 92.63% cases had increased thickness of gall bladder wall. The findings of Gall bladder thickening and contracted gall bladder were found in 100% cases of HEV Hepatitis. Table-5 shows sonographic changes go gall bladder in different days of examination (on day 1, day 7, and day 14). On 1st day of examination by ultrasonography the increased thickness of the gall bladder wall was found in 89.28% cases, on 7th day it was 23.21% and 14th day it was in 3.57% cases. The contracted gall bladder was found in 59.82% cases on day 1, 12.5% on day 7 and 4.46% cases on day 14.

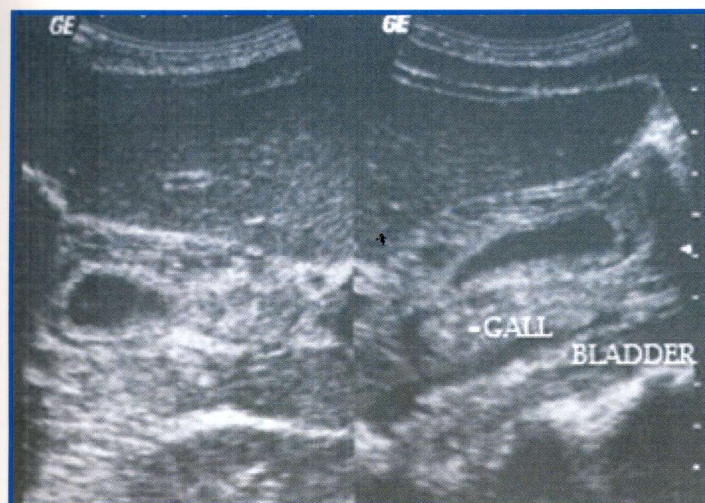


Figure 1: Thickness of the gall bladder wall (7.00mm)

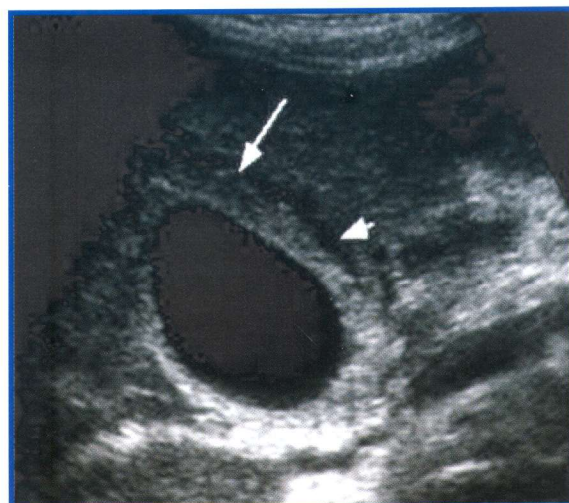


Figure 2: Pericholecysticoedema

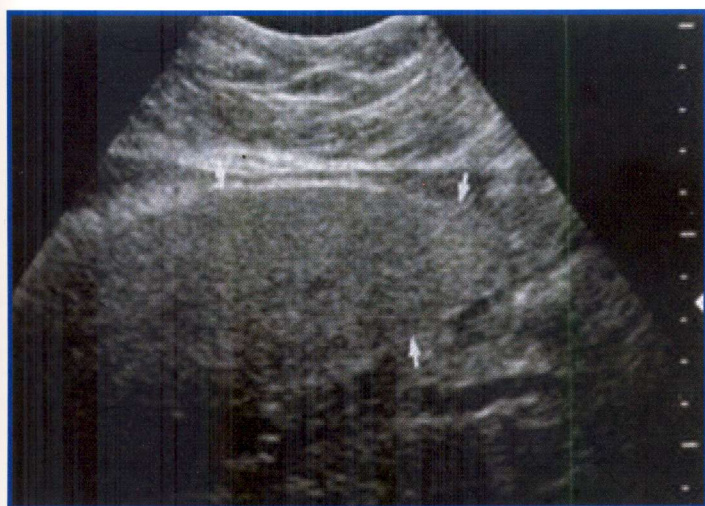


Figure 3: Hepatomegaly in Viral Hepatitis



Figure 4: Contracted Gall Bladder

Discussions

Gall bladder findings were common in all types of Hepatitis. Contracted or collapsed gall bladder with increased wall thickness and periocholecystic edema were the most striking and consistent findings. Majority of the patients were admitted in department of medicine but some patients admitted in surgical ward with diagnosis of Acute cholecystitis till jaundice appeared were referred for further investigation. Our ultrasonographic findings are consistent with findings from previous studies.¹⁻⁵ In the case of viral Hepatitis gall bladder wall thickening is the most frequently observed pattern on ultrasonogram.⁶ In previous reports the incidence of gall bladder wall thickening in patient with Acute Hepatitis ranged from 51% to 90%.^{7,8,9} Three hypothesis have been suggested to explain the mechanism of gall bladder thickening in patients with Acute Hepatitis. The one hypothesis is that hepatocyte injury causes temporary decrease in bile production and excretion.¹⁰ The second hypothesis is that there is direct injury to and inflammation of the mucosal and muscular layer of gall bladder caused by hepatitis virus contained in bile fluid.^{11,12} The third hypothesis is that hepatocyte necrosis causes an inflammatory reaction in the tissues surrounding the liver including the gall bladder.¹³ These findings of gall bladder have recently been verified by more accurate technique of endoscopic ultrasonography.¹⁴

In our cases gall bladder thickening (>3mm) was detected in 89.28% cases on day 1, 23.21% on day 7 and only 3.57% cases on day 14. These findings are comparable with the result of the study done by Hans-udo et al.¹⁵ The gall bladder wall

thickness was abnormal in 98% cases as studied by Sharma et al 16. In our total cases changes in gall bladder thickening was found in 92.63% with HEV, in 40% of patients with HBV and in 100% patients with HAV hepatitis. Ferin et al 17 observed that the contracted gall bladder in 35 patients of Acute viral hepatitis despite adequate fasting and suggested that hepatic dysfunction may decrease bile flow and thus gall bladder may remain undistended or not visible. In our study increased gall bladder thickening and contracted gall bladder were the most significant findings and the same was also observed by Narula MK et al 18.

Conclusion

Acute viral hepatitis is one of the common condition which get admitted both in medical and surgical wards of the hospital because of its typical presentation of abdominal pain/discomfort & jaundice associated with nausea & vomiting. It is found that a good number of cases the sonographic findings specially contracted gall bladder and increased gall bladder wall thickness have substantially supported the clinical as well as biochemical and serological findings. The ultrasonography may be undertaken in Acute viral hepatitis in atypical cases where SGPT is normal, alkaline phosphatase is high and viral markers are negative, in extreme ages or in protracted cholestatic jaundice. We recommend USG as a valuable tool in diagnosing acute viral hepatitis in spite of prevalence of expensive investigations like serological, nuclear based and molecular assay; thus, reducing the cost of the treatment in this poor country like ours.

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Successful Pregnancy in a Dwarf

A rare case Report & Review

The ORION Medical Journal 2016 November;18-2(40): p38-41

Abstract

This cross sectional study was carried out at the Department of Radiology and Imaging, Dhaka Medical College Hospital. Miraculous birth: Standing at just 3'5" (104.14cm) tall, 28 years old proportionate dwarf lady weighing 20 kg was succeeded in giving birth to a girl at 36+ weeks of pregnancy by C/S in June, 2013 making her the smallest woman ever to give birth to apparently healthy looking, and average-sized female baby in Bangladesh. Detailed clinical examination of the neonate performed by the neonatologist revealed no obvious external congenital anomalies and Infantogram after 6 weeks also revealed normal study.

Introduction

Dwarfism occurs when an individual person or animal is short in stature (less than 147 cm or 4 feet 10 inches) resulting from a medical condition resulting in abnormal (slow or delayed) growth.¹

It is rare for a dwarf to conceive and when they do the pregnancy does not last long because of the uterus size. Women with disproportionate dwarfism may develop respiratory problems during pregnancy. A cesarean delivery is almost always necessary because the size and shape of the pelvis doesn't allow for successful vaginal delivery.²

Here we reported an interesting case of pregnancy in the shortest dwarf in Bangladesh (so far reported) with and successful feto-maternal outcome.

Case Report

Mrs. Masuma, a dwarf lady of 28 years, 2nd gravida, para-0+1(MR), Muslim, housewife of lower class family was attended in Gynae OPD of RMCH with complains of 2 months amenorrhea and symptoms of early pregnancy. She had regular menstrual cycle with average flow and duration but had H/O delayed menarche at 18 years.

According to her statement, she has 3 brothers and 3 sisters. All but one of her family members are in average height and body built, her one sister has height of 4'-5" (134.6 cm). Her husband had been an orphan and lived a destitute life. In 2002, a neighbor introduced him with dwarf Masuma. He fell in love and in 2003, the 24 years old, 5'6" (167.64 cm) tall man got married to 18 years old, 104.14 cm tall Masuma. Since then he is enjoying his conjugal life as house husband.

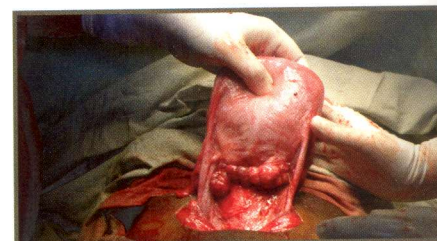
Key words

Dwarfism, Achondroplasia, Midget, Little people

"In theory, it is recommended that dwarf women would not get pregnant and would not try to give birth to child, because of their lives risk and even worse, the possibility of dwarfism in the offspring is also high," keeping it mind, this couple terminated their 1st pregnancy by MR. After adequate counseling, the couple decided to continue the present pregnancy and further evaluated.

She had no history suggestive of bronchial asthma, heart disease, chr. renal disease, malabsorption syndrome, DM or thyroid disorder.

On clinical examination, she was a proportionate dwarf (body parts being proportional but smaller), having a height of 104.14 cm, severely malnourished, Wt. only 10 kg, and BMI-18.44 and MAC-15 cm. Her Voice was childish but had normal intelligence. She had no abnormal bone alignment, no early degenerative joint disease, no lordosis or scoliosis. She was mildly anaemic, Thyroid gland-not enlarged. Breasts were well developed and showed normal pregnancy changes. Musculoskeletal



system revealed low muscle bulk and bony mass, but muscle power was normal. Cardio-respiratory and other systems were normal. Abdominal examination showed nothing abnormality and local examination revealed normal external genitalia.

Routine antenatal and specific investigations including ECG & ECHO were found to be normal except Hb% which was 9gm/dl. USG of W/A showed single live pregnancy of 08 weeks and other abdominal organs were normal.

To find out the possible causes of dwarfism, thyroid function test and growth hormone assay were done and the results within normal range. She was followed up carefully with regular antenatal checkup with special advice for high calorie & protein rich diet. Anaemia treated with oral iron and Folic acid. She was immunized with 2 doses of TT. Till 30 weeks of gestation her pregnancy was uneventful.

The next months proved to be hard time for the dwarf mother since the baby grew bigger and the symptoms of the mother became heavy. At 34+ weeks pregnancy, she was admitted in RMCH due to physical discomfort in her daily activities. On admission, she was normotensive and non-diabetic, her body weight was only 20 Kg.

In hospital she was on close supervision and improved diet. Elective caesarean section was done on 02-06-2013 at 36 + weeks pregnancy under spinal anaesthesia by a senior and expert anaesthetist and a baby girl weighing 2.5 kg was delivered out.

"Congratulations! Your wife gave birth to a daughter". Her husband having waited outside the OT for over an hour finally got the news from nurse that his dwarf wife and his child were both safe.

"I am so excited to have a baby", the fresh father said in tears recalling the difficulties he and his dwarf wife had experienced during the last 9 months.

Intra operative findings in our case: The size of uterus and LUS was well developed. Following delivery placenta was also was found to be average sized. There was no problem intra-operatively. Postoperative period was also uneventful. Newborn was completely okay externally examined by pediatrician in OT, before discharge and 6 weeks after delivery.

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Discussion

Dwarfism can be caused by about 200 distinct medical conditions, such that the symptoms and characteristics of individuals with dwarfism vary greatly.³

Disproportionate dwarfism is characterized by one or more body parts being relatively large or small in comparison to those of an average-sized adult. Achondroplasia is the commonest cause of short-limbed dwarfism and characterized by proportionately shorter limbs than the trunk, increased spinal curvature, and distortion of skull growth with characteristic facial features.. It is a rare genetic disorder inherited as autosomal dominant trait but most cases (80%) are due to mutations



in the fibroblast growth factor receptor-3 gene located on 4p. The majority of cases is sporadic and results from a de novo paternal mutation. This defect exclusively inherited from the father and becomes increasingly probable with paternal age; specifically males reproducing after thirty five.^{4,5}

In cases of proportionate dwarfism, extreme shortness with proportional body parts usually has a hormonal cause, such as growth-hormone deficiency (also known as pituitary dwarfism), defect in receptor for growth hormone and Hypothyroidism. Growth hormone deficiency has no single definite cause. It can be caused by mutations of specific genes, damage to the pituitary gland, Turner's syndrome, poor nutrition,³ or even stress (leading to psychogenic dwarfism). Serious chronic illnesses may also produce dwarfism as a side effect. In societies where poor nutrition is widespread, the average height of the population may be reduced below its genetic potential by the lack of proper nutrition.

In cases of proportionate dwarfism the sexual development is often delayed or impaired into adulthood. Hypotonia, or low muscle tone, is common in dwarfs, but intelligence and lifespan are usually normal. It is rare for achondroplasia sufferers to conceive and when they do the pregnancy does not last long because of the uterus size.^{6,7}

Defining dwarfism by height alone is problematic because short stature in itself is not a disorder and it can be inherited without any coexisting disease. Short stature in the absence of a medical condition is not generally considered dwarfism. For example; pygmies have adult male heights of less than 150 cm (4 feet 11 inches) on average.⁸

For people, in addition to the medical aspect of the condition, there are social and sociological aspects as well. For a person with dwarfism, heightism can lead to ridicule in childhood and discrimination in adulthood.^{9,10}

There is no single treatment for dwarfism. Dwarfism resulting from malnutrition or a hormonal abnormality may be treated with an appropriate diet or hormonal therapy. Growth hormone deficiency may be remedied via injections of Human Growth Hormone (HGH) during early life before the child's growth plates fuse. Genetic defects of most forms of dwarfism caused by bone dysplasia cannot be corrected, so therapeutic interventions are typically aimed at preventing or reducing pain or physical disability, increasing adult height, or mitigating psychosocial stresses and enhancing social adaptation. Pain and disability may be ameliorated by physical therapy, braces or other orthotic devices, or by surgical procedures. The only simple interventions that increase perceived adult height are dress enhancements, such as shoe lifts or hairstyle.^{11,12}

Many types of dwarfism are impossible to prevent because they are genetically caused which may be identified with genetic testing.

In our case since her parents are found to be normal stature and no other affected family member and her GH level is within normal range this woman can be attributed to receptor problem to GH.

According to medical records, there have been four such previous instances where women who delivered were 108cm, 109cm and 112cm tall (Indian dwarf) and 70 cm tall Chinese dwarf woman who gave birth to twins (1 alive & 1 dead). So far recorded our Masuma is the 1st proportionate dwarfism who successfully able to continue pregnancy near term and gave birth to a normal healthy baby.

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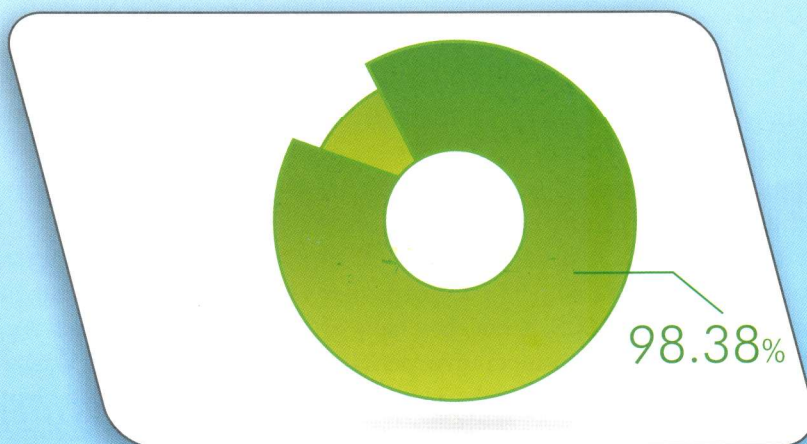


Fig.: Efficacy of Cefixime in UTI

Pregnancy with APS

The ORION Medical Journal 2016 November;18-2(40): p42-43

Recurrent pregnancy loss is common problem now a days and is commonly found in our daily practices. There are so many causes that are established as causative factors for recurrent pregnancy loss. Among them systemic causes includes uncontrolled Diabetes Mellitus, uncontrolled Chronic Hypertension, Hypothyroidism and local causes includes uterine polyp, uterine fibroid, cervical incompetency etc.

Anti-phospholipid syndrome has recently been found to be one of the cause for recurrent pregnancy loss and we have not yet enough study in our country regarding this problem that causes recurrent pregnancy loss.

Pregnancy with Anti-phospholipid Syndrome (APS) is rare and it is one of the important factor that causes recurrent pregnancy loss at any trimester of pregnancy. Early diagnosis and preconceptional precaution for prevention of recurrent pregnancy loss is essential to deliver a healthy fetus in a diagnosed case of APS.

Case

Mrs. Humaira Binte Bashar, 32 yrs, G3P2 with 1 neonatal death, was a diagnosed case of Anti-phospholipid syndrome after her 1st pregnancy in Japan. She had history of previous 2 preterm deliveries by LSCS and one neonatal death. Her 1st baby was delivered at 32 wks of gestation due to IUGR and birth weight of the baby was only 775 gm and baby died on 2nd postoperative day. She was then screened for auto-immune disease and found that she was diagnosed as a case of ANTI-PHOSPHOLIPID SYNDROME. She was under preconceptional counseling prior to subsequent pregnancies.

During her current pregnancy she was under joint consultation of Gynecologist and Rheumatologist. From the beginning of the pregnancy she was treated with Tab. Aspirin 75mg daily. During 1st trimester her Anti-Nuclear Antibody was negative, anti-phospholipid antibody and anti-DSDNA antibody were positive, Complement-3, Complement-4 were normal, Hb conc. -9.3gm%, Glucose challenge test was normal, Activated Partial Thromboplastin Time was 35.4 sec, Prothrombin Time, Thyroid Stimulating Hormone, Creatinine were within normal range and USG showed normal pregnancy profile with bilateral small ovarian cyst. At the beginning of 12 wks of gestation Inj. Low molecular weight Heparin was started at a dose of 60 units subcutaneously daily. She was routinely monitored with the estimation of coagulation profile: Activated Partial Thromboplastin Time, Prothrombin Time, Bleeding Time, Clotting Time and Complete Blood Count. At her 30 wks of gestation USG reveals single live pregnancy of 29 wks 04 days with cephalic presentation with normal Doppler study of uteroplacental and midcerebral arteries of the fetus.

During her 34+ wks pregnancy, Ultrasonogram reveals moderately low Amniotic Fluid Index but no Intra Uterine Growth Restriction of the baby. She was advised to be hospitalized for better monitoring of her and her baby. Throughout the pregnancy period she was given progesterone in oral form to prevent preterm labour as she had history of previous 2 preterm labour. After getting admission in hospital she was monitored with daily CTG, Doppler Ultrasonogram was done at 3 days interval. Fetal kick count chart was maintained. She was given Inj. Corticosteroid 100mg 8 hourly on 21st September and 50mg 8 hourly on 22nd September. Inj. Low molecular weight Heparin was stopped on 23rd September. Preoperatively her Arterial blood gas analysis, serum total protein, serum albumin-globulin ratio, serum electrolyte along with Ca²⁺ and Mg²⁺ level were found within normal range. Her LSCS with left sided parovarian cystectomy was done on 24th September due to the diagnosis of 3rd gravida with 35 wks pregnancy with APS with moderate oligohydramnios with left sided ovarian cyst with history of previous 2 LSCS. A male baby of 2120 gm was delivered. Apgar score of the baby was 8 in 1st minute and 9 in 5th minute. Her postoperative period was uneventful. She was treated with injectable antibiotics and analgesics. Injection Low molecular weight Heparin was started from 25th September. Patient was discharged on her 5th postoperative day along with oral antibiotics, analgesics, anticoagulant and corticosteroids.

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Conclusion

Antiphospholipid syndrome is an important cause of recurrent pregnancy loss. So patients with history of recurrent pregnancy loss should be investigated for APS. preconception counseling along with prophylactic anticoagulant therapy can prevent fetal loss, maternal morbidity and provokes successful pregnancy outcome.

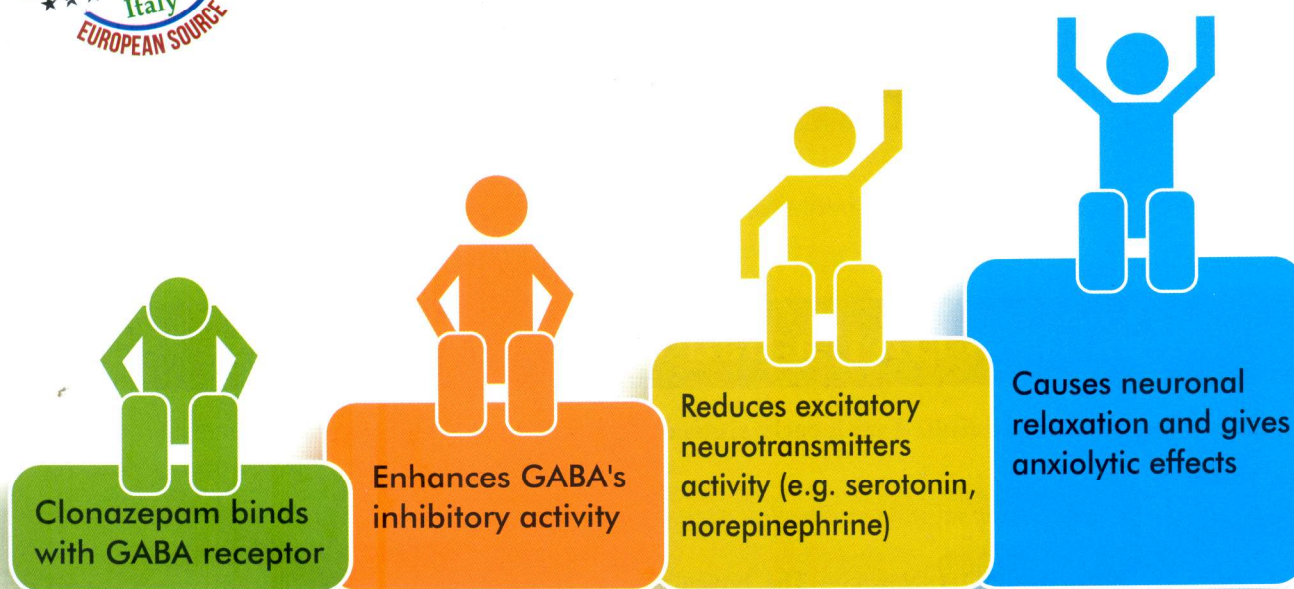
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Artificial Pancreas' Approved for Type 1 Diabetes

The ORION Medical Journal 2016 November;18-2(40): p44-50

WEDNESDAY, Sept. 28, 2016 (HealthDay News) -- The first automated insulin delivery device for type 1 diabetes has been approved by the U.S. Food and Drug Administration for people aged 14 and older.

Often called an "artificial pancreas," the MiniMed 670G hybrid closed loop system automatically monitors blood sugar levels every five minutes and delivers insulin when needed with little or no input from the user, the FDA said in a news release.

"This first-of-its-kind technology can provide people with type 1 diabetes greater freedom to live their lives without having to consistently and manually monitor baseline glucose levels and administer insulin," said Dr. Jeffrey Shuren, director of the FDA's Center for Devices and Radiological Health.

People with diabetes have an impaired ability to produce or respond to insulin, a blood sugar-regulating hormone normally produced by the pancreas. Type 1 diabetes is often diagnosed in children or young adults.

Clinical testing of the device involved 123 people with type 1 diabetes. No serious adverse reactions were reported. But risks associated with the device include high blood sugar (hyperglycemia), low blood sugar (hypoglycemia), and skin irritation near where the device's sensor attaches to the body, the FDA said.

The product should be considered "unsafe" for use by children aged 6 or younger and for people who require fewer than eight units of insulin daily, the agency said.

As a condition of approval, manufacturer Medtronic Inc. is required to conduct a post-market study to evaluate "how the device performs in real-world settings," the FDA said.

Medtronic, based in Dublin, Ireland, is now studying the device's safety and effectiveness in children aged 7 to 13.

Scott Roberts

<http://www.medicinenet.com/script/main/art.asp?articlekey=198446>

'Business Diet' a Bad Deal for the Heart

Unhealthy eating on the road linked with early signs of artery clogging, study says

By Alan Mozes

HealthDay Reporter

FRIDAY, Aug. 19, 2016 (HealthDay News) -- The typical "social business diet" -- heavy on red meats, sweet drinks, processed snacks and booze -- takes a toll on the heart, a new study finds.

In the go-go world of business meetings and nonstop travel, healthy home-cooked meals often give way to unhealthy fare consumed on the road. This ups the risk for atherosclerosis, a slow but steady clogging of the arteries, the researchers say.

"We found that more than other diets, the 'social business eating pattern' specifically raises the risk for developing atherosclerosis disease," said study author Dr. Valentin Fuster. He's a professor of cardiology at the Icahn School of Medicine at Mount Sinai in New York City.

With its emphasis on eating out, snacking on the run and excessive alcohol consumption, this style of eating is even worse than the so-called Western diet, the researchers found.

"This business diet is really very bad," he added. "It hits the arteries hard, and strongly contributes to cardiovascular disease

risk, the world's number one killer."

According to the American Heart Association, atherosclerosis results from the buildup of plaque in the arteries, which raises the risk for blood clots, heart disease, heart attack and stroke. Cardiovascular disease causes more than 17 million deaths worldwide each year.

To lower risk, the heart association recommends minimizing intake of red meat and sweets and emphasizing consumption of fruits, vegetables, whole grains, low-fat dairy products, skinless chicken and fish, and nuts.

For this study, Fuster's team looked at the heart impact of three eating plans: the so-called Mediterranean diet, the contemporary Western diet and the social-business diet. The Mediterranean style of eating is rich in fruits and vegetables, whole grains, legumes and nuts. Western diets are high in red and processed meats, butter, high-fat dairy products and refined grains.

To see how each of these diets stacked up against arterial clogging risk, investigators assessed the nutritional habits of more than 4,000 Spaniards, aged 40 to 54. All appeared to be healthy with no outward signs of heart disease.

Dietary analyses revealed that roughly 40 percent followed a Mediterranean diet, while another 40 percent followed a Western diet. About 20 percent consumed the social-business diet.

Imaging and ultra-sound tests were conducted to look for early signs of arterial clogging. The tests revealed that those who followed a social-business diet had a "significantly worse cardiovascular risk profile" and a notably higher risk for atherosclerosis.

This was true even after accounting for age, exercise habits, smoking history and other influential factors, the researchers said.

The results were published online Aug. 15 in the Journal of the American College of Cardiology.

The finding "underscores the importance of developing healthful dietary habits for people with a busy and fast-paced life," said Dr. Frank Hu, co-author of an accompanying journal editorial. Hu is a professor of nutrition and epidemiology at the Harvard T.H. Chan School of Public Health in Boston.

His advice? "Pay attention to the quality of foods when eating out," he said. Avoid fast foods; drink water instead of sugary drinks; carry a bag of nuts as snacks; and limit alcohol, he suggested.

"Try to plan healthy meals or foods ahead of time," Hu said, "and fit healthy habits -- eating, sleep and exercise -- into a busy life."

Nutrition expert Lona Sandon said the findings point to a need for "a cultural shift."

"Business does not have to be done around a 12 oz. steak and booze," said Sandon, an assistant professor of clinical nutrition at the University of Texas Southwestern Medical Center at Dallas.

"High-powered lunches and dinners have long been associated with unhealthy eating patterns," she noted. But "there are plenty of healthy options for those on the move these days."

New study reveals a novel protein linked to type 2 diabetes

Findings from Boston University School of Medicine (BUSM), which appear in eLife, provide a possible explanation as to why most people who are obese develop insulin resistance and type 2 diabetes. A minority of obese individuals, the so-called healthy obese, have normal insulin sensitivity and are not diabetic.

The BUSM researchers have been studying a protein called PTRF (Cavin-1) whose absence in model organisms and humans results in a nearly complete loss of fat cells, a condition called lipodystrophy. According to lead author Libin Liu, PhD, Instructor of Biochemistry, and Paul Pilch, PhD, Professor of Biochemistry and Medicine at BUSM, this lack of fat cells causes fat to be mis-targeted to other tissues where it causes them to become insulin resistant. Eventually type 2 diabetes develops. Paradoxically, most obese individuals have an abundance of fat cells but they develop insulin resistance and their fat is also mis-targeting to other tissues.

Liu and Pilch analyzed normal model organisms and compared them to those lacking PTRF. They also studied fat cells grown in the lab that either had PTRF or lacked it. Cells need to respond to rapid nutritional challenges by making new proteins to efficiently store fat. These challenges correspond to those of the nutrient-rich diet common in Western society, and increasingly, worldwide. In the absence of PTRF, cells were unable to make sufficient new protein to respond adequately to cycles of fasting and refeeding, the equivalent of the human dietary cycle. Further studies described how PTRF works at the molecular level, and the inefficiency of this process in most instances of obesity may be the link between the similar deleterious consequences of too little and too much fat.

Describing the role of PTRF and gaining a better understanding of how fat can be distributed in these models may eventually offer new opportunities to treat diabetes in humans. The authors caution, however, that type 2 diabetes is a complex condition and proteins other than PTRF can also contribute to the development of the disease. Even as more research unfolds, Liu and Pilch add: "Diet and exercise continue to be the first choice for preventing and treating Type 2 diabetes."

The study was funded by a National Institutes of Health grant, DK097708.

Article: PTRF/Cavin-1 promotes efficient ribosomal RNA transcription in response to metabolic challenges, Libin Liu, Paul F Pilch, eLife, doi: 10.7554/eLife.17508, published 16 August 2016.

Published: Wednesday 17 August 2016

Ehttp://www.medicalnewstoday.com/releases/312379.php

Smoking may affect DNA for more than 30 years

king affects the human genome - a complete set of DNA in a person, including all genes - in the form of DNA methylation, finds a new study published in an American Heart Association journal *Circulation: Cardiovascular Genetics*. Some DNA methylation sites have been found to persist even after 30 years of quitting.



Smoking-associated DNA methylation sites were linked to more than 7,000 genes, or one third of known human genes.

DNA methylation is a process by which cells control gene activity, and it often modifies the function of genes. Scientists have found that DNA methylation could reveal a person's smoking history, and as a result, they could develop targeted new therapies for diseases associated with smoking.

"These results are important because methylation, as one of the mechanisms of the regulation of gene expression, affects what genes are turned on, which has implications for the development of smoking-related diseases," says Dr. Stephanie J. London, last author and deputy chief of the Epidemiology Branch at the National Institute of Environmental Health Sciences - part of the National Institutes of Health.

"Equally important is our finding that even after someone stops smoking, we still see the effects of smoking on their DNA," she adds.

Cigarette smoking is a significant modifier of DNA methylation. Research has uncovered genes associated with smoking that contribute to the development of smoking-related diseases. DNA methylation is also a potential link between smoking and cancer, as well as prenatal cigarette smoke exposure and the development of chronic diseases in adults.

An estimated 40 million adults in the United States currently smoke cigarettes. Cigarette smoking is regarded as the leading cause of U.S preventable disease and death, accounting for more than 480,000 deaths every year. More than 16 million Americans live with a smoking-related disease.

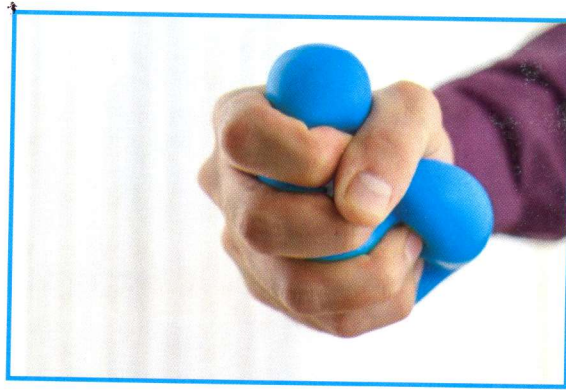
Despite smoking rates declining in many countries worldwide as a result of smoking campaigns and legislative action, even decades after people quit smoking, former smokers are at a long-term increased risk of diseases that include some cancers, chronic obstructive pulmonary disease, and stroke.

The molecular mechanisms behind these long-term effects are unclear. However, previous research has linked DNA methylation sites with genes connected to coronary heart disease and pulmonary disease, which suggests DNA methylation may play a role.

Researchers analyzed blood samples from almost 16,000 participants from 16 groups included in the Cohorts for Heart and Aging Research in Genetic Epidemiology (CHARGE) Consortium, including a group from the Framingham Heart Study that researchers have followed-up since 1971.

Stem cell therapy restores arm, hand movement for paralyzed man

1-year-old man left paralyzed after a spinal cord injury has regained the use of his arms and hands, thanks to an experimental stem cell treatment performed by researchers from the Keck Medical Center at the University of Southern California.



Researchers have restored arm and hand function to a paralyzed man with injections of an agent called AST-OPC1.

In March of this year, Kristopher (Kris) Boesen, from Bakersfield, CA, was involved in a car accident, in which he suffered severe trauma to his cervical spine that left him paralyzed from the neck down and unable to breathe without assistance.

Doctors told Kris that he might never regain the use of his limbs; current surgical procedures for spinal cord injury focus on stabilizing the spine to prevent further damage, but they rarely improve movement and sensation.

Kris then learned of a clinical trial - led by Dr. Edward D. Wirth III, chief medical director of AsteriasBiotherapeutics - looking to enroll patients with spinal cord injury.

The ongoing trial is testing a novel therapy involving injections of AST-OPC1 - an agent consisting of oligodendrocyte progenitor cells (OPCs) that derive from embryonic stem cells. OPCs are the myelin-forming cells of the brain and spinal cord that help nerve cells to function.

According to AsteriasBiotherapeutics - the developer of AST-OPC1 - preclinical trials of the agent in models of spinal cord injury have shown it leads to "reduction of the size of the injury cavity, restoration of the protective 'myelin' coating on nerve cells, production of factors that stimulate nerve cell growth, and recruitment of blood vessels to deliver oxygen and nutrients to the site."

In order to take part in the trial - named "SCiStar" - patients need to be able to breathe without the help of a ventilator. Though it normally takes 3 weeks to wean a patient off assisted breathing, with the help of a dedicated respiratory team, Kris managed it in 5 days.

After further tests, he was confirmed as being eligible to take part in the trial.

Published: Thursday 8 September 2016

<http://www.medicalnewstoday.com/articles/312796.php>

Virtual reality training helps paralyzed patients regain movement

Eight people with long-term paralysis from spinal cord injuries have regained some motor control after learning to control their own brain activity.



For many years it has been known that, with training, individuals can harness their brain power to make robotic limbs move. Brain-machine interfaces are non-invasive systems that translate hundreds of simultaneous signals from neurons in the brain into movement.

Scientists at Duke University have shown for the first time that long-term training with brain-machine interfaces can lead to partial neurological recovery.

The study aimed to improve prosthetics and brain-controlled devices for the severely disabled patients. There was no expectation for improvements in sensorimotor and visceral functions to be achieved.

Eight patients who had suffered paralysis for at least 1 year as a result of spinal injury spent two hours a week controlling devices with their brain signals.

They first learnt how to operate their own avatar, or digital likeness, in a virtual reality environment. Their brain activity was recorded and transmitted through non-invasive electrodes in fitted caps.

Related Stories

- Research findings offer more insight into complexity and robustness of the brain
- Food commercials may alter brain mechanisms of children's food choices
- Researchers receive \$800,000 grant to reconnect neural communication between parts of the brain

After a year of such training, patients and doctors alike were amazed to find that some sensation and muscle control had been restored.

Most patients saw improvements in their bladder control and bowel function, meaning they were not dependent on catheters and laxatives and consequently had a lower risk of infection.

In four cases the improvement was so marked that their doctors now deemed them to have partial, rather than complete paralysis.

One participant who had been paralysed for 13 years at the time of the trial became able to move her limbs voluntarily and walked (in a brace using a walker) for the first time since the accident.

We couldn't have predicted this surprising clinical outcome when we began the project...What we're showing in this paper is that patients who used a brain-machine interface for a long period of time experienced improvements in motor behaviour, tactile sensations and visceral functions below the level of the spinal cord injury."

Miguel Nicolelis, co-director of the Duke Center for Neuroengineering.

After nerves are severed through trauma causing paralysis, some spinal nerves are left intact but become dormant when

they stop receiving signals.

It is thought that the regular training with brain-machine interfaces re-engaged these surviving spinal cord nerves. Even if only a few nerve fibres remain, they may be sufficient to transmit signals from the brain to the spinal cord.

Sources:

- Donati ARC, et al. Long-term Training with a Brain-Machine Interface-based Gait Protocol Induces Partial Neurological Recovery in Paraplegic Patients. Scientific Reports 2016;6;article 30383.
- Duke Medicine News. 11 August 2016.

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Intern Doctors Reception-2016

It's a great pleasure for us that, we arranged wonderful Intern-Doctors Reception-2016 in different Medical Colleges. Participants were newly joined intern-Doctors and respected senior Doctors of Medical College. At the end of session we arranged an exciting Raffle Draw among the intern-Doctors.



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Orion Pharma Ltd. is proud to arrange an Iftar party-2016 in Holy Family Red Crescent Medical College at Baily Bistro Village Restaurant in Baily Road, Dhaka. All Intern-Doctors and Respected Senior Doctors attended the program. Orion Pharma Ltd. also arranged a delicious buffet dinner party. At the end of session Orion Pharma Ltd. arranged an exciting Raffle Draw among the intern-Doctors.



World Head-Neck Cancer Day-2016

Dhaka Medical College ENT Department, celebrated World Head-Neck Cancer Day at 27th July, 2016 at Dhaka Medical College Hospital Campus. They arranged a Rally and Seminar to conscious general people about Head-Neck Cancer. The Program is sponsored by Orion Pharma Ltd.





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