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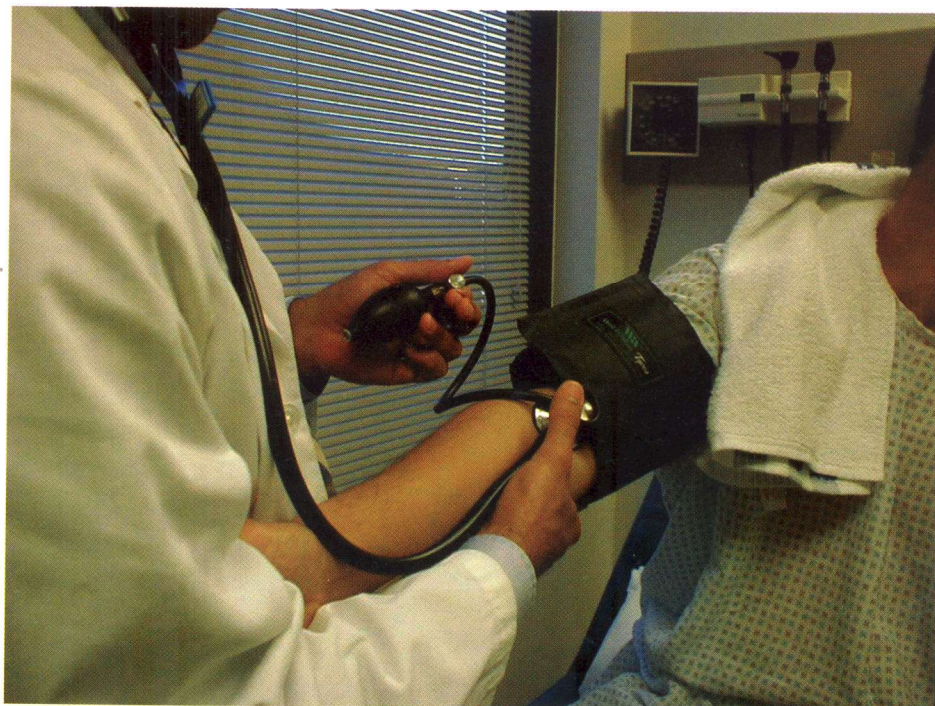
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Editor's Choice

The ORION, journey towards the *Vertex* and Beyond

The ORION is surely pacing towards becoming an established name in the world of medical journal in Bangladesh. The ORION, with its 25th volume has entered into its eight straight years of success and this immense achievement compliments all the readers and physicians who were there at every step of the journey. This accomplishment will assure the editors and respective members of 'The Advisory' and 'The Review' board to further establish medical journal, 'The ORION'. The readers of 25th issue will enjoy a wide variety of review articles, original article and an exciting case report.

The Editorial of the 25th issue focuses on "Chronic fissure-in-ano", which is stated to be a common surgical problem and is best managed by lateral sphincterotomy. It presents the advantages of lateral internal sphincterotomy over the traditional manual dilatation of anus (P-386).

This issue is also enriched with a number of enlightening review articles. Starting with the review article on "Avian/Bird flu- an epidemiological study" emphasizes on clinical features and current management. The article also contains detailed description on the disease's history, epidemiology, virology and other relevant elements like recommendations for travelers and about its vaccination program (P-387). It is followed by another article on "Role of diet in prevention of recurrent Nephrolithiasis". It emphasizes on normalizing the diet of a patient rather than restricting any single nutrient. It also stresses the importance of routinely fluid intake which decreases the recurrence rate (P-391).

Another article inquires into the major risk factors in coronary artery disease and new strategy of its management, elaborating on dyslipidemia. Major emphasis has been given into classification and management of dyslipidemia (P-395). A very interesting article on "Paroxysmal Nocturnal Haemoglobinuria" sketches an outline of its management. It consists of an elaborate discussion on the blood picture and different techniques on its diagnosis (P-398). "Prevention of Rheumatic Fever" is another valued article in this issue. The author strongly recommends not to ignore sore throats as often they are very first signs of rheumatic fever (P-400).

The concluding review article is on an innovative way of performing surgery with radiofrequency in ano-rectal diseases. Many small cases are discussed and the benefits of radiofrequency surgery are demonstrated (P-403).

The original article of this issue is "One stop crisis centre", elaborating on domestic violence, burn and sexual assault survivors in Bangladesh. Detailed operations of OCC have been revealed in this original article including their concept, philosophy, structures and working committee (P-407).

The case report on this issue discusses on "Life threatening Hyperkalemia requiring prolonged temporary pacing support. This enlightening case report suggests that hyperkalemia associated with underlying renal failure taking ACEI or ARB must be treated cautiously (P-411).

For further development of The ORION, opinions and suggestions are highly encouraged. The ORION medical journal makes articles freely available on the World Wide Web (www.orion-group.net/journal) for the advancement of public health & medical research. For reproducing multiple copies of any 'The ORION' articles, please send an e-mail to journal@orion-group.net. The article title, name of author, volume and page number, year of publication and mostly the purpose for reproducing the article has to be mentioned.

May the Almighty bless all in the spirit of good health.

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“Chronic fissure-in-ano”: A common surgical problem, best managed by lateral sphincterotomy

Sobhan MA¹

The ORION 2006 ; 25: 386

One of the most common surgical conditions, we encounter in surgical practice is chronic fissure-in-ano. By the time, the patients come to a surgeon, he/she received a number of traditional and non-traditional treatments proved to be ineffective. Sufferings in some of these patients are so intolerable that they are easily liable to get maltreated by quacks and kabiraj. So, I feel surgeons should take initiatives and extend best possible effective cure for these patients from sufferings.

We have studied hundred consecutive cases of chronic fissure-in-ano (65 male and 35 female) of different age groups in our centre during 2004 and 2005.

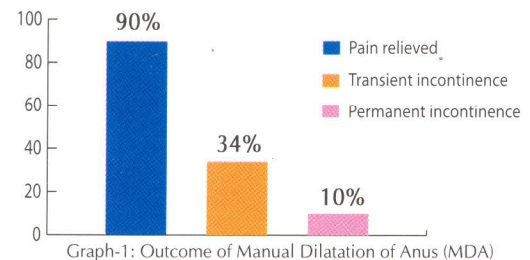
The diagnosis of chronic fissure-in-ano was made on the basis of typical clinical features and confirmed on examination under anaesthesia (EUA). Proctoscopy and sigmoidoscopy was done in all cases to look for evidence of any associated disease. In suspected cases biopsy was taken to exclude aetiological factors like tuberculosis, Crohn's disease and carcinoma. The patients with inflammatory bowel disease, previous ano-rectal surgery, granulomatous and neoplastic disease were excluded from this study.

Patients having chronic fissure-in-ano were admitted in 'Ano-rectal' surgery division of 'Surgi-home' on random basis ie, either referred to surgi-home, by practicing doctors or coming spontaneously.

The patients having odd number in the serial were treated by manual dilatation of anus (MDA), where as patients with even number serial were treated by lateral internal sphincterotomy (LIS). Both these surgical treatments were done under spinal anaesthetic block (SAB). Lateral internal sphincterotomy was always performed on the left lateral side with the patient in the lithotomy position. Patients were followed up regularly at intervals of 3, 6 and 12 weeks. At follow up, symptoms were assessed on a predesigned questionnaire. As per our study, We performed 50 cases of MDA and 50 Cases of LIS under SAB.

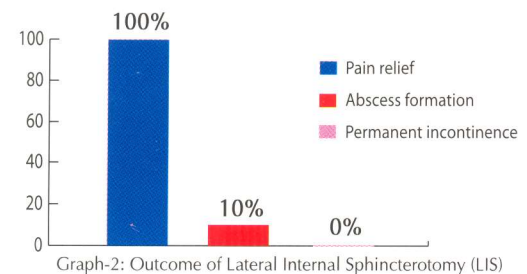
The findings show that the lateral internal sphincterotomy is better than simple anal dilatation for the treatment of chronic fissure-in-ano. The recurrence rate of fissure was significantly higher after anal dilatation than after internal sphincterotomy and functional results with respect to control of flatus and faeces were significantly better in patients treated by lateral internal sphincterotomy.

In our study, 45 cases (90%) of odd serial, pain was relieved immediately and significantly where as transient incontinence was noted in 17 cases (34%) and permanent incontinence was noted in 5 cases (10%) shown in graph-1.



Graph-1: Outcome of Manual Dilatation of Anus (MDA)

In lateral internal sphincterotomy, pain relief was achieved in 50 cases of even serial (100%), transient incontinence is noted in no case, abscess formation in 5 cases (10%) and permanent incontinence in no case (0%) shown in graph-2.



Graph-2: Outcome of Lateral Internal Sphincterotomy (LIS)

The complications and recurrence rates in our study are comparable to the study of many centers in other parts of world and published in international journals during the last few years. So, it can be concluded that lateral internal sphincterotomy is the treatment of choice in patients with chronic fissure-in-ano resistant to conservative measures. It has no permanent side effects and is well tolerated.

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Avian/bird flu: Epidemiology, clinical features & current management

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The ORION 2006 ; 25: 387-390

Abstract

Epidemics and pandemics of influenza have been documented throughout history, the mechanisms underlying these are still poorly understood. Experts agree that another influenza pandemic is inevitable and possibly imminent. A number of Asian countries have been currently affected by avian/bird flu infecting their poultry stocks. The diagnosis of influenza is usually confirmed by isolation of virus or from serological results. As production of potential and effective antiviral agent for human are hazardous and inadequate so prevention of adaptive mutation or re-assortment is the key to control the situation which could be achieved by depopulation of commercial poultry and improved hygiene. Prevention of the spread of bird flu is multifaceted, focusing on the health of both birds and humans including broad surveillance, cluster investigation, contact tracing, target use of antivirals, continued vaccine and travel restriction.

Introduction

Avian influenza or bird flue refers to an infection caused by a large group of different influenza viruses that primarily affect birds. Wild birds worldwide carry the viruses, but usually do not get infected by them. However, bird flu is very contagious among birds and can produce the disease to some domesticated birds, including chickens, ducks, and turkeys¹. On rare occasions, these bird viruses can infect some other species, including pigs and humans. The vast majority of avian influenza viruses do not infect humans². Influenza pandemic happens when a new subtype emerges that is not previously known to cause human diseases³. A number of Asian countries have been currently affected by avian/bird flu infecting their poultry stocks. In some of these countries, a small number of people have also contracted the virus from chickens. Scientists are concerned by these events because it is feared that the avian flu virus could merge with a human flu virus and could evolve as a new virus, which would be transmitted rapidly from person to person with potentially devastating results. As avian H5N1 is a strain with pandemic potential, since it might ultimately adapt into a strain that is contagious among humans and is highly infectious and rapidly fatal². To control the outbreak of avian flu virus many of these Asian countries are culling their poultry stocks.

History

Influenza pandemic is one of the rare but recurrent events. Three pandemics has occurred in the previous century, in 1918 "Spanish influenza", in 1957 "Asian influenza" and in 1968 "Hong Kong influenza"^{2,3,4}. Amongst them the "Spanish influenza" pandemic was the deadliest one. Over 18 months the flu caused an estimated 400 million people became infected of whom an approximately 40-50 million people died all over the world^{2,3,4,5}. Subsequent pandemics were much milder, with an estimated 2 million deaths in 1957 and 1 million deaths in 1968².

Recently in 1997 documented infection of humans with an avian influenza virus occurred in Hong Kong, where the H5N1 strain caused severe respiratory disease in 18 humans, of whom 6 died⁶. The infection coincided with an epidemic of highly pathogenic avian influenza, caused by the same strain, in the country's poultry population⁶. Alarm mounted again in February 2003, when another outbreak of H5N1 avian influenza was reported from Hong Kong⁶. In January 2004, laboratory tests confirmed the presence of H5N1 avian influenza virus in human cases caused severe respiratory disease in the northern part of Vietnam^{6,7,8}. Again in 29th November 2005, WHO has officially recognized 133 human cases infected by H5N1 influenza virus, of whom 68 deaths have been reported from Vietnam, Thailand, Cambodia, Indonesia, and China. Two other avian influenza viruses have recently caused illness in humans. Amongst them an outbreak of highly pathogenic H7N7 avian influenza was first documented in the Netherlands in February 2003 and mild cases of avian influenza H9N2 in children occurred in Hong Kong in mid-December, 1999^{4,6}.

Epidemiology

Every winter, an average of 36,000 people die of influenza in the United States. Every century, flu pandemic sweeps the globe three or four times claiming millions of lives⁹. A pandemic occurs when a new influenza virus emerges and starts spreading like normal influenza virus by coughing and sneezing. As the virus is new, the human are nonimmune to it, causes the rapid spread of the virus, that in turn causes pandemic influenza that is experienced as more fatal disease than the normal one². Health experts have been monitoring a new and extremely severe influenza virus the H5N1 strain for almost eight years⁷. The virus has, however, shown an ability to jump species, infecting cats, pigs, tigers, and leopards in recent years. A recent study proved that the virus was causing increasingly severe disease when injected into laboratory mice⁷. In August 2005, H5N1 was confirmed in Vietnam^{7,8}. The event alarmed public health authorities, as it marked the first time that an avian influenza virus was transmitted directly to humans and caused severe illness with high mortality^{9,10}. Most cases have occurred in previously healthy children and young adults. Fortunately, the virus does not jump easily from birds to humans or spread readily among humans.

Virology

Influenza viruses belong to orthomyxoviridae family and the

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genus is Influenza⁷. The virion of the virus is 80 to 120 nm in diameter and may be filamentous⁷. Eight different segments of negative-stranded RNA are present; which allows genetic reassortments in single cells infected with more than one virus and may result in multiple strains that are different from the initial ones^{1,4,7,9}. Type designation of the virus is based on the antigenic character of the virus envelope protein or M-protein and the nucleoprotein within the virus particle^{7,9}. The virus envelope glycoproteins have hemagglutinin (HA) and neuraminidase (NA) activity^{7,9,10,11}. Depending on these characteristics the virus is divided into three types - A, B or C^{1,4,7,9,12}. Type A is responsible for lethal influenza pandemics whereas type B causes smaller, localized outbreaks. The type C strains are more stable but less common and produce milder symptoms⁹. Influenza B and C are usually found only in humans. But type A influenza infects human and animals^{1,4,9,12}. Fifteen distinct HA subtypes and nine NA subtypes exist for influenza virus A, but they can combine to form a number of other subtypes like H1N1, H1N2, H1N3, H7N7, H3N8 etc⁹. At least 15 flu subtypes affect birds, the most virulent of which is H5N1^{9,13}. The ability of influenza viruses to change their genetic makeup and to swap genes indiscriminately makes them so unpredictable and potentially deadly. The change takes place in two ways:

Antigenic drift: These are small, permanent, ongoing alterations in the genetic material of a virus. Because viruses aren't able to repair genetic errors that take place as they reproduce, new strains are continually replacing old ones^{6,9,11,14,15}.

Antigenic shift: This occurs when influenza A subtypes from different species trade and merge genes. The result is an entirely new strain, different from either of the parent viruses. Because no natural immunity to the new strain exists, it can spread quickly, causing widespread illness and death. And when one of the original subtypes is a human influenza virus, the new virus has the ability to spread easily from person to person and the potential to become a global epidemic^{6,9,12,14,15}. Conditions favorable for the emergence of antigenic shift have long been thought to involve humans living in close proximity to domestic poultry and pigs. Because pigs are susceptible to infection with both avian and mammalian viruses, including human strains, they can serve as a "mixing vessel" for the exchange of genetic material from human and avian viruses, resulting in the emergence of a novel subtype^{6,14,15}.

Transmission

Migratory waterfowl, most notably wild ducks are the natural reservoir and carrier of avian influenza viruses, and these birds are also the most resistant to infection⁶. The virus causing bird flu spreads by faeco-oral route among the birds¹⁶. Infected birds shed the virus in their droppings, saliva and nasal secretions. Domestic poultry become infected from contact with these birds or with contaminated water, feed or soil. They may also catch the disease the same way humans contract conventional flu, by inhaling the airborne virus. Bird flu spreads quickly and lethally within a flock and is transported from farm to farm on tractors and other equipment, on cages, and on workers' shoes and clothing^{6,9}. Though heat destroys the virus, but it can survive for a long time in cool temperatures. Open-air markets where eggs and birds are often sold in crowded and unsanitary conditions are hotbeds of infection and spread the disease into the wider community. Humans may pick the virus through close contact with sick birds, contaminated surfaces or by

airborne spread or direct contact of the infected people^{9,15}. Scientists do not think that migratory birds are carrying the virus from continent to continent because outbreaks have not followed traditional flyways⁹.

Clinical features

The incubation period of the virus is usually two days, but it can vary from one to five days and the symptoms of the disease usually lasts for five to seven days. Most people with bird flu have signs and symptoms of conventional influenza-dry cough, muscle pains, sore throat, elevated temperature (which may not be present in elderly people), headache, fatigue and tiredness. Some of the complications of flu are otitis media, primary influenza, pneumonia, secondary bacterial bronchitis, exacerbations of chronic respiratory disease, croup and bronchiolitis in infants and young children, febrile convulsions, toxic shock syndrome, Reye's syndrome, myositis and myoglobinuria, myocarditis, neurological sequelae - including Guillain-Barre syndrome, transverse myelitis, encephalitis, and worsening or destabilization of pre-existing diseases, such as cardiac failure and diabetes. There is a possibility of increased incidence of schizophrenia if exposure is in utero during second trimester¹⁵.

Limited information about the clinical course of human infection with H5N1 avian influenza in the 1997 Hong Kong outbreak was published in which patient suffering from avian flu developed the symptoms of fever, sore throat, cough and, in several of the fatal cases, severe respiratory distress secondary to viral pneumonia and some with chronic medical conditions⁶.

Diagnosis

The diagnosis of influenza is usually confirmed by isolation of virus or from serological results. As influenza is mainly a droplet infection so high titres of virus is shed by the patients with symptoms. Influenza A and B virus replicate in several primary kidney cell lining, and influenza may be shown in tissue culture by adsorption of guinea pig erythrocytes¹⁷. Serological tests include complement fixation and haemagglutination inhibition. These tests provide useful epidemiological information but will only confirm a diagnosis after the patient has recovered from the acute illness. Rapid diagnostic techniques of influenza include gene amplification and antigen detection by immunofluorescence or enzyme linked immunosorbent assay (ELISA)^{17,18}. Immunofluorescence is comparatively inexpensive but less sensitive compared to standard tissue culture. A capture ELISA has been described for the influenza antigen detection that uses a monoclonal antibody to nucleoprotein and is high sensitive and specific^{17,19}. The polymerase chain reaction has recently been used to identify influenza virus genome in clinical material, and several methods have been described. The procedure uses reverse transcriptase and type specific primers based on highly conserved sequences. It is also highly sensitive and gives result within 24 hours. Influenza primers may be combined with specific primers for a range of other respiratory viruses in a more comprehensive assay known as a multiplex polymerase chain reaction¹⁷.

Management

The management of influenza includes relief of symptoms, treatment of complications, and specific antiviral treatment. The clinical severity of influenza is variable, and most patients with uncomplicated infection will require symptomatic

treatment alone.

Antiviral drugs: Amantadine and its analogue rimantadine have been used for both treatment of and prophylaxis against influenza A and is believed to inhibit all subtypes of influenza A but have little action against influenza B or C^{17,20,21}. They have a tricyclic chemical structure with an amine side chain and a cage-like configuration, and they are believed to act by inhibiting virus uncoating. The recommended dose of amantadine is 200 mg daily, which is reduced to 100 mg in people over 65 years. There are few serious adverse effects, although epilepsy has been reported in patients with underlying cerebral disease. More common problems include headache, light headedness, dizziness, difficulty in concentrating, and insomnia. These effects occur in 5-29% of patients¹⁷. Unfortunately the 2004 H5N1 strain is resistant to amantadine and rimantadine, complicating treatment and prophylaxis⁷.

The neuraminidase inhibitors that works by preventing the virus from escaping its host cell are generally effective against influenza A and may be useful in treatment of and prophylaxis against H5N1 influenza, although the clinical utility of neuraminidase inhibitors in treating patients with H5N1 influenza is not yet known. Oseltamivir (Tamiflu) is approved for treatment of influenza in persons aged 1 year and older and approved for prophylaxis of influenza in persons aged 13 years and older^{7,9}. In Southeast Asia, resistance against the drug is developing quickly. Zanamivir is approved for treatment of influenza in persons 7 years and older but is not approved for prophylaxis⁷. Another antiviral flu drug, Relenza, may be an alternative⁹.

Vaccines: Salk first described the use of killed influenza vaccine in 1945. Early virus vaccines contained intact, formalin-inactivated virus and were associated with many adverse effects. Modern subunit vaccines are well tolerated and evoke a good serological response^{17,22}. Two forms of subunit vaccine are available; split virus vaccine containing disrupted virus particles partially purified by extraction with organic solvents, and surface antigen vaccine composed of highly purified haemagglutinin and neuraminidase antigens. Current commercial influenza vaccines are usually trivalent, containing two influenza A subtypes and influenza B¹⁷. Over a period of three to six months the antibody titer induced by the vaccine declines. So annual vaccination is recommended but the effect of repeated annual vaccination has been questioned^{16,22} as the efficacy of a vaccine is also dependent on the degree of antigenic similarity between strains of vaccine and circulating strains of influenza.

Other than killed influenza vaccines there are recombinant fusion proteins and live attenuated vaccines²². Live attenuated influenza virus vaccines have been investigated extensively in the former Soviet Union and in the United States and were proved as well tolerated. The advantages of these vaccines over inactivated vaccines include good immunogenicity in children, induction of nasopharyngeal IgA, and a longer lasting antibody response¹⁷. Again live attenuated vaccines also need to be updated regularly along with antigenic changes.

One way of protecting against all types of influenza, including emerging pandemic strains, would be a universal flu vaccine that would not have to be reengineered each year. In the early

August 2005 the British company Acambis announced that they has developed such a vaccine that is on trial^{7,23}. The vaccine would focus on the M2 viral protein, rather than the surface hemagglutinin and neuraminidase that (M2 protein) do not change. The universal vaccine is made through bacterial fermentation technology, which would greatly speed up the rate of production. Further the vaccine could be produced continuously, since its formulation would not change. Still, such a vaccine is years away from full testing, approval, and use.

Prevention

Prevention of the spread of bird flu is multifaceted, focusing on the health of both birds and humans including broad surveillance, cluster investigation, contact tracing, target use of antivirals, continued vaccine and travel restriction^{9,10}.

Measures to control the virus among domestic poultry: First-line defense against avian flu virus is to destroy the exposed and affected birds^{6,9}. Since 1997, when the first human cases of bird flu appeared, hundreds of millions of sick or exposed birds have been destroyed⁹. In many cases, affected farms were also quarantined. Many birds were burnt or buried alive. Though the methods used to cull birds and the wholesale slaughter was questioned. Some nations have instituted strict vaccination and surveillance programs for poultry farms and markets, taken steps to prevent bird smuggling, and put quarantine programs for new birds. Further more many countries have banned or restricted the import of birds and eggs from bird flu epidemic areas⁹.

Recommendations for health professionals: Recently, WHO developed guidelines on infection control for management of patients with H5N1 avian influenza by implementing standard precautions, droplet precautions, contact precautions and by airborne precautions (including use of high-efficiency masks and negative-pressure rooms if available). For adults and children over 12 years of age, these precautions should be implemented at the time of admission and maintained until 7 days after resolution of fever. For children of 12 years and under, precautions should be continued until 21 days lapsed from onset of illness^{6,7,10}. The WHO guidelines also recommend that all healthcare workers who may come into contact with the H5N1 virus or with infected patients should be vaccinated with the current WHO recommended vaccine. Although this will not protect against H5N1 influenza A, but it will help avoid simultaneous infection with other influenza strains and may thereby decrease the risk of genetic reassortment^{6,10}.

Recommendations for travelers: Travelers traveling to any region with bird flu outbreaks should avoid rural areas, small farms and especially any close contact with domestic birds. Open-air markets are dreadful places because they are often breeding grounds for disease. The simplest and the best way to prevent infections are washing hands properly. Alcohol-based hand sanitizers are good for the purpose. Young children who are likely to put their hands in their mouths and who may not wash thoroughly should be cared. Heat destroys avian influenza virus so poultry should be cooked properly. Eating raw or undercooked eggs or any products containing them should be avoided and cutting boards, utensils and all surfaces that have come in contact with raw poultry should be washed with hot, soapy water. Specific prophylaxis should be taken that is advised by the expert^{7,9}.

Conclusion

Although epidemics and pandemics of influenza have been documented throughout history, the mechanisms underlying these are still poorly understood. Experts agree that another influenza pandemic is inevitable and possibly imminent. An outbreak of avian influenza is ravaging the poultry industry in South East Asia. This carries a devastating economic toll. Though the current H5N1 strain circulating in Asia appears to be highly pathogenic for humans still there is no pandemic. It is thought to be due to the prompt culling of Hong Kong's entire poultry population in 1997⁶. However if the virus continues to circulate widely among poultry it has a greater potential to infect humans and other animals where genetic reassortment could take place and may create a new pandemic. As production of potential and effective antiviral agent for human are hazardous and inadequate so prevention of adaptive mutation or re-assortment is the key to control the situation which could be achieved by depopulation of commercial poultry and improve hygiene. The 1918 global flu pandemic spread in the age of horse, boat and train and at a time when the world population was only a third of today. If such a virus re-emerges, perhaps as a mutant, it could spread far faster and the severity will markedly be increased. It is the high time to adopt prompt control measures to avert the pandemic that is knocking at the door.

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Role of diet in prevention of recurrent nephrolithiasis

Roy DK¹

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Summary

Nephrolithiasis is a major cause of morbidity involving urinary tract. While primary prevention of nephrolithiasis is not of sufficient priority, prevention of recurrent stone formation demands greater attention. Diet plays an important role in the pathogenesis of kidney stones. Higher fluid intake leads to increased urinary volume and in turn to a decreased concentration of lithogenic factors presumably decreasing the rate of stone formation. At present the practice is to advice patient fluid intake sufficient to maintain his urine output around 2-3 liter per day. General recommendations on dietary modifications may be beneficial and cost effective at population level. Physician should no longer prescribe a low calcium diet to prevent recurrent calcium nephrolithiasis. The new trend is normalization of the dietary habits and not restriction of a single nutrient constituent.

Introduction

Nephrolithiasis is a major cause of morbidity involving urinary tract. The lifetime prevalence of symptomatic nephrolithiasis is approximately 10% in men and 5% in women¹⁻³. The total number of physician office visit for stone disease in USA nearly doubled from 9,50,000 visits in 1992 to 1,825,000 in 2000². In Germany the incidence rate rose during the last decade from 0.54 to 1.47 %⁴. The reasons for this increase in prevalence and incidence rates are manifold: life style changes, dietary factors, obesity, improved medical facilities etc. Easy availability of better diagnostic tools like ultrasound in routine practice allows the diagnosis of asymptomatic nephrolithiasis. While primary prevention of nephrolithiasis is not of sufficient priority, prevention of recurrent stone formation demands greater attention. Now a days excellent options for interventional stone therapy such as Extra corporeal shockwave lithotripsy (ESWL), Ureterorenoscopy (URS), and Percutaneous nephrolithotomy (PCNL) warrant comfortable stone management. It is therefore not surprising that stone removal has become a more attractive option then elaborate measures to prevent recurrent stone formation, which is more cost effective.

Diet plays an important role in the pathogenesis of kidney stones. The kidneys along with minerals like sodium, calcium and magnesium excrete uric acid, phosphate and oxalate from ingested food and from metabolism. These crystalloids remain in solution due to the presence of normal colloids. If the crystals are precipitated and bound by an organic matrix, a stone is formed. People eat food, which are complex mixture of different nutrients, the content and bioavailability of different component nutrients are known to vary. Many physiologic studies have examined changes in urine composition after dietary interventions and predictions about stone formations are then made based on the urinary changes.

About 80% of kidney stones contain calcium, and majority of calcium stones consists primarily of calcium oxalate^{5,6}. For less common types of stone like (Uric acid, Struvite, Cystine) there is little information concerning the influence of dietary factors in actual stone formation. Consumption of common foods containing animal protein like meat, chicken, sea food may lead to increased uric acid production due to the purine content of the animal flesh. On the other hand animal protein contain more sulfur containing amino acids and their metabolism leads to increased uric acid production with subsequent lowering of urinary pH. Both increased uric acid excretion and low urine pH increase the risk of uric acid crystal formation. So, restriction of dietary animal protein may be of help to prevent recurrence of uric acid stones. Most of our knowledge about dietary factors is related to calcium oxalate, the most common type of urinary tract stone. In this article dietary factors related to the formation and prevention of calcium stone will be discussed. From an etiologic perspective it is reasonable to focus on different nutrients individually rather than on the diet as a whole.

Calcium

The normal range of urinary calcium in adults taking an ordinary diet is 100-300 mg/day for men and 100-250 mg/day for women. Around 50% of patients who pass calcium stones in general tend to show increased urinary calcium excretion⁷. Because of that, dietary calcium was believed to increase the risk of calcium oxalate nephrolithiasis. As a consequence, for long time "stone formers" were advised to restrict their dietary calcium to prevent stone recurrence. But there is no published data that demonstrated a decrease in the rate of stone formation by dietary calcium restriction. Three prospective observational studies involving more than 2,00,000 individuals found that a higher dietary calcium intake was associated with a reduced risk of incident stone formation⁸⁻¹⁰. These findings of dietary calcium were independent of other dietary factors or fluid intake. Normal or high dietary intake of calcium significantly reduces the risk of calcium oxalate stone formation^{8,11}. Significant reduction of the intestinal oxalate absorption apparently mediates the beneficial effect of a normal or high dietary calcium intake, lowering the fraction of freely available oxalate in the urine and thereby decreasing the urinary crystallization risk for calcium oxalate. A highlight in basic research was published by the BONN group¹², where they demonstrated an inverse correlation between intestinal oxalate absorption and the daily calcium intake. There is also evidence that urinary calcium excretion depends more on dietary acid load than on calcium intake itself¹³. Skeletal calcium reabsorption and hypercalcemia results from buffering of nutritional acid load by bones. Modern diets are rich in animal protein, which increases the acid load. Under these circumstances severe bone loss will occur if the calcium intake is additionally restricted¹⁴. The substitution of meat protein by dairy products derived protein will provide a higher intake of phosphate, which co-precipitates with calcium in the intestinal lumen. Nevertheless, it has been shown that the benefit of high calcium supply do not apply to calcium supplements, which usually are not taken with meals hence losing their oxalate

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chelating properties¹⁰. Observational data suggested that calcium supplement use might increase the risk of incident stone formation in older women by around 20%^{9,10}. Calcium supplement use is a rare cause of incident stone formation. But for individual who has already had a stone the risk of supplemental calcium is likely to be substantially higher.

Oxalate

Calcium oxalate is a major component of about 75% of all urinary stones¹⁵. Urinary oxalate is thought to be derived from three sources: 40-50% derived from hepatic synthesis, 40-50% from the breakdown of ascorbic acid in the body and the remaining 10-20% from the diet¹⁶. Oxalate is a ubiquitous component of plants and thus may be an unavoidable component of the human diet¹⁶. Seeds including cereal grains, some leaves such as spinach and some roots like beets are particularly enriched in oxalate, where it may represent up to 30% of the dry weight^{18,19,20}. A partial list of foods and their oxalate content is shown in table -1.

Food	Mg of Oxalate Serving size in parenthese
Spinach, Cooked	608(1/2 cup)
Rhubarb, frozen	570(1/2 cup)
Spinach, Chopped raw	361(1ccup)
Green beams , Steamed	45(1cup)
Bran flakes	40(1/2cup)
Peanuts	27(1oz)
Potato, microwave	25(1 medium)
Celery	25(1stalk)
Tea,brewed	18(1cup)
Chocolate	16(1oz bar)
Peanut butter	15(1Tbsp)
White bread	5 (1slice)

These are the values from Channing laboratory nutrient database.

Table-1: Partial list of oxalate content of foods

It is clearly not possible to eliminate oxalate from the human diet, and a diet with oxalate content lower than 80 mg/day may not be practically possible and could be deficient in other essential nutrients. It should be remembered that the actual oxalate content of a food might not actually determine the risk since the bioavailability of oxalate may vary substantially. It is possible to decrease the oxalate content of vegetables by using phosphate fertilizer. A number of nutrients may influence the excretion of oxalate, for example, an increased consumption of ascorbic acid or a decreased intake of calcium and magnesium. A deficiency of oxalate degradation by *oxalobacter formigenes* in the intestine may contribute additionally to an increased absorption and urinary excretion of oxalate²¹. The relative contribution of endogenous and exogenous oxalate source to urinary oxalate excretion remains a matter of debate. A study examining the impact of diet on urinary oxalate excretion found that high urinary oxalate predominantly results from increased endogenous production²².

Siener R et al²² confirmed an inverse association between dietary calcium intake and the risk of hyperoxaluria. Magnesium has been suggested to be nearly as effective as calcium in decreasing intestinal oxalate absorption and urinary excretion. Dietary fiber and phytic acid have been suggested to

increase the risk of oxalate stone formation by increasing oxaluria through binding of intestinal calcium, resulting in an increased absorption and increased urinary excretion of oxalate^{23,24}. Additionally oxalate content of fiber rich food is also high. Most individuals, however, may have an imbalance in the calcium and oxalate content of individual meal and snacks, and thus may have a response closer to that observed with the restricted calcium diet. Although dietary oxalate intake was not identified as a risk for hyperoxaluria, reduction of food stuffs rich in oxalate might be essential in patients with enteric hyperoxaluria.

A sufficient dietary calcium intake, therefore, is required to compensate for the higher oxalate and lower calcium content of vegetable foods. An increased consumption of lean dairy products may be considered to meet the current dietary recommendations of calcium (1000 to 2000 mg/day). Exchange of dairy products instead of plant foods such as fruits, vegetables, and cereals may reduce dietary oxalate intake and thus recurrent stone formation.

Sodium

A high sodium intake leads to increased urinary calcium excretion independent of calcium intake, apparently due to inhibition of sodium and calcium reabsorption in the proximal tubule and along the loop of henle²⁵. Every 100mmol increase in dietary sodium increases urinary calcium excretion by 25 mg²⁶. A high sodium chloride is expected to lower urinary citrate excretion as well²⁷. Many investigators have documented the adverse effects of high sodium intake and the resultant higher calcium excretion^{25,28,29}. An Italian randomized trial observed a reduced risk of stone recurrences in the group assigned to the high calcium, reduced animal protein and reduced sodium diet²⁰.

Potassium

An epidemiological study has reported that the lower the potassium intake, below 74mmol /day, the higher the relative risk of stone formation⁸. Lemann J Jr et al³¹ reported that higher intake of dietary potassium may reduce the risk of stone formation by reducing urinary citrate excretion. Two other observational studies also found that the risk of stone formation decreased substantially with increasing dietary potassium^{8,10}. Randomized trials with potassium citrate supplementation also demonstrated protective effect^{32,33}.

Protein

Protein has universal effects on most parameters involved in stone formation. High protein intake of animal origin contributes to hyperuricosuria due to purine overload, to hyperoxaluria due to higher oxalate synthesis, to hypocitraturia due to higher tubular reabsorption of citrate^{34,35}. Modern diet are rich in animal protein which increases acid load. The nutritional acid load is mainly buffered by the bones leading to skeletal calcium mobilization and thus elevated filtered load of calcium. Giannini S et al³⁶ reported that an acute moderate protein restriction reduces urinary oxalate, phosphate, hydroxyproline, calcium and uric acid and increases citrate excretion. Observational data suggested a slight increase in the risk of incident stone formation with higher animal protein intake in men⁸.

Vitamin C

Vitamin C (ascorbic acid) in large doses has been implicated as

a risk factor for calcium oxalate stone formation. In vivo ascorbate is metabolized to oxalate, which is then excreted in the urine. But the effect of large doses of Vitamin C in increasing urinary oxalate excretion is controversial^{37,38}. In prospective observational studies no association with risk of stone formation was observed for vitamin C intake, even among those with intake more than 1500mg/day^{39,40}. However, several short term feeding studies observed increased oxalate excretion and calcium supersaturation with high dose (2gm/day) of vitamin C⁴¹. A large cross sectional study found a slightly increased risk of stone disease in men and women taking vitamin C supplements⁴².

Fluid intake

An increase in fluid intake is routinely recommended for patients who have had a kidney stone to decrease the likelihood of recurrence. Higher fluid intake leads to increased urinary volume and in turn to a decreased concentration of lithogenic factors presumably decreasing the rate of stone formation. This approach is supported by many⁴³⁻⁴⁶ but not all⁴⁷. A very well conducted randomized, prospective study⁴⁸ involving first stone episode patients has shown lower risk of recurrence (12%) in those with a higher intake of water compared to those without (27%), in absence of any drug therapy, or any dietary change over a period of 5 year follow up. At present the practice is to advice patient fluid intake sufficient to maintain his urine output around 2-3 liter per day. As the calcium content of the drinking water increases urinary calcium excretion increases, but oxalate excretion falls^{49,50}. Water with large amount of bicarbonate may increase citrate excretion⁴⁹ and magnesium content of water may favorably alter citrate and magnesium excretion⁵¹. But to what extent the hardness and mineral composition of water affect stone risk remains undecided^{49,52,53}. There is still no definite evidence to support the notion that hard water rich in calcium and magnesium is more lithogenic than soft water.

Beverages differ in the amount of potentially important constituents, such as caffeine, oxalate, and alcohol that they contain. Therefore they may influence stone formation differently. Case control⁵⁴ and cross sectional⁴² studies have suggested decreased risk for caffeinated and decaffeinated coffee, tea, beer and wine while increased risk for grape juice consumption. Curhan GC et al⁵⁵ in a epidemiological study based on food frequency questionnaires showed that caffeinated and decaffeinated coffee was associated with a reduction of risk of 8-10%, while wine decreased the risk by 59%. In this study grape fruit juice ingestion was associated with a 44% increased risk of stone formation. Because coffee and particularly tea were believed to be high in oxalate and thus the inverse association is unexpected. A study⁵⁶ reported that black tea contains substantial amount of oxalate but very little is bioavailable. The protective effect of coffee, tea is possibly through urinary dilution by inhibition of anti diuretic hormone (ADH) in the distal tubule by caffeine. The mechanism for the increased risk observed for grape fruit juice is unknown. A metabolic study examining changes in the urine composition predicted that grapefruit juice should reduce the risk of stone formation by increasing urinary citrate⁵⁷. This is supported by the fact that other citrus juices such as orange and lemon apparently prevent^{58,59} and at least do not stimulate stone formation because of their high citrate content. A small short-term study suggested that home made lemonade is an effective approach to increase urinary citrate in individuals

with hypocitraturia⁵⁸, but whether this will reduce the likelihood of stone recurrence is not proved yet. Relative risk for consumption of specific beverages and risk of incident stone formation is shown in table -2.

Beverages	Relative risk
Coffee	0.90
Tea	0.89
Beer	0.80
Wine	0.60
Grapefruit juice	1.40

Table-2: Multivariate relative risks (per 240 ml) for consumption of specific beverages and risk of incident kidney stones^{54,55}

All these results must be interpreted cautiously until longterm randomized trials of dietary intervention are performed. Depending on the present knowledge the anti stone forming dietary recommendations are listed in table -3.

- Diet must be prescribed depending on the specific metabolic disturbances
- To ensure compliance, individual dietary habits should be taken into consideration.
- Avoid calcium restriction.
- Calcium and oxalate intake must be in balance.
- Advise moderate restriction of animal protein and NaCl intake.
- Encourage potassium intake.
- Fluid intake should be sufficient to produce at least 2.5-3.0 liters of urine per day.

Table-3: Dietary recommendations for prevention of recurrent nephrolithiasis.

Conclusion

The influence of diet on renal stone disease seems to be very complex as multiple interactions takes place between different nutrients and thus variably influence urinary parameters. But as dietary factors clearly play an important role in the etiology and recurrence of different types of stones in the urinary tract, general recommendations on dietary modifications may be beneficial and cost effective at population level. Patients may be informed that kidney stones can be prevented and dietary modification has an important role on this. Physician should no longer prescribe a low calcium diet to prevent recurrent calcium nephrolithiasis. The new trend is normalization of the dietary habits and not restriction of a single nutrient constituent. This type of diet will be of greatest value when it started early in the course of the disease.

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Dyslipidaemia : A major risk factor for coronary artery diseases and new strategy of its management

Ghose TC¹

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Abstract

Dyslipidaemia is a major risk factor for coronary artery diseases, not only in the USA and most European countries but also in the developing country like Bangladesh. The results of recently reported clinical trials concluded with the recommendations for modifications of the National Cholesterol Education Program Adult Treatment Panel III (ATP III) lipid-lowering guidelines. On the basis of evidence produced by the above trials and other clinical trial data, the NCEP has proposed changes to the ATP III guideline (table 2). For patients at very high risk, based on risk assessment, an LDL-C goal of <70 mg/dL (1.8 mmol/L) is considered a therapeutic option. In high-risk patients, initiation of drug therapy is recommended at LDL-C levels =100 mg/dL (2.6 mmol/L); initiation of drug treatment at an initial LDL-C of <100 mg/dL with a target of <70 mg/dL is also considered an option in patients at very high risk. For patients at moderately high risk, LDL-C<100 mg/dL is considered an optional treatment goal, and initiation of drug treatment at LDL-C levels of 100-129 mg/dL is now considered an option. The modifications also recommend that treatment in such patients be initiated with a lipid lowering agent at a dose sufficient to produce a reduction in LDL-C of at least 30-40%.

Introduction

Dyslipidaemia is a major risk factor for coronary artery diseases, the most common cause of death in the USA and most European countries. In future it will be the number one killer of developing country like Bangladesh also. More than 50% of the patients with unstable angina are dyslipidaemic¹. The results of recently reported clinical trials have provided persuasive evidence that low-density lipoprotein (LDL-C) targets and initiation cut points in lipid-lowering therapy have been set too high in individuals at high or moderately high risk of coronary heart disease (CHD). The evidence has resulted in recommendations for modifications of the National Cholesterol Education Program Adult Treatment Panel III (ATP III) lipid-lowering guidelines.

History

Atherosclerosis has been with us for at least 3500 years, but it appears to have been rare until industrialization. The onset of industrialization marks the first time in human history that several conditions conducive to the disease, including the mass cultivation of tobacco, were present at the same time, and under these conditions it did not take long before atherosclerotic diseases were common². There are few data available on the beginning of epidemic, yet a picture of its growth can be sketched from coded data from death certificates available in the United States since around 1900³ and from a data on a large Dutch kindred with familial hypercholesterolaemia (FH) available from 1850⁴. Data suggest that individuals with FH, who are more susceptible to early and aggressive atherosclerotic disease due to mutation of LDL

receptor gene, served much as miners' canaries, dying off earlier and at greater rates as industrialization and urbanization wrought their pro-atherogenic changes on society.

Classification of dyslipidaemia

Dyslipidaemia has numerous forms, from hypercholesterolemia to hypoalphalipoproteinemia. The term itself refers to an abnormal metabolism of plasma lipids. Genetic, dietary or secondary disease factors can cause this abnormal metabolism. The major classes of plasma lipids are cholesterol, cholesterol esters, triglyceride and phospholipid. Although lipids are vital components of many of the body tissue, they are insoluble in water. So to reach those tissues, lipid must be transported in the blood stream by complex, water soluble molecule called lipoproteins.

These lipoproteins are divided into five classes according to their density on ultracentrifugation and by their mobility on agarose⁴ gel electrophoresis and size:

1. Chylomicrons.
2. Very low density lipoproteins (VLDL).
3. Intermediate density lipoproteins (IDL).
4. Low density lipoproteins (LDL).
5. High density lipoproteins (HDL).

According to the Helsinki Heart Study patients in whom the greatest drop in CAD mortality was seen where those with type IIb HLP (Hypolipoproteins), a condition manifested by elevated LDL and triglyceride level and depressed HDL levels. Patients with greater concentration of small dense LDL has been reported to have three time greater risk for acute MI. High density lipoprotein particles are thought to participate in the reverse transport of free cholesterol from peripheral tissues by way of a HDL receptor. This receptor mediated reverse transport could explain why patients with elevated HDL concentration are less prone to CAD. Several genetic, epidemiological and clinical studies have linked elevated triglyceride to an increased CAD risk.

Pathophysiology of coronary artery diseases

Coronary artery diseases are nearly always caused by atherosclerosis. Other causes of atherosclerosis are rare. Atherosclerosis development is a complex process influenced by a myriad of risk factors, although the LDL level is among the most important. In an atherogenic milieu, oxidized LDL infiltrates the intima where it stimulates inflammation, endothelial dysfunction, damaged endothelium are scavenged by macrophages which become foam cells. At the same time vascular smooth muscle cells migrate from the media into intima where they hypertrophy, proliferate and synthesized an extra cellular matrix of connective tissue. Extra cellular cholesterol accumulates within the matrix which is covered by a fibro muscular cap consisting of smooth muscle cells, collagen and a single layer of endothelial cells. The final lesion is the atherosclerotic plaque which is the pathological hallmark of coronary artery disease and is responsible directly or indirectly for all its manifestations.

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Relation of LDL cholesterol to CHD risk

Although it is true that very high LDL levels (>200 mg/dl) are strongly associated with CHD risk, atherosclerosis is not uncommon even in those with relatively normal LDL levels (90 to 130 mg/dl)^{5,6}. Moreover, the 10% of the population with the high LDL levels account for only 20% of the CHD events⁵. Thus, focusing treatment only on those with very high cholesterol levels will ignore 80% of the people destined to suffer a CHD event⁶. The mega-trials using statin therapy have demonstrated remarkable reductions in CHD events and in all-cause mortality among patients with base line LDL levels generally from 120 to 180 mg/dl and on treatment values between 100 and 140 mg/dl⁷⁻¹³. Whereas cardiovascular events were reduced by 25% in these studies, approximately three out of four CHD events occurred despite the statin therapy. This 25% reduction in LDL represents only partial treatment, and more robust reductions appear to provide more impressive improvements in prognosis¹⁴.

Management of dyslipidaemia

Management of dyslipidaemia involves the Therapeutic Lifestyle Change (TLC) program and if needed, drug therapy.

TLC program includes:

1. Diet:
 - Decrease saturated fat, trans fat, and cholesterol.
 - Add plant stanols and sterols and increase soluble fibre.
2. Physical activity.
3. Weight management.

Drug therapy

The major types of cholesterol-lowering drugs are: Statins (lovastatin, pravastatin, simvastatin, fluvastatin, atorvastatin and rosuvastatin), Ezetimibe, Bile acid resins, Nicotinic acid (Niacin) and Fibrates.

The identification of an elevated LDL cholesterol as the primary target of lipid-lowering therapy is based on a wealth of information from basic research, animal studies, epidemiological studies, genetic forms of hypercholesterolemia, and controlled clinical trials. Recent clinical trials add support for the NCEP priority on high serum LDL cholesterol. Four new trials^{10,15-17} (HPS - Heart Protection Study, PROSPER study - Prospective Study of Pravastatin in the Elderly at Risk, ASCOT-LLA - Anglo-Scandinavian Cardiac Outcomes Trial - Lipid-Lowering Arm and PROVE IT - TIMI 22 - Pravastatin or Atorvastatin Evaluation and Infection Therapy - Thrombolysis in Myocardial Infarction 22) demonstrate that effective LDL cholesterol reduction substantially reduces risk for CHD.

The national Cholesterol Education Program (NCEP) Adult Treatment Panel III (ATP III) guidelines for reducing coronary heart disease (CHD) risk published in 2001 contained a number of important changes from prior lipid lowering guidelines^{18,19}. These included an increase focus on global risk in risk assessment and in determining intensity of therapy; attention to risk factors other than LDL cholesterol, including non-high-density lipoprotein cholesterol (non-HDL cholesterol) as a secondary target of therapy in individuals with elevated triglycerides; identification of the metabolic syndrome as a secondary target of therapy; and a new definition of the highest risk category to include CHD risk equivalents, such as diabetes, other atherosclerotic disease, and a 10-year CHD risk >20% conferred by the presence of multiple risk factors. This

later high risk category was assigned a treatment goal of LDL-C < 100 mg/dl (2.6 mmol/L), representing a significant change from the prior goal of = 100 mg/dl (table 1). In essence, this change was an acknowledgement that simply reaching a level of 100 mg/dl was not enough, and that additional risk reduction was to be gained with further LDL-C reduction.

Risk category	Consider drug therapy-2001 guidelines	LDL-C goal-2001 guidelines
High risk: CHD or CHD risk equivalents, 10 year risk >20%	≥130 mg/dL (3.4 mmol/L) Drug optional at 100-129 mg/dL (2.6 - 3.3 mmol/L)	<100 mg/dL (2.6 mmol/L)
Moderately high risk: 2+ risk factors, 10 year risk 10-20%	≥130 mg/dL (3.4 mmol/L)	<130 mg/dL (3.4 mmol/L)
Moderate risk: 2+ risk factors, 10-year risk <10%	≥160 mg/dL (4.1 mmol/L)	<130 mg/dL (3.4 mmol/L)
Lower risk: 0-1 risk factor	≥190 mg/dL (4.9 mmol/L) Drug optional at 160-189 mg/dL (4.1-4.8 mmol/L)	<160 mg/dL (4.1-4.8 mmol/L)

Adapted from NCEP ATP III¹⁹

Table -1: NCEP ATP III LDL-C goals and cut-points for lipid-lowering drug therapy according to risk category - 2001 guidelines.

Risk category	Consider drug therapy -2004 update	LDL-C goal-2004 update
High risk: CHD or CHD risk equivalents, 10 year risk > 20%	≥100 mg/dL (2.6 mmol/L) <100 mg/dL (2.6 mmol/L) <i>optional in very high risk</i>	<100 mg/dL (2.6 mmol/L) <70 mg/dL (1.8 mmol/L) <i>optional in very high risk</i>
Moderately high risk: 2+ risk factors, 10 year risk 10-20%	≥130 mg/dL (3.4 mmol/L) <i>Drug optional at 100-129 mg/dL (2.6-3.3 mmol/L)</i>	<130 mg/dL (3.4 mmol/L) <100 mg/dL (2.6 mmol/L) <i>optional</i>
Moderate risk: 2+ risk factors, 10-year risk <10% Lower risk: 0-1 risk factor	≥160 mg/dL (4.1 mmol/L)	<130 mg/dL (3.4 mmol/L)
Lower risk: 0-1 risk factor	≥190 mg/dL (4.9 mmol/L) Drug optional at 160-189 mg/dL (4.1-4.8 mmol/L)	<160 mg/dL (4.1 mmol/L)

Adapted from Grundy et al.²⁰

Table-2: Recommended revision to NCEP ATP III LDL-C goals and cut-points for lipid lowering drug therapy according to risk category (changes in update shown in Italics).

On the basis of evidence produced by the above trials and other clinical trial data, the NCEP has proposed changes to the ATP III guideline (table 2)²⁰. For patients at very high risk, based on risk assessment, an LDL-C goal of <70 mg/dL (1.8 mmol/L) is considered a therapeutic option. Patients with very high risk can be considered to be those with established atherosclerotic cardiovascular disease who have multiple risk factors (especially diabetes), severe and poorly controlled risk factors (e.g. ongoing cigarette smoking), of acute coronary syndromes. In high-risk patients, initiation of drug therapy is recommended at LDL-C levels =100 mg/dL (2.6 mmol/L); initiation of drug treatment at an initial LDL-C of <100 mg/dL with a target of <70 mg/dL is also considered an option in patients at very high risk. For patients at moderately high risk (two or more risk factors conferring a 10-20% 10-year risk), LDL-C <100 mg/dL is considered an optional treatment goal, and initiation of drug treatment at LDL-C levels of 100-129 mg/dL is now considered an option. It should be noted that the ATP III non-HDL-C goals in patients with elevated triglycerides after achieving target LDL-C, set at 30 mg/dL, the target non-HDL-C is <100 mg/dL. The guideline modifications also recommend that when lipid-

lowering therapy is to be employed in high risk or moderately high risk patients, intensity of therapy should be sufficient to achieve at least a 30-40% reduction in LDL-C.

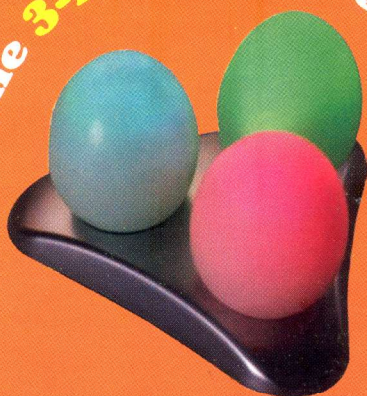
Conclusion

The evidence from the recently reported clinical trials of statin therapy has resulted in recommendations for modifications of the National Cholesterol Education Program (NCEP) Adults Treatment Panel III (ATP III) Lipid lowering guidelines. The recommendations include an optional LDL-C target of <70 mg/dl (1.8 mmol/L) and an optional treatment initiation cut point of <100 mg/dl (2.6 mmol/L) in high-risk patients, especially those considered to be at very high risk, and an optional target of <100 mg/dl (2.6 mmol/L) and a treatment initiation cut point of <130 mg/dl (3.4 mmol/L) in patients at moderately high risk. The modifications also recommend that treatment in such patients be initiated at a dose sufficient to produce a reduction in LDL-C of at least 30-40%.

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Paroxysmal nocturnal haemoglobinuria

Amin MR¹

The ORION 2006 ; 25: 398-399

In Paroxysmal nocturnal haemoglobinuria (PNH), there is acquired mutation of PIGA gene of haemopoietic stem cell though the PIGA mutation may occur in normal individual. If the stem cell with mutant PIGA gene proliferates, the result is a clone progeny deficient in glycosylphosphatidylinositol (GPI) linked cell surface protein. GPI works as an anchor and necessary for the attachment of a number of proteins to the external membrane surface. If GPI is absent partially or completely- there is absence of those proteins. About 20 such proteins have been found in patient with PNH. The normal clone of stem cells does not completely disappear, and the properties of cells that are abnormal varies among patients and over time in a single patient. Such PNH cells are now most accurately enumerated by fluorescence activated Flowcytometry of CD55 or CD59 expression on granulocytes. Deficient cells can be detected in about a quarter of patients with aplastic anaemia at the time of presentation and also seen in cases of hypocellular Myelodysplastic syndrome. Functional studies of bone marrow, even those with haemodynamic manifestation, show evidence of defective haemopoiesis. Patient with clinical diagnosis of PNH, younger individuals may develop frank bone marrow aplasia and pancytopenia. Patient with aplastic anaemia may suffer from hemolytic PNH year after recovery of blood counts.

Clinical manifestation

It is an uncommon disease and usually first appear in adult life, most commonly in 3rd or 4th decade. Both sexes are equally affected. It is not hereditary and unrelated to race. The onset is insidious. The common manifestations are haemopoiesis and haemoglobinuria. Haemoglobinuria is the cardinal manifestation clinically and is seen in nearly all patients. It is present at onset in approximately 50 percent. The severity of haemoglobinuria varies as indicated by level of intravascular haemolysis and plasma haemoglobin level. It is related to sleep either day or night time. The etiology of this phenomenon is not known. Characteristically the urine passed in the night or in the morning on waking is red but in severe cases all urine samples are colored, though day time samples are lighter. Bouts of haemoglobinuria alternate with remission lasts for week or months during which haemoglobinuria is absent. Rarely haemoglobinuria is absent for year or even for the whole course of disease. Attacks of increased haemolysis and haemoglobinuria are sometimes precipitated by stress, exercise, infection, menstruation, blood transfusion, surgery and administration of drugs eg. Iron. Mild jaundice is usual and slight enlargement of liver and spleen is common. Abdominal or lumbar pain and fever occasionally accompany or attack of haemoglobinuria. The lack of two proteins; Decay Accelerating Factor (DAF- CD55) and a membrane inhibitors of reactive lysis (MIRL-CD59) make the RBC more sensitive to the lytic

effect of complement.

The anaemia is highly variable with haematocrit values ranging from <20% to normal. RBC are normochromic normocytic unless iron deficiency. Granulocytopenia and thrombocytopenia occurs.

The platelets also lack these proteins, but the life span of platelets is normal. However activation and complement indirectly stimulate platelet aggregation and hypercoagulability; this probably accounts for the tendency to thrombosis in PNH.

Venous thrombosis is a common complication of patients with European origin- 40% at one time or another; it is less common in Asian Patients. It occurs primarily in intra-abdominal veins (hepatic, portal, mesenteric) and results in the Budd-Chiari Syndrome, congestive splenomegally and abdominal pain. Cerebral venous thrombosis may cause headache and sudden death. The patient may die from hepatic failure.

Haemosiderinuria is a constant and characteristics finding. Some patient may develop iron deficiency anaemia. No free red cell is found in urine.

Blood picture

The blood picture shows anaemia of varying severity with moderate macrocytosis, polychromasia, moderate leucopenia and mild thrombocytopenia. The reticulocyte count is high but to a lesser extent expected for the degree of anaemia. In irondeficit patient, hypochromia and microcytosis are present. In active phase, haemoglobin is usually present in serum, which may also have brownish tint due to the presence of methaemoglobin. HB-F is occasionally elevated. Serum bilirubin is moderately elevated. The neutrophil-alkaline phosphate score is decreased but may be normal in aplastic phase. The coagulation studies show a hypercoagulable state which increases during haemolytic crisis. In occasional cases, the direct anti-globulin test is positive. The bone marrow is hypercellular during haemolytic phase of the disorder with normoblastic erythroid hyperplasia and some dyserythropoiesis. In aplastic phase there is a reduction of all marrow element and iron stores may be normal.

Diagnosis

PNH should be diagnosed in anyone with otherwise unexplained haemolytic anaemia, especially with leucopenia and or thrombocytopenia and with evidence of intravascular haemolysis (haemoglobinuria, haemosiderinuria and elevated LDH) anyone recovering from aplastic anaemia should be examined at intervals for the diagnosis of PNH.

Ham's acid serum test

For many years, Ham's test was considered definitive diagnostic test for PNH. The principal is that the patients cell undergoes haemolysis in compatible acidified serum at 37°C. The serum may be patients own or from another normal subject. From 10-50% cell lysis is usually observed in positive test. The alternate pathway of complement is responsible for

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cell lysis. Ham's test may be positive in the serum of normal patient with the syndrome of congenital dyshaemopoietic anaemia (hereditary erythrocytic multinuclearity with positive acidified serum- HEMPAS). *Method:* Fresh serum is acidified, usually with hydrochloride acid to a Ph 6.4. The cells from the patient to be tested, are then placed into the acid serum for 30 minutes at 37°C. Lysis of the RBCs is then determined and compared with normal controls³. Normal red cells will not rupture under this condition. But complement sensitive cells will rupture readily.

Sucrose haemolysis test

This is useful screening test for PNH. It is more sensitive than the acid serum test, but lacks the latter's specificity. PNH red cells lysis when suspended in isotonic solution of low ionic strength, if serum is also present. The lysis of the RBC is mediated by activation of classical complement pathway. More than 10% haemolysis is said to be diagnostic for PNH, values of 5-10% being border line. *Method:* In this test Red cells of patients suspected of having PNH are incubated in a sucrose medium of reduced ionic strength. To this mixture, a small amount of complement containing serum is added in this medium. PNH cells are lysed readily and normal cells are not.

Course and prognosis

It is a chronic disorder and severity varies. Some patients survives at least 20 years with good medical care. But the median survival is 5-10 years. Death occurs from anaemia, post operative complications, visceral thrombosis, haemorrhage, infection or some unrelated disorder. Post-splenectomy thromboembolism is a major cause of death. Rarely apontaneous cure of the disease occurs. The PNH may evolve into other dysplastic bone marrow diseases, including aplastic anaemia sideroblastic anaemia and myelofibrosis. Rarely PNH also evolves into acute leukemia.

Treatment

Transfusion therapy is useful in PNH not only for raising the haemoglobin level but also for suppressing the marrow production of RBC during episodes of sustained haemoglobinuria. Washed RBC are preferred source to prevent exacerbation of haemolysis. Therapies with androgens (oxymethalone 10-50 mg daily for at least 2 months) may raise the haemoglobin level. Glucocorticoid reduce the rate of haemolysis in moderate dose (15-30 mg prednisolone on alternative day).

Iron deficiency is common. Iron replacement may exacerbate haemolysis because of formation of many new RBC which may be sensitive to complement. This may be reduced by giving Prednisolone 60mg/day or suppressing the bone marrow by transfusion.

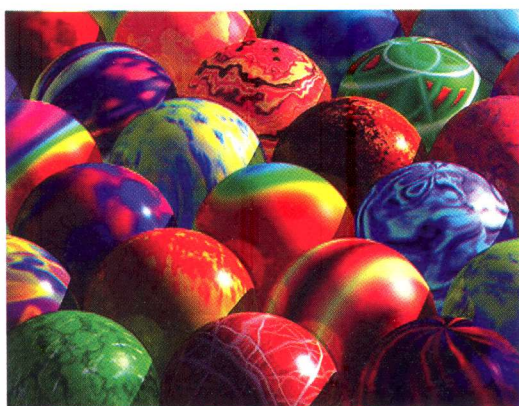
Acute thrombosis in PNH, particularly the Budd-chiari syndrome and cerebral thrombosis, should be treated with thrombolytic agents. Heparin therapy should be instituted rapidly and maintained for several days before changing to cumarin therapy. Antithymocytic globulin (total dose 150 mg/kg over 4-10 days is often in use in treating marrow hypoplasia. Prednisolone counteracts the immune complex disease that results from administration of this foreign protein.

In patient with either hypoplasia or thrombosis have an appropriate sibling donor, marrow transplantation should be considered early in the course of disease. The useful conditioning program are sufficient to eradicate the aberrant clone.

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Prevention of rheumatic fever

Rahman MT¹, Haque KMHSS²

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Introduction

Rheumatic fever is an inflammatory disease that occurs as a delayed nonsuppurative sequel to group A streptococcal infection of the pharynx. It involves the heart, joints, central nervous system, skin, and subcutaneous tissues with varying frequency. Its clinical manifestations include migratory poly arthritis, fever, carditis, and less frequently Sydenham's chorea, subcutaneous nodules, and erythema marginatum. Rheumatic fever is a clinical syndrome for which no specific diagnostic test exists. No symptom, sign, or laboratory test result is pathognomonic. Although several combination of them are diagnostic. Its importance relates to involvement of the heart, which, though rarely fatal during the acute stage, may lead to rheumatic valvular disease, a chronic and progressive condition that causes cardiac disability or death many years after the initial event.

Antecedent infection of the upper respiratory tract with the group A streptococcus is necessary for the development of rheumatic fever. Cutaneous streptococcal infection may lead to acute glomerulonephritis but has never been demonstrated to cause rheumatic fever. The evidence establishing the group A streptococcus as the etiologic agent of rheumatic fever is only indirect, because the organism cannot be recovered from the lesions and there is no experimental animal model. Never the less, the evidence from clinical, immunologic and epidemiologic studies is overwhelming. At least one third of patients deny previous sore throat, and cultures of the pharynx are often negative for group A streptococci at the onset of rheumatic fever. However, an antibody response to streptococcal extracellular products can be demonstrated in all most all cases,¹ and the attack rate of acute rheumatic fever is strongly correlated with the magnitude of the antibody response.² A clear sequential relationship between outbreaks of streptococcal pharyngitis or scarlet fever and rheumatic fever has been demonstrated in epidemiologic studies of military recruit camps, and such outbreaks can be eradicated when streptococcal infection is controlled by chemotherapy.³ Prompt and effective penicillin therapy of streptococcal pharyngitis prevents the initial attack of rheumatic fever (So called primary prevention)⁴, and continuous chemoprophylaxis against streptococcal infection (Secondary prophylaxis) prevents its recurrences.⁵

Rheumatic fever (RF) and rheumatic heart disease (RHD) continue to be serious health hazards in most developing countries including Bangladesh. RHD has always been considered to be a preventable disease. The three strategies for prevention consist of (i) primordial prevention (ii) primary prevention and (iii) secondary prevention.

Primordial prevention

Primordial prevention requires, preventing the development of 'risk factors' in the community to prevent the disease in the population and thus protect individuals. Measures for primordial prevention in relation to RF and RHD consist of: (i) Improvement in socio-economic status (ii) Prevention of overcrowding (iii) Prevention of under nutrition & malnutrition (iv) Availability of prompt medical care and (v) Public education regarding the risk of RF from sore throat specially below the age of 15 years. The last one, that is, public education is the most important component for primordial prevention. Unless parents know that a sore throat can cause RF and RHD, it is most unlikely to be seen by a physician and treated. It is necessary to point out that the recent resurgence of RF in United States of America (USA) occurred in well off families, without any overcrowding and with good quality medical facilities being readily available.⁶ As such, improvement in socio-economic status and preventing overcrowding cannot be relied upon to reduce the burden of RHD. Improvement in socio-economic status is also not under medical control and it is not possible to wait for it to happen.

Primary prevention

Primary prevention of RF is theoretically feasible but practically almost impossible to achieve at the community level. However, it can be practiced on an individual basis. Primary prevention requires identification of group-A beta hemolytic streptococcal (GABHS) sore throat and use of penicillin to eradicate the streptococci. Measures for primary prevention consist of: (i) Public awareness regarding danger of RF from sore throat (ii) Identification of sore throat as being streptococcal, and (iii) Use of injectable penicillin to cure the streptococcal infection.

It is important to know that oral penicillin may not be effective in preventing RF. RF occurred in 15% to 48% children given oral penicillin for 10 days in the recent epidemic in USA^{7,9}. It is, therefore, essential that injectable penicillin is used in order to prevent RF. The recommended dose of penicillin is 400,000 units of procaine penicillin twice daily for 10 days. Although recommended, one injection of 1.2 mega units of benzathine penicillin may not be enough to eradicate GABHS infection¹⁰.

The inability to utilize primary prevention at the community level is due to the large number of sore throats required to be treated to prevent RF. Community level management requires a sledge hammer approach, that is, treating each sore throat. Bacteriological facilities required to diagnose streptococcal sore throat at the community level for the whole country, at present, do not exist and are not likely in the near future. Hence, each sore throat will need to be treated. This is logistically not feasible for the whole country. Anywhere from 3% to 20% of sore throats can be streptococcal, the rest being viral infections which do not require treatment. About 0.3% of streptococcal sore throats result in RF. Recent data suggests that almost 90% of those who get RF develop RHD¹¹. Hence if 10,000 sore throats are treated by the sledge hammer approach, anywhere between 300 to 2000 streptococcal sore throats would be required to be treated (assuming that 3-20% of these are streptococcal). This would result in preventing RF in 1 to 6 children (0.3% streptococcal sore throats cause RF),

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and RHD in 5 or 6 children. Thus community level primary prevention is not feasible although it may be possible for select individual patients.

Another problem with sledge hammer approach is the identification of sore throat and its treatment. The data related to resurgence of RF in USA indicates that up to 78% of streptococcal sore throats may be asymptomatic. The 10-day oral penicillin treatment was not followed even by well educated families and up to 48% of those given oral penicillin still developed RF^{7,9}. Unless a sore throat is symptomatic, it would not be treated and can result in RF⁹. This makes primary prevention, based on the diagnosis of streptococcal sore throat and use of oral penicillin, inadequate to reduce the burden of RHD in the country.

As of today, there are no markers which can be utilized to identify susceptibility to RF⁷. Susceptibility to RF in the form of studies of HLA and the B-lymphocyte antigen, D8/17 have not given results which can be utilized to identify the susceptible people in the population to practice primary prevention¹². However, primary prevention is feasible if an antistreptococcal vaccine becomes available.

Secondary prevention

Secondary prevention requires identification of those who have had RF or have RHD. Once identified, the patient needs injections of benzathine penicillin, given once in two to three weeks, depending on age, body size and muscle mass. Benzathine penicillin is painful, and may result in fever and very rarely (one in a million injections in children) in anaphylactic reactions.

Agent	Dose	Mode
Benzathine penicillin G	1200000 U every four weeks*	Intramuscular
or		
Penicillin V	250mg twice daily for patient	Oral
or		
Sulfadiazine	0.5g once daily for patients = 27 kg(60 lb) 1.0g once daily for patients > 27kg(60 lb)	Oral
For individuals allergic to penicillin and sulfadiazine		
Erythromycin	250 mg twice daily	Oral

* In high-risk situation, administration every three weeks is justified and recommended.

TABLE 1. Secondary prevention of rheumatic fever¹⁸

Category	Duration
Rheumatic fever with carditis and residual heart disease (persistent valvular disease*)	At least 10 years since last episode and at least until age 40 years, sometimes lifelong prophylaxis
Rheumatic fever with carditis but no residual heart disease (no valvular disease*)	10 years or well into adulthood, whichever is longer.
Rheumatic fever without carditis	5 years or until age 21 years, whichever is longer.

*Clinical or Echocardiographic

TABLE 2. Duration of secondary rheumatic fever prophylaxis¹⁸

Most physicians are very reluctant to give benzathine penicillin injections. Penicillin prophylaxis is considered necessary because RF has a tendency of recurrence in those who have had RF in the past. Each new attack causes further damage to the valvular tissue making the disease worse than before¹¹.

Secondary prevention can reduce the chance of recurrence but cannot prevent the initial damage. While it is ethically mandatory to prevent recurrences, secondary prevention cannot reduce the burden of RHD.

Anti-streptococcal vaccine

Availability of an anti-streptococcal vaccine which could prevent streptococcal infection is essential for primary prevention of RF. It is at present not available. Several GABHS protein components and the polysaccharide have been considered for utilization in developing a vaccine¹³. Most work has been done in relation with the M-protein, considered to be the virulence factor of the GABHS. M-protein has been found to be strain specific, that is, each strain has its specific characteristics and will protect against only that particular strain. Since more than hundred different strains have been identified it becomes essential that the vaccine must be polyvalent, that is, it should incorporate all those strains which are present in the community. The problem associated with M-protein is that the GABHS has a strong tendency for mutation which can occur rapidly¹⁴. A vaccine made from the locally dominant strains of GABHS may not be effective if the infection is due to a mutant organism. M-protein has a conserved C-region component which is common to most strains and variable A and B regions which differ from strain to strain. Attempts to use the preserved C-region component of M-protein have not succeeded as yet.

More recently GABHS has been found not to express M-protein¹⁵. If fatal infection can occur from GABHS which does not have M-protein, it is difficult to accept that M-protein is the main virulence factor of GABHS. Vaccine based on M-protein is unlikely to succeed because : (i) M-protein cross-reacts with myocardium and may not be safe (ii) M-protein is strain-specific, hence the anti-GABHS vaccine has to include all the strains in the community (iii) since GABHS strains vary from place to place, vaccine based on M-protein made in one country may not be effective in another country (iv) GABHS mutation alters the emm gene sequence of the M-protein. Mutation can occur in a few weeks, making the vaccine ineffective even in a very short time¹⁴ and (v) virulent GABHS is now known not to express M-protein. Hence, M-protein cannot be the chief virulence factor of GABHS¹⁵.

Other components of GABHS which are being tried for preparing a vaccine are GABHS C5a peptidase, a major surface virulence factor; fibronectin binding protein sfb1, and the chimeric peptide J8 from the conserved region of the M-protein¹⁶.

Streptococcus pneumonia (pneumococcus) is another variety of streptococcus species causing disease in humans. A vaccine against pneumococcal infection is already available and is being used though it is, as yet, not as effective as one would like it to be. The vaccine has been prepared using the polysaccharide conjugated with proteins to make it stable and have a longer duration of effectiveness. The GABHS polysaccharide has been shown to be immunologically active

and reactive with cardiac valvular tissue¹⁷. Since the polysaccharide component of GABHS is uniformly identical, it is surprising that it is not being utilized to prepare an anti-GABHS vaccine as has been done for the anti-pneumococcal vaccine.

Conclusion

We are fortunate in our country that the health of the child generally remains a priority and responsibility of the parents even when the child becomes an adult. Hence, prevention of RF and RHD is possible to a large extent if we can provide the message, in local languages, to the population (parents) that sore throats should not be neglected; that sore throats should be shown to a doctor for treatment to prevent RF and RHD. All medias are the means available for reaching each and every corner of the country and should be utilized for this purpose. If education can be made compulsory till the age of 15 years, school health care facilities can be utilized to control RF. Primary prevention will have to wait till a safe and effective GABHS vaccine becomes available.

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MSD NEWS

Rajshahi

Sathia THC, Pabna

On 23rd June 2006, a round table meeting was organized by Sathia THC, Pabna on "The Role of Amino Acid in Human Body". The meeting was held at the conference room of Sathia Thana Health Complex. The session was chaired by Alhaz Dr. Md. Abdur Razzaque Miah (THA). In the meeting Dr. Md. Azmol Hossain (Deputy Civil Surgeon) and about 30 doctors were present.



Nazipur THC, Naogaon

Nazipur THC, Naogaon arranged a round table meeting on "The Role of Amino Acid in Human Body". It was organized on 17th June 2006 at the THC conference room. The chairperson on the meeting was Dr. Farid Uddin (THA). 27 doctors attended the session.

Mohadebpur THC, Naogaon

A round table meeting was arranged on "The Role of Amino Acid in Human Body" by Mohadebpur THC, Naogaon. It was held on 18th June 2006 at THA room of Mohadebpur, Naogaon. The chairperson of the session was Dr. S. M. Bazlul Hossain (THA). Other doctors who also attended the meeting were Dr. Ranjan Chaudhury and Dr. Md. Akhtaruzzaman. About 30 doctors participated in the presentation.

Faridpur THC, Pabna

A round table meeting was arranged on 21st June 2006 on "The Role of Amino Acid in Human Body" by Faridpur THC, Pabna. The meeting was chaired by Dr. Md. Monsurul Islam (THA) and Dr. G.M. Raihanul Islam was the key note speaker. About 30 doctors attended the meeting.



Shibgonj THC, Chapainwabgonj

A presentation on "The Role of Multivitamin & Multiminerals in Human Body" was organized by Shibgonj THC, Chapainwabgonj. It was held on 10th May 2006. Dr. Sharifur Rahman (THA) was appointed to be the chairperson. Total participant of the program was about 30.

Atrai THC, Naoga

On 15th June 2006 Atrai THC, Naoga organized a round table meeting on "The Role of Amino Acid in Human Body". The meeting was held at the conference room of Atrai Thana Health Complex. Dr. Md. Elahi Bok's chaired the meeting. There were about 30 participating doctors.

Durgapur THC, Durgapur

Doctors of Durgapur THC organized a round table meeting. The meeting was conducted on 15th April 2006 at the Thana Health Complex conference room. The meeting was highlighted on "The Role of Multivitamin in Human Body". Dr. Md. Ishak Ali (THA) chaired the session. About 30 doctors attended the meeting.



Ishwardi THC & Railway Hospital

Ishwardi THC & Railway Hospital organized a round table meeting on "The role of Amino Acid in Human Body". The meeting was held on 18th July 2006 at Progati Chinese Restaurant. Dr. Md. Abdul Mannan, President BMA, Ishwardi Branch was the chairperson in the session and Dr. G.M. Raihanul Islam was appointed as the key note speaker. About 35 doctors attended the meeting.



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Radiofrequency surgery: A novel approach to ano-rectal diseases

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Abstract

Background: Radiofrequency surgery is a method of utilizing high frequency [3.8 to 4MHz] radio wave energy to incise, excise, or coagulate tissues. Radiofrequency (RF) is a relatively new modality that is being used for ano-rectal surgeries with increasing frequency. Radiofrequency energy consists of an alternating current that moves from an active electrode that is used within the area of treatment to dispersive electrodes that are placed on the patient. As the RF energy is applied, frictional heating of tissues results, with cell death occurring at temperatures between 60 and 1000° C. **Objective:** This paper discusses pre-clinical and early clinical experience with radiofrequency for various ano-rectal procedures namely hemorrhoids, anal fistula, anal polyps, sinuses and anal papillae. An Ellman dual frequency radiofrequency generator is used to carry out the procedures. This study is intended to be somewhat of a manual, explaining the principles of radiofrequency. **Conclusion:** Radiofrequency proctological procedures are simple to perform with many advantages over the more traditional techniques. The procedures take less operative time, the postoperative recovery is accelerated and the incidences of complications are negligible. Nevertheless, randomized and comparative evaluation with conventional techniques is called for to establish the long-term efficacy and reliability of radiofrequency surgery.

Keywords

Radiofrequency, Proctology, Electrosurgery, Hemorrhoids, Anal fistula.

Introduction to radiofrequency surgery

The use of electric currents in medicine has been documented almost since electricity itself was discovered. Low frequency alternating currents are used in physiotherapy for their ability to cause contractions in muscle fibres.

Radiofrequency is a refined type of electrosurgery that utilizes a wave of electrons at a frequency between 2 and 4 MHz to incise, excise, ablate or coagulate the targeted tissue¹.

Radiofrequency surgery has a lengthy documented history of use in oral, ophthalmic, plastic, and gynecology surgery. It was first used for the treatment of snoring. Gradually, its use in the practice of dermatology², cosmetology, cardiology, neurosurgery, hepatology, and ENT^{3,4} procedures gained momentum and popularity. It has multi-faceted usages in the respective medical fields⁵. However, there have been few published reports of its use in proctology.

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Surgeons and proctologists have used this instrument very sparingly, and that too more out of curiosity than a serious attempt to utilize its vast potentials. The reason perhaps, might be that they were satisfied with the results of the conventional techniques employed by them, or were not sure about the use of this tool in the ano-rectal surgery for want of sufficient literature on the subject.

For a surgeon practicing proctology, there are few important goals to achieve. The aim of attempting a new technique should be of minimizing tissue damage and obtaining an assured hemostasis during reconstruction, excision, or ablation process.

Radio surgery can simply be termed as an electrosurgery at radiofrequency. The term 'radio' is used because the frequency of the device creating these waves is comparable to radiowave frequency used for broadcasting. It is necessary here to dispel any possible misconception about radio surgery by discussing two other, older modalities namely, 'electrocautery' and 'hyfrecation' that are quite different from radio surgery.

Electrocautery involves the passage of low frequency, low voltage, and low wattage alternating current (0.5 - 1.5 MHz) through the electrode, which resists the flow of current and becomes hot. In electrocautery, the heat [rather than the radio wave is transferred to the soft tissue by convection. Massive cell destruction results from the application of cautery and the destruction caused by this cauterization are equivalent to that of a third degree burn.

While in hyfrecation, a highly modulated high frequency current of low wattage and high voltage is supplied to the electrode, and the surface of the tissue is burnt by a spark, which is produced between the tip of the electrode and the tissue. Its effect is mainly superficial and it cannot be used to incise the tissue.

The high frequency radio surgery and its results should also not be confused with diathermy, electric cauterization, or spark producer. With radiofrequency, the targeted tissue temperatures stay localized within a 60-100°C range thus limiting heat dissipation and damage to adjacent tissue. In contrast, electrocautery, diathermy, or laser temperatures are significantly higher (750-900°C) which result in a very high heat propagation, which is far in excess of the desired therapeutic need⁶.

Electro surgical machines operating at frequencies below 3 MHz causes the electrode itself to heat and it has been found that these electrodes, if made of steel, tend to melt away with repeated use. It has been determined that the ideal frequency for achieving effortless cutting of tissues is approximately 4 MHz⁷.

Radiofrequency energy has been used extensively in many different medical applications and specialties for its ability to achieve a precise and controlled thermal ablation of soft tissue.

The heat for this ablation is generated by a natural resistance of the tissue, which comes in the path of the waves released through the electrode tip of the device. The cellular water in the soft tissues gets heated and when the temperature reaches 1000°C, it starts boiling and produces steam, which results in cellular molecular dissolution of individual tissue cells. The cells exposed to these waves are destroyed while the surrounding tissues remain unaffected. This property of radiofrequency eliminates the possibility of undue damage to the normal tissues, while improving the surgical precision⁸.

The radiofrequency unit functions with the active electrode concentrating the high frequency energy at its tip, and then transmitting it to the passive electrode which returns the waves to the unit, making them more effective⁹.

The radiofrequency unit-While there are different radiofrequency units in the market, the Ellman dual frequency 4MHz [Ellman International Inc, Oceanside, USA] with a proven and successful history of its efficacy, and being available with a multitude of electrode tips, is quite useful to carry out various proctological procedures. The unit produces output power of 100 Watts at two different frequencies i.e. 4MHz and 1.7MHz. While the frequency of 4MHz is used for four standard settings like 1. Cutting 2. Cutting and Coagulation 3. Pure coagulation and 4. Fulguration, the frequency of 1.7MHz is used for bipolar coagulation¹⁰. The unit has a digital display and audible signal to indicate when the unit is activated. The output power intensity to be delivered through the electrode can be preset between 1 and 100.



Figure 1: Radio Surgical Unit

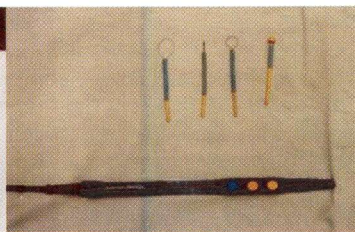


Figure 2- Hand piece and electrodes of the radiofrequency device

The high frequency current delivered by the unit is modified by filtering and rectification to produce one of the four waveforms, namely:

- Fully filtered - suitable for cutting-produces least lateral heat.
- Fully rectified - suitable for cutting but which also produces lateral heat to coagulate.
- Partially rectified modulated - suitable for coagulation and which generates maximum lateral heat.
- Fulguration - spark gap waveform- to produce desiccation or dehydration.

The fifth mode of waveform is bipolar, which is primarily used in microsurgery and as haemostatic current of high precision in wet or dry areas, using a pair of tweezers as electrodes.

An 'antenna' is used to focus the "radio wave" which unlike traditional electro surgical units, does not need to be in contact with the skin of the patient. It could rather be placed in close

proximity of the operating field. The unit is activated by a foot pedal. The 'active' or patient electrode is interchangeable with four different modes of activities¹¹.

1. A Needle electrode, which is used for making incisions;
2. Loop electrodes, which are used for excision and shaping tissues;
3. Ball electrode, which is used for coagulation; and
4. Rod electrodes, which are used for fulguration and desiccation of the tissues.

The property of simultaneous cutting and coagulation achieved by this machine has most attracted. Such versatility of the tool is of utmost utility in most procedures performed within the ano-rectal area, which is quite vascular and having very limited accessibility. While operating in such a difficult area, bleeding and oozing from the tissue often hampers clear vision of the operative field, rendering the procedure difficult and a time-consuming job. Radiofrequency surgical techniques successfully overcome these deficiencies.

Indications of 3.8 - 4.0MHz dual frequency radio surgery-

Radiofrequency surgery can be used to tackle a variety of anal lesions. They include-

- Hypertrophied anal papillae
- Sentinel tags in anal fissures
- Perianal warts and condylomata
- Perianal and pilonidal sinuses
- Perianal papillomas
- Fistula in ano
- Biopsies
- External hemorrhoids
- Rectal polyps
- Fibrous anal polyps
- Post fissure antibiomas
- Rectal prolapse
- Hemorrhoids

Surgical techniques

Most applications are accomplished with under local anesthesia, short-term general anesthesia or under a caudal block.

While many different electrodes are available with the unit, most procedures could perform by using the loop, the ball and the fine needle electrodes.

Hypertrophied anal papilla: They immediately disappear on coming in contact with the activated ball electrode in coagulation mode¹².

External hemorrhoids: Small masses are coagulated with the ball electrode. However, a large sized mass is required to be shaved off with the round loop electrode kept in a cutting and coagulation mode. Any bleeders from the base could well be coagulated with the ball electrode.

Sentinel piles in fissure in ano: Sentinel pile or tags are a common accompaniment of chronic anal fissures. If the tag is small, it could be directly coagulated with a ball electrode. In case it is large, then it is excised with the round loop by first securing the bleeding points and coagulating them thereafter¹³.

Perianal warts and condylomata: These could be shaved off using a loop electrode in cut and coagulation mode. Once all of them are removed, the operated area is 'sterilized' by rolling a ball electrode on coagulation mode to ensure removal of

invisible warts and the viral colony. The intra-anal warts could preferably be coagulated rather than being excised.

Rectal polyp: It is better if they are dealt with within the anal canal. A longer length ball electrode is passed through the proctoscope, and a coagulation field is encircled around the base of the polyp. The pedicle is then coagulated until the mass is separated. This ensures a negligible bleeding which could be secured by coagulation with the help of the ball electrode in coagulation mode.

Fibrous anal polyps: These are forms of exaggerated anal papillae. These could be coagulated in situ using the ball electrode, but when these are large enough, these may be shaved off with a loop electrode after coagulating the base¹⁴.

Perianal and para sacral sinuses: These include the pilonidal sinuses, post anal sinuses, and post-traumatic sinuses. Methylene blue dye mixed with hydrogen peroxide is injected in the sinus opening, which spreads out in the sinus tract. The tracts so identified, are then incised and laid opened with the needle electrode. The bleeding points are secured by coagulating them with the ball electrode¹⁵. The wound is left open to heal by secondary intention.

Perianal papillomas: These can precisely be removed using a loop electrode of a suitable size. The raw area left behind may require a touch of a ball electrode in coagulation mode to arrest any oozing from the base.

Perianal antiabiomas: These are also known as antibiotic granuloma, organized abscess, sterile abscess etc. The aim of treatment is to curette the complete cavity, which could be achieved by incising the center of the lump using a needle electrode in cut and coagulation mode. All the granulation tissues, which feel hard with little bleeding, are scrapped out with a round loop electrode until a soft red base is reached.

Biopsies: Biopsies can be performed for suspected growths in and out of the anus. A round loop electrode is the best tool. It should be used on a cutting mode, so that with only a minimum lateral thermal damage, the histology is not distorted¹⁶.

Fistula in ano: With a needle electrode on cut/coag mode, the fistula tract is slit opened over the director probe, which is inserted in the tract. The edges of the wound are shaved off by the loop electrode to create a pear shaped wound tapering towards the anus. The bleeding points are held in the hemostat and are coagulated¹⁷.

Hemorrhoids: Radiofrequency surgery is useful in the treatment of both, early and advanced grades of hemorrhoids. The non-prolapsing internal hemorrhoids could be directly coagulated in-situ with the ball electrode of a sufficient length under a surface anesthesia as an office procedure¹⁸.



Figure 3- Prolapsed hemorrhoids before RF Ablation

The advanced and prolapsing hemorrhoids are first ablated with a ball electrode and then the ablated hemorrhoidal mass is plicated with absorbable sutures to ensure fixation of the anal cushions to the underlying structures. The results of this procedure are more assuring when compared with the conventional surgical techniques¹⁹.

Rectal prolapse: Radiofrequency has been used as an adjuvant therapy in elderly patients with rectal prolapse. A circumferential coagulation of the anoderm is made with the ball electrode and then a Thiersch's stitch is tied to encircle the anal verge. Radiofrequency coagulation induces fibrosis and create a zone of band around the anal verge which helps in tightening the anal opening and preventing prolapse²⁰.

Post-operative care

Almost all the abovementioned procedures are carried out as a day care surgery. Analgesics, antibiotics and stool softeners are prescribed according to the requirement. No specific wound care is found/needed.

Complications

No major complications have been encountered with these procedures. Few minor ones to mention are:

- Deep dissection can cause more scarring and longer time for healing of the wounds.
- Excessive release of power produces more smoke and charring.
- Accidental burns either on the patient or on operator due to unintended activation of hand piece have been reported.

Precautions to be taken while operating with the radiofrequency unit.

Approximately ten seconds should be allowed for the tissues to cool between repeat applications of the electrodes. The two factors, which go to make this a good technique, involve the accuracy in power setting on the unit and the swift action of the cutting stroke.

Radiofrequency procedure should not be employed by, or on anyone who wears a pacemaker. The instrument should not be used in the presence of flammable or explosive liquids or gases. The skin under treatment should not be prepped with alcohol. If proper settings are not known, the operator should start with a low power setting and cautiously increase power until an ideal cut is accomplished, without a tissue drag and no sparking. The finer the electrode used, the less would be the lateral heat spread and thus causing least damage to the adjacent tissues. It is recommended that a hands-on introductory course be taken before attempting the use of this technology.

Comparison with other equipments

The other equipments used in the field of ano-rectal surgery include the Infrared coagulator, Cryogun, Lasers and Electrocautry^{21,22}. A brief account of their comparison with the radiofrequency is as below.

RADIOFREQUENCY	INFRA RED COAGULATION
Multiple applications/uses in proctology surgery.	Limited to coagulating bleeding internal hemorrhoids.
Can cut, coagulate or fulgurate.	Can only coagulate.
Low recurrence rate after treatment.	High recurrence rate in hemorrhoids.

RADIOFREQUENCY	ELECTROCAUTERY OR BOVIE
Simultaneous cut and coagulation.	Requires different modes and adjustments for different applications.
Minimal smoke production.	Produces excessive smoke.
Minimal surrounding tissue damage.	Tissue damage like 3rd degree burns.
Heats tissues below 1000°C.	Raises tissue temperature above 5000°C.
Sterilizes tissues under application.	Can cause postoperative sepsis.
Minimal scarring creates soft supple scar.	Gross scarring and fibrosis.
Faster healing.	Slow healing.

RADIOFREQUENCY	CRYOSURGERY
Tissue interaction can be predetermined with power setting selection.	Difficult to achieve precise tissue destruction.
No tissue adherence or charring.	Probes often stick to the site of application and cause detachment of the tissue with bleeding.
Minimal postoperative edema and discharge.	Extensive edema and profuse discharge from the treated area.
Result is immediately visible.	Uncertainty of result due to variable tissue response.
Multiple uses in proctology.	Used for the treatment of hemorrhoids alone.

RADIOFREQUENCY	LASER
Adaptable for multiple uses in proctology.	Limited applications in proctology surgery.
Equally effective for cutting and coagulation.	Good cutting effect but poor coagulation.
Unit cost much less.	High instrument cost.
Portable.	Limited mobility.
Inexpensive treatment.	Costly treatment.
Easy anal canal access due to variable electrodes.	Limited access in the anal canal.
Faster healing.	Risk of misdirected reflected beam and delayed wound healing.

Other advantages of radiofrequency surgery -

Radiofrequency surgery allows cutting without pressure and consequently, there is little tissue damage and minimal scarring²⁴. The electrode tip is sterile, as is all the tissue being exposed to it²⁵. Healing is by granulation, with a soft and supple scar²⁶. It could be performed with ease even in the depth and in difficult areas like the anal canal. There are minimal incidences of postoperative infection, thereby achieving faster wound healing with negligible use of sutures etc.

The electrodes are reusable and may be kept in cold sterilization solution when not in use.

Conclusion

Use of radiofrequency in performance of various proctology surgeries results in less trauma to the cells, less fibrous scarring and less postoperative discomfort. The procedures are cost effective as no expenses of recurring nature are incurred. The radiofrequency tool having a versatile use in various surgical procedures can prove handy for the practicing surgeons.

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One stop crisis centre : A model of hospital-based service for domestic violence, burn & sexual assault survivors in Bangladesh

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The ORION 2006 ; 25: 407-410

Abstract

To provide comprehensive medical care, counseling and emotional support, legal and court activities, provision of temporary shelter and medical reporting for women and child victim of domestic violence burn and sexual assault one stop crisis centre (OCC) was established at the emergency block of Dhaka Medical College Hospital on 19th August 2001 after a long struggle and lobbying by several women's organisation, Royal Danish Embassy in Dhaka and 5 (five) ministries of Government of the People's Republic of Bangladesh, although this concept was derived from Malayasia. It is 8 (eight) bedded ward under direct control of the Director, Dhaka Medical College Hospital and the Co-ordinator coordinates the activities of different relevant agencies of both government and non-government organisation to handle cases of domestic violence, burn & sexual assault. All clinical and forensic examination was done at the OCC and all specialist from relevant department came to the OCC ward for treatment of the victim if necessary. Only radiological examination performed at the radiology department. Minor patient (non critical) admitted to the ward from emergency department or out patient department. Major (semi-critical) and critical patient referred to the ward after receiving appropriate treatment in the respective ward.

Introduction

Violence against women is described as "any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivations of liberty, whether occurring in public life" by the United Nations General Assembly in 1993.

Both males and females experience violence in one form or another, but females constitute a higher percentage of victims of violence through the lifespan, from pre-brith up to old age. They are denied the chance to be born, to survive after birth and to live a healthy life free from the various kind of violence¹. During childhood, girls are more likely to be deprived of food, education and medical care. They are more likely to be subjected to child labour, child marriage, child prostitution, sexual abuse and others. As girls grow older, they are vulnerable to a range of violence of a sexual nature as their sexuality and bodies are used to control or humiliate them. Rape is a universal threat to women. At the workplace, women are subjected to various types of sexual harassment either verbal or physical. Even within the confines of their home,

women are not secure. In fact, they may be at greater risk of violence at home than anywhere else. Domestic violence usually includes abusive and controlling behaviours. These can take a variety of forms including physical assault such as hits, slaps, kicks, beating and psychological abuse. The immediate and cumulative health effects of violence against women are immense ranging from fatal to non-fatal out come. Fatal outcomes are homiside, suicide, maternal mortality and AIDS-related death. Non-fatal outcomes comprising permanent disabilities, unwanted and complicated pregnancies, HIV and other sexually transmitted infections (STIS), depression, anxiety, chronic pain syndrome, suicidal thoughts etc².

Overview of violence in Bangladesh

According to Bangladesh National Women Lawyers Association (BNWLA) violence against women in Bangladesh in the year 2001 there are 530 reported cases of domestic violence, 370 cases of rape, 327 cases of murder, 140 cases of suicide, 122 cases of kidnapping, 146 cases of unnatural death³. The actual numbers are vague but speculated to be higher. The statistical chart shown below.

Type of Violence	Total
Rape	370
Murder	327
Suicide	140
Kidnapping	122
Unnatural death	146

Violence against women in Bangladesh (January-December 2001)

Type of Violence	Total
Murder for dowry	173
Suicide	281
Torture	76
Wife beating	Data not available
Incest	
Polygamy	

Outbreak of domestic violence in 2001

The fight to uphold the rights of women by countering violence and discrimination against them is not without years of struggle and lobbying by women's (Naripokkho, BNWLA & Ain O Shalish Kendra) activists for social justice.

The birth of one stop crisis centre (OCC)

Many battered women and victim of rape find hope at the OCC located at the emergency block of Dhaka Medical College Hospital, which operates 24 hours. It is a safe and secured place for survivors of domestic violence, rape or child abuse seeking medical treatment, medical report for legal proceeding or shelter.

The establishment of such centre was justified in 1999 when emergency department in short carried out a short study on the

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epidemiology of domestic violence and nature of its injuries. Out of 100 cases analysis revealed that 50 percent of women were pushed or slapped, 20 percent were attacked with weapon, 16 percent were kicked, 8 percent were beaten and 6 percent were throttled. At that time emergency department was handling an average of 20 cases per month.

The survey shows significant number of cases but weaknesses in the system did not provide care to the needs of the women. For this reason multi-sectoral, Multi-disciplinary, inter-agency teamwork combined with various efforts of the intra-hospital team was proposed to manage survivors of violence and this resulted in the establishment of the first Bangladesh OCC as a separate department of Dhaka Medical College Hospital in the emergency block in August 19, 2001.

Establishment of "One Stop Crisis Centre" in Dhaka Medical College Hospital and Rajshahi Medical College Hospital to provide women & child survivors of violence with comprehensive medical care, counselling, reporting of crime and related investigation was brought into light by combined effort of Naripokkho, Royal Danish Embassy in Dhaka, Ministry of Women & Child Affairs, Health & Family Welfare, Home Affairs, Social Welfare & Information. Although this concept has been pioneered in Malaysia by Dr. Abu Hassan Asaari Bin Abdullah, Senior consultant Traumatologist and Head of emergency department, Kuala Lumpur General Hospital Malaysia, it begun to work in DMCH on 19th August 2001⁴.

Concept and philosophy of OCC

The OCC is based on the concept of "Integrated and coordinated teamwork of multi-sectoral and inter-agency network for the management of survivors of violence against women and children". Its objectives are to serve the survivors of violence in identification and diagnosis, therapeutic and medical care, counselling and emotional support, multi-level crisis intervention, legal and court activities, provision of temporary shelter and medical reporting⁵.

Structure of OCC

The physical set-up of the OCC comprises four areas. In the first area comprises eight bedded ward where the patient are admitted from emergency department or outpatient department or referred from other wards. The second area is the room for doctors, police officers and computer programmer. The third section is forensic examination room. lastly the counselling room. The infrastructure of the OCC is set-up in a manner to provide survivors, privacy, comfort, safety and security besides serving the objectives of the OCC. It is round the clock 24 hour operational hours and locations with in the emergency service area with resuscitation facilities are also appropriate.

Sl.No	Designation	No.s
1.	Medical officer	03
2.	Sub-inspector of police	02
3.	Senior staff nurse	04
4.	Computer programmer	01
5.	Police constable	02
6.	Cleaner/Peon	03

Existing human resource in OCC

All the staffs of OCC are deputed from respective ministries and

only cleaners/peon are daily basis worker recruited by Project Implementation unit (MSP-VAW). The One-Stop Crisis Centre is under direct control of Director, Dhaka Medical College Hospital and senior most Medical Officer will act as Co-ordinator of OCC.

Management of OCC

Management strategies are based on need where services are patient focused and all services for total patient care come to the ward. Patient need not go to the different places. OCC has succeeded in drawing public confidence because the survivors come for help at the centre. Before the establishment of the centre many survivors were hesitant to come forward due to the tedious, painful and emotional process involved. Now they can approach the centre and appropriate actions will be taken. This is an important milestone for the OCC (Shown in box-01).

NGOS	GO's	Intra-hospital team
BNWLA Naripokkho	Ministry of Health & Family-Welfare Ministry of Home Ministry of Social Welfare Ministry of Information Ministry of Children & Womenaffairs (Lead Ministry)	Emergency & Truma-department (Casualty) Forensic department Burn & Plastic surgery Obstetrics and Gynecology-department Radiology department Social welfare and Others relevant department

Box -01 : Multi-sectoral support of OCC

Working committee

OCC operates on collaboration among governmental and non-governmental organisation and with a working committee representing the various agencies (Box-02).

The working committee meets once in every two months with monthly case management meeting to discuss how each agency can play its role more effectively and correct whatever weakness identified. When called upon the working committee gathers at the OCC ward and works as a team to provide comprehensive assistance to survivors. For example upon centering OCC a survivor will be examined and given due medical attention, followed by counselling, further follow up, provision of shelter and legal aid aimed at reintegrating the survivors back into society eventually.

Intra-hospital team			NGO	GO		
Forensic Burn & Plastic Surgery Social Welfare	Obsteritics & Gynacology Emergency & trauma (Casualty)	Psychiatric Radiology department others relevant department	BNWALA Naripokkho	1. Ministry of Social welfare 2. Ministry of Children & Women affairs (Lead Ministry)	3. Ministry of Home 4. Ministry of Information	5. Ministry of Health & Family Welfare

Box -02 : Multi-sectoral support of OCC

Role of intra-hospital Team

At the emergency, the emergency medical officer (Doctor) diagnoses the survivor as non-critical (minor), semi-critical (major), critical. Only non-critical survivor are admitted in OCC. Eventually semi-critical and critical survivor will enter into OCC after receiving appropriate treatment. After admission in to the OCC the doctor conduct the general examination to diagnose, treat and document any general physical evidence of violence. When required the survivor will be examined by specialist from obstetrics and Gynacecology department, forensic expert, psychiatrist, paediatrician and specialist from

other relevant department at the OCC. Forensic examination conducted at OCC in presence of police and nurse and medico-legal samples are taken from the survivors. Of course the survivor will sent to the radiology department for radiological examination. Usually the female medical officer and specialist from Obstetrics and Gynaecology department conduct gynaecological examination.

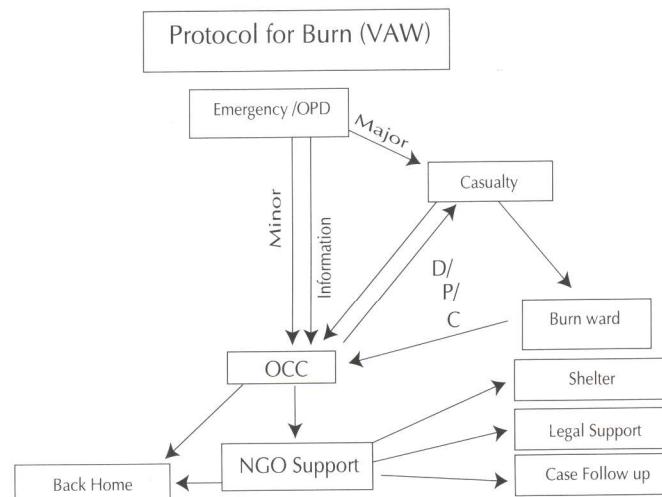
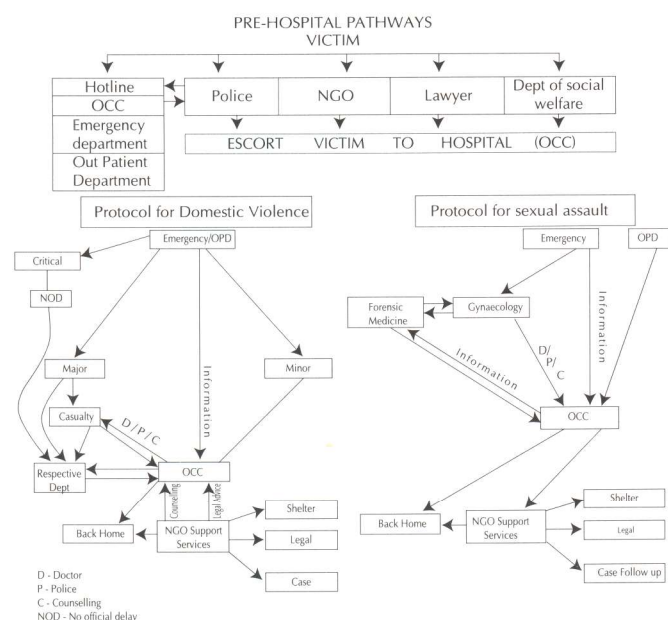
Role of NGO's and GO's

The NGOs working with OCC are mostly women's organization like BNWLA, Naripokkho. Government organizations include Ministry of Health and Family Welfare, Ministry of Information, Ministry of Children & Women Affairs, Ministry of Social Welfare and Ministry of Home. NGOs and GOs work together on a number of preventive measures like awareness raising, education, counselling, court and divorce procedure, child welfare issue to reintegrate the survivors into society.

Volunteer counsellors from NGOs Naripokkho provide counselling services. They come five days in a week at the OCC. The department of social welfare provide clothing, financial assistance. BNWLA provide legal advice and temporary shelter. Police personnel are deployed at the OCC and are in two shifts. They work alongside the forensic expert in medico-legal evidence collection and facilitate in investigation and reporting apart from the protection of survivors. He also informed the investigation officer and the investigation officer will take immediate action. Police report done for all rape cases and child abuse before examination.

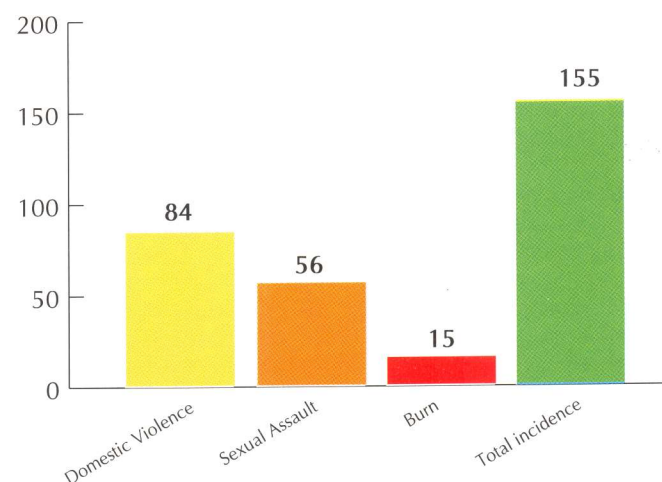
Crisis intervention levels/critical pathways

The OCC is developed to provide comprehensive care to survivors of domestic violence, burn & sexual assault. An abused survivor has numerous way to reach the OCC. She can lodge a report at a police station and a police women will escort her to the hospital, she can also report to the NGO, lawyer and department of social welfare and proceed to the OCC. She can report directly to the hospital or contact with hot line where she will be directed to report to the OCC. Hot line service means telephonic service to the survivors. This team includes doctor, police, lawyer and counsellor.



Assessment of OCC

Data collection and analysis : All data preservation and analysis done by computer in OCC. This data is inadequate and only collected at DMCH. Data is collected from hospital admitted patient. Performance of OCC (DMCH) in the 2002 shows in following graph. This data does not reflected the real statistics of violence in Bangladesh.



Coordination of relevant agencies

Ministry of Health and Family Welfare in association with Royal Danish Embassy trains staff of different agencies on management guidelines and critical pathway (protocol) methodologies to ensure that each agencies carries out its policy properly. Co-ordinator of the OCC coordinates with all the relevant department of DMCH, other agencies and MSP-VAW.

Intra-hospital team includes Medical Officers, Obs. & Gynae specialist, Surgical specialist, Orthopaedic specialist, Forensic expert, Psychiatrist, Radiologist and specialist from other relevant department appear to be well coordinated. Department of social welfare is well organised. They reached at the centre when contacted and when the survivors arrive at the OCC. Police personnel will take all police reporting at the OCC if the case has not been reported to any police station and available during evidence collection. Coordination of voluntary organization is very poor. NGO's are not available

always to ensure the continuity of service. Clinical support for survivors of violence against women and children has been initiated through OCC. Now public support through NGO's and mobilized communities needs to become a driving force against gender based violence.

Challenges

Limited human resources : In rape cases only the female doctor, gynecologist and forensic expert are allowed to conduct examination on survivors. Delay in providing services to survivors therefore becomes unavoidable at present. More over battering and rape tend to happening in the early morning or at night and at that time the department is staffed by the least number of personnel.

Lack of trained counsellors: Counselling is a process of relieving the survivors from feeling of fear, guilt, and shame self-blame and helping them gain self-understanding and confidence in preparation for their return to society. Counsellors from Naripokkho are available only at daytime for three hours five days in a week. This resulted in lack of continuity of care.

Training of emergency staff: Emergency staff should be trained on appropriate strategies, including gender issues in handling such cases. They should be sensitive to the emotional needs of the survivors during this fragile period.

Legal constraints of the police: A report by the survivors does not legally require immediate police investigation since the police are to intervene only in cases of serious injuries (fracture, loss of hearing or sight, acid burn). The authority (power) of the police is therefore limited. Such limitation greatly affects survivors of domestic violence who suffer psychological abuse or physical injuries that are not considered serious enough to warrant police intervention.

Inconsistencies of complaints: Frequently domestic violence perpetrators are not charged and convicted. This is often due to the survivors not following through with pressing charges. Often times, they just want to warn their partners or they opt for divorce. Retracting charges is common especially when they cannot afford legal fees or when the partner is the

breadwinner and has control over the children. When they withdraw charges they stop cooperation and this is a frustrating situation for the authorities.

Conclusion

OCC is a patient focused service achieves its goals of defining the problems and situations; developing interventions for management; evaluating the effectiveness of the interventions and focusing services on patient's needs and satisfaction. OCC deals with survivors of domestic violence, burn and sexual assault. The establishment of a centre of excellence for the management of survivors of violence is credited with Royal Danish Embassy, Ministry of Child and Women Affairs, Ministry of Health & Family Welfare, and others non-governmental organisation. Only two OCC in Bangladesh (Dhaka & Rajshahi) are providing comprehensive care and legal support to the survivors of violence (domestic, burn and sexual assault).

Though there are many challenges to overcome in *improving* the management of OCC. It is time for us to acknowledge the need for an empowered and enlightened society that takes full responsibility to stop-domestic violence, burn and sexual assault.

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Life threatening hyperkalemia requiring prolonged temporary pacing support : A case report and an analysis of electrocardiographic changes

Chakraborty B¹, Rahman M², Ahmed QS³, Rahman MM⁴

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Abstract

Hyperkalemia is a life threatening metabolic condition that can induce deadly cardiac arrhythmias. Here we present a case of severe hyperkalemia in a 46-year-old woman with pre-existing mild renal impairment who presented with severe fatigue, drowsiness and hypotension. 12-lead electrocardiogram (ECG) was suggestive of junctional rhythm with marked bradycardia. Her initial serum potassium level was 8.5 mmol/L. She was commenced on standard treatment for hyperkalemia but her bradycardia and hypotension continued unabated. Temporary endovascular pacing was considered essential for restoration of normal heart rate and to combat hypotension. Her condition improved dramatically after emergency cardiac pacing. Heart rate and blood pressure normalized immediately after pacing. She remained pacemaker dependent for two days. On the third day of admission her own sinus rhythm returned back and she was discharged from the hospital on the 5th day in a haemodynamically stable state.

Introduction

Hyperkalemia is an acute life-threatening clinical condition seen in the emergency department. It results from electrolyte imbalance and commonly occurs in patients with known chronic renal insufficiency or end stage renal disease. The other causes include drug induced such as angiotensin-converting enzyme inhibitors or use of potassium-sparing diuretics, insulin deficiency or resistance and haemolysis^{1,2}. Hyperkalemia is usually asymptomatic until severe when the patient may complain of paraesthesias or weakness, progressing in extreme cases to a flaccid paralysis³. Death by asystole or ventricular fibrillation may be the first clinical presentation. The ECG is the single most important clue that the patient is at risk of cardiac arrest⁴⁻⁶.

The final ECG changes in hyperkalemia include bradycardia leading to asystole or a sine wave pattern in which the widened QRS complex merges with the T wave or ventricular fibrillation. Ventricular tachycardia can occur in hyperkalemia but is more often associated with hypokalemia⁷. Pulseless electrical activity has also been reported⁸.

Here we present a case of life threatening hyperkalemia who presented with severe bradyarrhythmia and shock. The management guidelines and ECG changes associated with

hyperkalemia are also discussed.

Case report

A 46-year-old lady was admitted in a general hospital with a history of increasing lethargy and drowsiness for two days. She was known to have diabetes mellitus with mild renal impairment for two years. She was on oral hyoglycaemic agent and angiotensin converting enzyme inhibitor, enalapril 10 mg once a day. On admission she had profound bradycardia, pulse 32/ min and blood pressure was 70/42 mm of Hg. On admission her serum potassium level was 8.5 mmol/L and her serum creatinine was 1.7 mg/dl. Serum sodium and chloride level were within normal limits. She was commenced on intravenous fluid, injection calcium gluconate and glucose/insulin infusion. Within two hours of treatment her potassium level decreased by 1.5 mmol/L but her haemodynamic status remained unchanged. So she was referred to a tertiary centre for further management. On admission in our hospital she had severe generalized muscle weakness along with cold extremities. Clinically she was profoundly bradycardic at 35 beats per minute with systolic blood pressure 60 mm of Hg. Electrocardiogram showed junctional rhythm with occasional atrial ectopics (Fig-1).

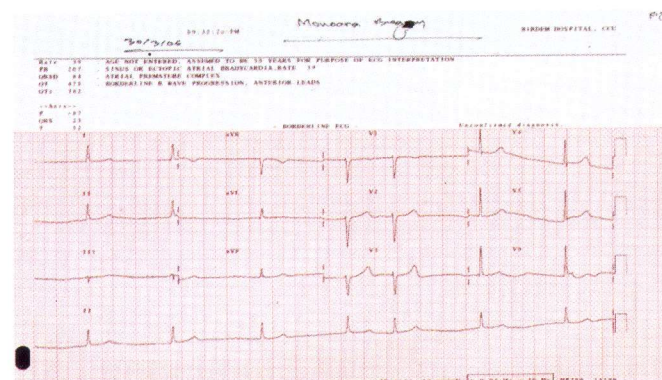


Fig-1. ECG on admission showing Junctional rhythm with profound bradycardia before temporary pacing.

As she was haemodynamically unstable, a temporary pacemaker was immediately installed (Fig-II).

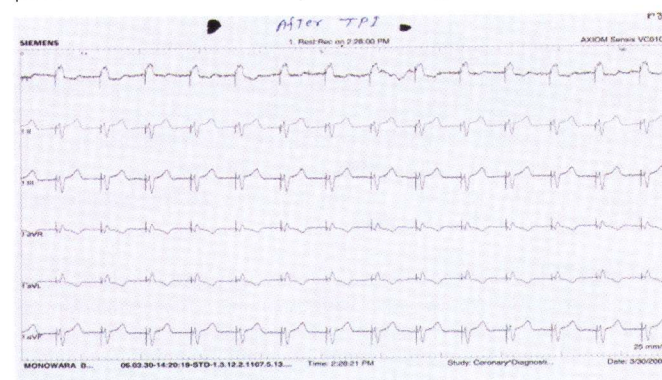


Fig-2. ECG after temporary pacing.

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Her haemodynamic status improved immediately after temporary pacing. Her alertness improved and blood pressure normalized. We continued her treatment with glucose/insulin and oral cation exchange resins along with pacing. Her potassium level recorded 5.1 mmol/L after six hours of commencement of treatment. But her arrhythmia remained unabated and we failed to take off pacing support for two days. On third day of admission she reverted back to her normal sinus rhythm (Fig-III)

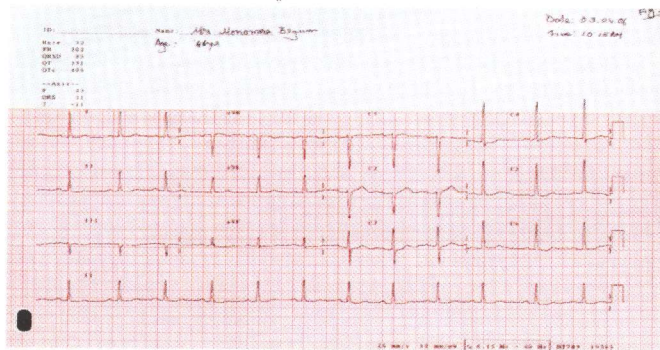


Fig-3. ECG after restoration of patient's own normal sinus rhythm.

and the pacing wire was taken off. Afterwards she had an uneventful recovery and was discharged from the hospital on fifth day in a stable state.

Discussion

Hyperkalemia is a life threatening metabolic condition and is defined as serum potassium level of greater than 5.5 mmol/L⁸. The common risk factors for hyperkalemia include renal insufficiency, use of angiotensin converting enzyme inhibitors (ACEI), angiotensin receptor blockers (ARB), potassium sparing diuretics, potassium supplementation and excessive consumption of potassium containing diets⁸⁻¹⁰. The patient we described here had this life threatening condition as she was on ACEI on the top of mild renal impairment. Hyperkalemia in this particular patient occurred partly because of ACEI and partly as a result of pre-existing mild renal impairment. ACEI or ARBs are considered as the standard regimen for patients with renal disease^{4,6}. However there have been many reports that administration of ACEI or ARBs may cause a higher risk of development of hyperkalemia in patients with renal impairment^{11,12}.

The patient was commenced on intravenous calcium gluconate and intravenous glucose/insulin immediately after admission. Intravenous calcium, insulin with dextrose infusion, intravenous sodium bicarbonate, nebulised salbutamol and cation exchange resins are the standard treatment of hyperkalemia^{1,2}. Resistent hyperkalemia may require emergency dialysis¹⁻⁵. Temporary pacing is a life saving procedure with or without dialysis⁷⁻⁹. In this particular patient hyperkalemia was quickly normalized by medication with calcium gluconate and glucose/insulin infusion but her bradyarrhythmia persisted. So we kept the pacing wire in situ for two days for patient's safety.

Our patient presented with ECG features of junctional rhythm. Junctional rhythm is an indicator of life threatening hyperkalemia. As the hyperkalemia worsens and the potassium level approaches to reach 10 mmol/L, sinoatrial conduction no longer occurs and passive junctional pacemakers take over the electrical stimulation of the myocardium. If hyperkalemia

continues unabated, the QRS complex continues to widen and eventually blends with the T wave, producing the classic sine-wave electrocardiogram. Once this occurs, ventricular fibrillation and asystole are imminent².

Although laboratory tests are the gold standard in the diagnosing changes in the serum electrolyte concentration, delays may be experienced in obtaining results. Hence, in many cases, early diagnosis and empiric treatment of hyperkalemia is dependent on the physician's ability to recognize the electrocardiographical manifestations of hyperkalemia. The most common electrocardiographical changes associated with hyperkalemia include the earliest manifestation of tall tented or peaked T waves with narrow base, reduction in the amplitude and eventual loss of P waves. This is followed by bizarre widening of the QRS interval, then idioventricular rhythm with the widened QRS merging with the T wave to form a "sine wave" which may culminate in ventricular fibrillation^{1,2}. Despite this, the classic ECG changes do not always manifest and the relationship between serum potassium concentration and ECG changes varies among people. Hence the ECG alone is not reliable for mild to moderate hyperkalemia. Minimal changes on the ECG may be seen in severe hyperkalemia. Early stages of hyperkalemia may manifest with only shortening of the PR and QT interval². Complete heart block with widened QRS complex has already been reported^{6,13,14}. Many less known ECG changes associated with hyperkalemia have been reported. These include hemiblock due to depressed supraventricular conduction, left or right bundle branch block, bifascicular as well as trifascicular blocks^{1,15}. Of importance is the fact that hyperkalemia can produce ECG changes, such as ST segment elevation that mimic acute myocardial infarction¹⁶. ST segment depression and T wave inversion which similarly occur in cardiac ischaemia have also been reported. Anteroseptal and Inferior wall pseudoinfarction pattern due to hyperkalemia have been reported in literature¹⁷.

ECG manifestations of hyperkalemia relative to serum potassium level.

Serum potassium level expected ECG abnormality

Mild hyperkalemia (5.5-6.5 mmol/L)	Tall peaked T waves with narrow base
Moderate hyperkalemia (6.5 - 8.0 mmol/L)	Peaked T waves Prolonged PR interval Decreased amplitude of P waves Widening of QRS complex.
Severe hyperkalemia (>8.0 mmol/L)	Absence of P wave Progressive widening of QRS-complex Eventual "Sine-wave" pattern VF Asystole

[Adopted from Webster A et al. Emerg Med J 2002;19:74-7 and Chew HC et al. Singapore Med J 2005;46(8):429-33]

ECG changes usually resolve after correction of hyperkalemia but arrhythmia may remain unabated for some time even after normalization of serum potassium level in some cases. In our patient the bradyarrhythmia remained unabated even after

correction of potassium level. A mild to moderate increase in serum potassium causes an increase in myocardial excitability but further increase leads to impaired myocardial responsiveness, including that to pacing stimulation⁹. In general, hyperkalemia produces a gradual depression of the excitability, conduction velocity of the specialized pacemaker cells and conducting tissues throughout the heart. High serum potassium levels are also thought to impair the conduction in the purkinje fibers and ventricles. Excitability of the specialized pacemaker cells may remain depressed quite some time even after correction of hyperkalemia^{6,11,14}. It actually happened in our case and bradyarrhythmia persisted for 48 hours even after normalization of serum potassium level.

Conclusion

The diagnosis of hyperkalemia must be considered in any patient with clinical risk factors that would predispose them to its development. Most commonly, patients with hyperkalemia have underlying renal impairment or are taking ACEI or ARB to increase serum potassium level. Life threatening hyperkalemia may occur in patients who are taking ACEI or ARB in presence of renal dysfunction. The treatment of hyperkalemia must be swift and appropriate to prevent the development of fatal cardiac arrhythmias. Temporary pacing may be life saving in presence of profound bradyarrhythmia with haemodynamic instability.

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MSD NEWS

Khulna

Surgery Dept, KMCH

A round table was held on "Vertex" at Hotel Jalico. The meeting was conducted by Dr. Syed Mozammel Hossain, Asst. Professor Dept. of Surgery, and Dr. Md. Rafiqul Islam, Consultant Dept. of Surgery, KMCH. The meeting discussion emphasized "On the Role of Amino Acid in Post-Operative complications". All together 40 doctors were present.



Chittagong

Surgery Ward - 24, CMCH

A round table meeting was arranged by ward - 24, CMCH on "Vertex" with the doctors of CMCH Surgery dept. on 8th June 2006. It was held at the conference room of CMCH and Professor Dr. Hasan Md. Abdur Rauf was appointed as the chairperson. Dr. Abdur Rahman, Asst. Register was given the role of key note speaker and the presentation was conducted by him. Dr. Surman Ali, Register Surgery Unit-I; Dr. Sarif Hassan, Asso. Prof Plastic Surgery (CMCH); Dr. G.M. Zakir, Asso. Prof Surgery (CMCH); Dr. Ashraf Ali, Asso. Prof Surgery and Dr. Sanaullah Shelly, Asso. Prof (CMCH) also attended the session. About 70 other doctors attended the conference hall to participate in the discussion.



Khagrachhari Sadar Hospital, Khagrachhari

On 22nd July 2006 Khagrachhari Sadar Hospital organized a round table meeting on "Protisol" at the conference room of Khagrachhari Sadar Hospital. Dr. Tojammel Hossain Jwarder, RMO chaired the session. About 30 doctors attended the session.



Surgery Ward - 27, CMCH

On 24th May 2006 Surgery Ward - 27, CMCH organized a round table meeting on "The Role of Amino Acid in Human Body". The meeting was chaired by Dr. Omar Faruque Yusuf, Asso. Professor & Head of Surgery - Unit III, Ward - 27, CMCH. About 40 people attended the presentation.



Paediatric Unit, CMCH

On 17th July 2006 Paediatric Unit, CMCH arranged a round table meeting on "Neonatal Septicemia" at CMCH seminar room. Prof Dr. Badrul Alam, Dept. head paed. Medicine CMCH was appointed as the chairperson and Dr. Bimal Das (Asst. Reg) was given the role of key note speaker. Dr. Julian Das Sarma, Dr. Jamal Uddin and Dr. Mainuddin Ahmed - Asso. Professors; Dr. Rashida Ridwan and Dr. Basana Muhuri - Consultants along with 70 other doctors attended the meeting.



Patia THC, Patia

A round table meeting was organized by Patia THC on 12th July 2006. The meeting was highlighted on "The Role of Multivitamin & Multiminerals in Human Body" in their conference room. Dr. Jahed Manjur, THO, chaired the session and Dr. Sohel Mofiz, Consultant (Med) was the key note speaker. A total of 35 doctors attended the session.



All Care Medical Service, Satkania, Chittagong

A round table meeting was held on "Protisol" on 25th June 2006. Orion Laboratories arranged the meeting at All Care Diagnostic Center and Dr. Md. Abdullah, THO Boalkhali Health Complex chaired the session. Dr. Majed Sultan, M.O. along with 40 other doctors attended the session.



Dinajpur

Paediatric Unit, DJMCH

Paediatric Unit of Dinajpur Medical College & Hospital organized a round table meeting on "Neonatal Infection" on 22nd July 2006. The meeting was chaired by Asso. Prof. & Dept. Head. Dr. Md. Masudur Rahman. Dr. Md. Nasir Uddin, Asstt. Prof. Dr. M. A. Wahid, Dr. S. M. Wares, Consultant, Dr. Md. Sadegur Rahman, Register & about 20 doctors attended the meeting.



Launching of New Products

Protisol

5% Composite Amino Acid solution with D-Sorbitol

Complete protein solution

Orion Laboratories Ltd. has introduced 5% Composite Amino Acid solution with D-Sorbitol under the brand name "Protisol". Protisol contains Amino Acids based on the "Requirements of Proteins" reported by FAO/WHO. Moreover, the essential Amino Acids of Protisol are present in accordance with the reference pattern of human milk. Therefore, Protisol is a source of Amino Acids required for protein synthesis in patients requiring intravenous nutrition. It is indicated for faster healing and recovery in malnutrition, surgery, burns, cancer as well as during ageing & convalescence. Protisol should be infused slowly, at rates 1.4-2.8ml (30-60 drops) per minute. Depending upon patients requirements, 1000-2000 ml Protisol may be infused intravenously per 24 hours. Protisol is available in 500 ml glass bottle. MRP of Protisol is Tk. 350/bottle.



Pep plus Tablet

Zinc & Vitamin B-complex Tablet

Energy guaranteed!

Orion Laboratories Ltd. has introduced the combination of Zinc & Vitamin B-complex tablet under the brand name "Pep plus" for the first time in Bangladesh. Pep plus tablet is a developed formula of Zinc and Vitamin B-complex. Zinc and Vitamin B-complex are the most vital micronutrients as they ensure energy from foods. In Pep plus tablet Zinc is present as Zinc sulphate monohydrate and Vitamin B-complex comprises of Thiamine (B₁), Riboflavin (B₂), Pyridoxine (B₆) and Nicotinamide (B₃). Zinc is an essential trace element which increases appetite, helps in protein metabolism, ensures normal growth of the body and Vitamin B-complex participates in many metabolic reactions to maintain good health and vitality. Pep plus tablet is indicated as a supplement for postoperative patients, growing children, pregnant mother and convalescence patients. It is also indicated as a supplement in muscular weakness, loss of appetite, poor memory condition, paralysis of whole limb, treatment of pellagra, neurological disorders, pre-menstrual syndrome and symptoms of women on oral contraceptives. Dosage and administration: Children (7-12 yrs): 1-2 tablet(s) daily, Adult: 2-4 tablets daily or as recommended by the physician. It is presented as 30 tablets in plastic bottle. MRP of Pep plus tablet is Tk. 60.00/ph.



Micturex

Indapamide USP 1.5 mg

First - Step Antihypertensive with Sustained Efficacy

Orion Laboratories Ltd. has introduced sustained release tablet of Indapamide under the brand name "Micturex". Micturex is a first-step antihypertensive recommended by JNC VII & WHO-ISH. Micturex exerts antihypertensive activity through renal as well as vascular mechanism. Micturex is indicated as a sole therapeutic agent or as the initial agent in multiple drug regimens in the treatment of mild to moderate hypertension. It may effectively be combined with other antihypertensive such as beta blockers, methyl dopa, clonidine, prazosine and ACE inhibitors. The recommended dosage of Micturex is one tablet daily in the morning to be taken by oral route. Micturex tablet is available in a box, containing 3x10's sustained release tablets in blister pack. MRP of Micturex is Tk. 5.00/tablet.



Hedex

Paracetamol 500 mg, Caffeine 65 mg

A potentiated analgesic

Hedex is a combination of paracetamol and caffeine. It is a unique combination to treat fever, headache, migraine and other types of pain. Paracetamol (An NSAID) relieves pain by inhibiting prostaglandin synthesis and reduces fever through action on hypothalamus. Caffeine (An Alkaloid) is used in combination with Paracetamol to increase the analgesic action of paracetamol. Hedex is indicated for the treatment of Headache & Migraine, Fever & Flu, Toothache & Earache, Rheumatic & Muscular pain, Sore throat, Dysmenorrhoea. The usual dosage for adult and children of 12 years of age and over: 1-2 tablets every 6 hours; not more than 8 tablets in 24 hours. It is presented as 100 tablets in one box. MRP of Hedex is Tk. 150/box only.



Dexpro

Dexibuprofen

More than conventional Ibuprofen

Orion Laboratories Ltd. has introduced "Dexpro" (Dexibuprofen). Dexpro is a Non-Steroidal Anti-Inflammatory Drug (NSAID) and is the only active form of Ibuprofen with better pharmacological profile. "Dexpro" (Dexibuprofen) reduces pain and inflammation by blocking the action of cyclo-oxygenase (COX) which is responsible for production of prostaglandins. "Dexpro" is indicated for the relief of sign and symptoms of Osteoarthritis, Rheumatoid arthritis, Musculoskeletal disorders such as ankylosing spondylitis, low back pain or other forms of mild to moderate pain, Primary dysmenorrhoea & Headache. "Dexpro" (Dexibuprofen) is presented as 300 mg tablet and 400 mg tablet. Dosage and administration: The recommended dose is 600-900 mg per day in 2-3 divided doses. In severe cases the maximum recommended dose is 1200 mg per day. In elderly patients, lowest effective dose is recommended. Dexpro 300 tablet is presented as 5x10 tablets in blister pack and Dexpro 400 tablet is presented as 3x10 tablets in blister pack. MRP of Dexpro 300 is Tk. 4.00/tablet and Dexpro 400 is Tk. 5.00/tablet.



Siznil

Aripiprazole 10 mg Tablet

New Light for Schizophrenic Life

Orion Laboratories Ltd. has introduced "Siznil", a new 3rd generation atypical antipsychotic drug which has been approved to treat Schizophrenia and Bipolar Disorder. This drug possesses potent partial agonistic effects at the Dopamine D₂ receptor & the Serotonin 5-HT_{1A} receptor and antagonistic effects at the Serotonin 5-HT_{2A} receptor with lower EPS (extrapyramidal symptoms) liability. Siznil (Aripiprazole) is well tolerated and shows fewer side effects like risk of diabetes, weight gain and worsening of lipid profile compared to other atypical antipsychotic drugs. Siznil is advised to be administered in a wide range of psychiatric disorders such as 1. Schizophrenia 2. Acute manic and mixed episodes associated with Bipolar Disorder. Recommended starting dose in Schizophrenia is 10-15 mg/day and 15-30 mg/day in Bipolar Disorder once a day without regards to meal. Siznil (Aripiprazole) is available in boxes containing 5x10's tablets in blister pack. MRP of Siznil is Tk. 5.00/tablet.



Medical Services Department (MSD) of ORION Laboratories Limited successfully arranged significant number of Scientific Seminars, Round Table Meeting etc. in different venues of all over Bangladesh during May to August, 2006.

Scientific Seminars

Irritable Bowel Syndrome - Narayangonj

Bangladesh Medical Association, Narayangonj organized a seminar on "Irritable Bowel Syndrome & Multivitamin and Multimineral in different age group" at Narayangonj club on Thursday, 22nd June, 2006. Dr. Faruque Ahmed, Asso. Prof. & Head, Dept. of Gastro - Liver Diseases, SSMCH was the key note speaker and Dr. M. Nurul Islam chaired the session. Dr. Syed Sibgat ullah, Superintendent, Dr. S M Hafiz, Dr. Faruk Ahammad, Dr. M A Mannan, Consultant-Medicine, Dr. M Abdullah Al Hasan, Resident Physician, Dr. Azizur Rahman-Surgeon, former Health Minister & Chairman e-health Bangladesh and about 120 doctors were also present on the session.



Duchenne Muscular Dystrophy - ICH, Mirpur, Dhaka

A scientific seminar was arranged by ICH & Shishu Shasthya Foundation Hospital, Mirpur on "Duchenne Muscular Dystrophy & Ceftazidim in Paediatric Practice" on 4th June 2006. Prof Dr. Md. F. H. Nazir, Professor of Paediatric Medicine chaired the session. Dr. Md. Fazlul Haque, Asso. Prof. of Paed. Medicine Dr. A.K.M. Shamsuzzaman, Sr. Consultant were also present. Dr. Imran Bin Nurul Islam, M.O. of Paed. Dept. was the key note speaker, and more than 70 doctors of ICH contributed to the success of the program.



Cochlear Implant Surgery - DMCH, Dhaka

A scientific seminar was arranged by the department of ENT & Head - Neck surgery, DMCH on "Lecture on Cochlear Implant Surgery" at Conference room of concerned Dept. on 23rd April 2006. Dr. Nadeem Mukhter, CIP, Pakistan was the key note speaker and Prof Md. Abdul Quader chaired the session. Prof Md. Abdullah and Asso. Prof. Dr. Md. Zillur Rahman coordinated the session. More than 120 doctors participated on the conference.



Round Table Meeting

Dhaka

Bangladesh Medical College, Uttara

A round table meeting on "Nutritional Supplement in Different Age Group" on 20th June, 2006 was organized by Bangladesh Medical College, Uttara, Dhaka. Dr. Md. Ashique-ul Haq, Medical Officer (OPD) medicine chaired the session.



Medicine Ward - 22, DMCH

A round table meeting was organized by Medicine Unit Orange, ward-22, DMCH at Professors room on "Irritable Bowel Syndrome" on April 10, 2006. Dr. Aftab Rozy, Assistant Professor of Gastroenterology was the chairperson of the session.



Medicine Ward - 02, DMCH

A round table meeting on "Irritable Bowel Syndrome" was arranged by Medicine ward-02, DMCH. Dr. Sahidul Islam, Assistant Register chaired the session.

Gynae Ward, BSMMU

A round table meeting on "Pelvic Inflammatory Disease" was organized by BSMMU in presence of all the doctors of Dept. of Gynae Unit - V on 10th June 2006. Dr. Nurun Nahar, Associate Professor, was selected as the chairperson. Dr. Lopa, Asst. Register and Dr. Runa (HMO), was chosen to be the key note speaker on the occasion. About 70 doctors were present at the round table meeting.

Gynae Ward, BSMMU

A round table meeting on "Clinical Presentation on Hydrocephalus" was organized by Gynae Ward, BSMMU at Gynae class room in presence of all the doctors of Dept. of Gynae Unit - VII on 24th April 2006. Dr. Feroja Begum, Associate Professor, Feto-Maternal Medicine unit was appointed as the chairperson on that occasion. Dr. Tabassum Parveen, Asst. Professor was the key note speaker. In total 45 doctors attended the round table meeting.



Cardiac Surgery Ward, BSMMU

A round table meeting was organized by Orion Laboratories Ltd. on "New Approach of Vitamins in Different Ages". The meeting was highlighted on "Goldage, Silvage and Newage". It was held on 27th April 2006 at China Kitchen Restaurant. Dr. Aftab Uddin, Asso. Professor & Head of the Dept. chaired the session. All together 40 doctors attended the session.



Delta Medical Centre, Mirpur

On 27th July 2006, Delta Medical Centre, Mirpur organized a round table meeting on "The Role of Amino Acid in Cancer Patient", at the seminar room, Delta Medical Centre. The session was chaired by Dr. Syed Reza Husain, In-Charge, Oncology Unit. Dr. Parveen Akhter Banu, Sr. Consultant, was the chief guest of the meeting. About 20 doctors attended the meeting.



Mymensingh

Trishal THC

A round table meeting was arranged on "Vertex" with the doctors of Trishal, Thana Health Complex, Mymensingh on 18th May'06. Dr. Rasheda Akhter Khatun, THA was present on the occasion.

Surgery Unit-II, MMCH

A round table meeting on 'Protisol' was held on 17th May'06 at Surgery ward, Unit-2, MMCH at Seminar room. Dr. Mahmud Hasan, Associate Professor Department of Surgery chaired the session and Dr. S.M. Mohitul Islam, IMO was the key note speaker.

Orthopedics Unit, MMCII

A round table meeting on 'Protisol' was arranged at Orchid Community Center which was organized by Orthopedics Unit, MMCH on 17th May, 2006. Dr. Mesbahuddin Ahmed, Associate Professor chaired the session. Dr. Md. Nazmul Hossain was the key note speaker and there were 45 doctors present.

Shylet

Gynae Ward, SOMCH

On 23rd May 2006, Gynae Unit-I, SOMCH arranged a round table meeting on "Novel Antispasmodic in the Rx of Dysmenorrhea" at SOMCH in Dept. of Gynae Unit-I. Dr. Lipi, Asst. Register Unit-I, chaired the session. In total 35 doctors and Intern doctors attended the presentation.



Gynae Ward, SOMCH

A round table meeting on "Vertex" was arranged at SOMCH by the Dept. of Gynae Unit-III. The meeting was held on 25th June 2006 at their indoor class room. Asst. Register Dr. Saira Sharifa, coordinated the meeting. The discussion mainly covered the issues on "Post-surgical infection management". 35 doctors attended the meeting.

Orthopedics Dept, JRRMCH

On 26th June 2006 Orthopedics Dept, of Jalalabad Ragib Rabeya Medical College & Hospital arranged a round table meeting highlighting on "Vertex". It was conducted by Dr. Cyrus Shakiba, Asso. Professor Dept. of Orthopedics and it was held on their seminar room. In total about 25 doctors attended the round table meeting.



Rajshahi

Chatmohor THC, Pabna

On 22nd May 2006 Chatmohor THC, Pabna organized a round table meeting on "The Role of Amino Acid in Human Body". The meeting was held at Chatmohor THC, Pabna. The meeting was headed by Dr. M. A. Khaleque. Other doctors that were present on the occasion was Dr. M. A. Zillur Rahman (MA) and Dr. Shabibur Rahman (RMO). About 30 other doctors attended the presentation.

Bhangura THC, Pabna

Bhangura THC, Pabna organized a round table meeting on "The role of Amino acid in Human Body". This presentation was held on 21st May 2006 at conference room. The meeting was chaired by Dr. Shahadat Hossain (RMO). A total of 30 doctors were present at the meeting.



The rest of the MSD news at page - 402

Antibiotic runny nose 'warning'

Doctors should avoid prescribing antibiotics to patients with runny noses, a study says. The University of Auckland reviewed seven studies looking at antibiotic use for a runny nose with coloured discharge - a common feature of colds. They found antibiotics benefited only one in seven people as the runny nose would normally clear up by itself, the British Medical Journal reported. GPs said they would only prescribe antibiotics in a few exceptional cases. But report author Professor Bruce Arroll said he believed the opposite. "GPs often prescribe antibiotics for respiratory tract infections when nasal discharge is purulent [containing pus]." They are probably effective, but they can cause harm and most patients will get better without them. "Antibiotics should only be used when symptoms have persisted for long enough to concern parents of patients." The study found that antibiotics can often have side-effects, including vomiting, diarrhoea and abdominal pain. If a patient has a history of bronchitis and sinusitis. "The best advice to give is to keep blowing your nose to get rid of the virus." If antibiotics are overused as well as possible side-effects, there is a risk that we will encourage resistance."



British Medical Journal

Breast milk may help brain development

Researchers found that infants, especially those born premature, did better on mental development test when they were on breast milk. Breast milk can aid in the brain development of babies, according to a study in the current issue of Pediatrics. Researchers found that babies who drank breast milk scored higher on mental development test once they reached eighteen months, compared to infants who only drank formula. Researchers examined 1,035 extremely low-birthweight infants born at 15 hospitals. Approximately three-quarters of the babies received at least some breast milk in the hospital. One-quarter received only formula. The studies authors believe their findings hold great benefits for premature babies drinking breast milk, as it may help reduce the amount of money schools spend on special education.



The Toronto Star

Circumcision cuts the risk of HIV infection

More than two million new HIV infections could be prevented over the next 10 years if African men were all circumcised. The report, in the Public Library of Science Medicine journal, is built on data released last year that estimated male circumcision reduces HIV transmission from women to men by 65 per cent. The Joint United Nations Program on HIV/Aids, which was involved in the study, is currently gathering information on the rate of circumcision and its social acceptability, to help countries decide whether they want to pursue a more active circumcision policy, said Ms. Hankins. Somalia and Côte d'Ivoire already have very high rates of circumcision and low rates of infection, whereas others, such as South Africa, could significantly reduce their HIV infection rates if more men were circumcised, she said. Researchers believe circumcision helps to cut infection risk because the foreskin is covered in cells that the virus seems able to easily infect. The virus may also survive better in the warm, wet environment provided by the foreskin.



Public Library of Science Medicine journal

Tobacco death toll could reach 1 billion this century

Tobacco is on course to kill a billion people this century - 10 times the toll it exacted in the 20th century - if current trends continue, public health officials said. In Canada, 30 per cent of fatal cancers can be linked to tobacco. Health Canada projects 70,400 cancer deaths for 2006. Worldwide, tobacco causes one in five cancer deaths, or 1.4 million deaths each year. An estimated 1.25 billion men and women around the globe smoke cigarettes. Health officials said that reducing tobacco use, improving nutrition and decreasing infection by cancer-causing viruses could cut global cancer rates sharply. "We know with cancer, if we take action now, we can save two million lives a year by 2020 and 6.5 million by 2040," said Dr. Judith Mackay, a World Health Organization senior policy adviser. According to Statistics Canada, 22 per cent of Canadians aged 12 or older were smokers in 2005, down from 23 per cent in 2003. The cancer and tobacco atlases were published by the American Cancer Society with assistance from the World Health Organization and the Centers for Disease Control and Prevention.



American Cancer Society

Fish oil may help save your sight

To help save your vision as you age, you may want to give fish oil the thumbs up and cigarettes the thumbs down, according to a new study. Age-related macular degeneration (AMD) - the leading cause of age-related vision loss - is nearly twice as common in elderly smokers as nonsmokers. And seniors who eat fish at least twice weekly are almost half as likely to have AMD than those who eat fish less than once a week. Halfway around the world in Australia, other experts found that age-related macular problems are rarer in people whose diets are rich in omega-3 fatty acids, which are found in fish, including salmon, and mackerel, as well as flax seeds and walnuts. The study also shows that men with the highest fish consumption (at least two weekly servings) were 45 percent less likely to have AMD than those with the lowest fish consumption (less than one weekly serving). Participants who reported eating at least one weekly serving of fish were 40 percent less likely to develop early-stage AMD during the study, compared with those who reported eating fish less than once a month or not at all. People who ate fish frequently were also less likely to have late-stage AMD, the study shows. But that pattern was only seen in participants who reported eating fish at least three times weekly.



JAMA/Archives.

Fruit and veg cut disease risk

Eating fresh fruit and vegetables can help to ward off serious diseases including cancer. Researchers have found that low levels of vitamin C - which is found in fruit and vegetables - are associated with higher death rates from heart disease and strokes in men and women, and with some cancers in men. The results hold true regardless of people's age, blood pressure or whether or not they've smoked. They raise the possibility that increasing the amount of fruit and vegetables in the diet might have a beneficial effect in preventing disease. In fact, the charity Cancer Research UK says that if people ate just one apple or orange a day it could cut their risk of dying early from cancer or other diseases by 20%.



www.bbc.com/health

Men who sleep with a partner are dumber

In a new study, researchers found that when men slept with a partner, their sleep was disturbed enough to cause a decline in cognitive ability the next day. Austrian scientists warn that men who sleep with their wives are at risk of damaging their brains - at least in the short term. The studies lead researcher, Gerhard Kloesch says that even without sex, sharing a bed can disturb sleep quality. The team monitored eight unmarried, childless couples for 10 nights together and 10 nights apart. They found that men and women reacted differently. While men who thought they would sleep better with a partner, didn't. Women thought they would sleep better without someone else, actually did sleep better. The study found that the lack of sleep for men increased their stress hormone levels, which reduced their ability to perform cognitive tests the following day. Women apparently slept more deeply and did not react the same when sleep was disturbed.



Forum of European Neurosciences.

Could chilli peppers relieve pain?

Scientists at King's College, London are hoping they can harness the heat in chilli peppers and adapt it to combat inflammation in arthritis. Although the work is still in the very early stages scientists hope their research will lead to a drug being manufactured. Now doctors are hoping to harness the powers of chilli peppers to contain the high levels of pain caused by rheumatoid arthritis. Sue knows it will be a long time before any pain relieving drugs are available from the research, but says it would be wonderful if there could be a pain reliever from such a natural source. "It would be a drug and drugs do have their downsides, but if its upside is that it comes from a natural source and relieves pain then go for it. If it could stop the serious pain then that would be so brilliant. I do hope all patients who have episodes of excruciating pain benefit from a drug like this." The research team led by Professor Susan Brain have been funded for two years to look into how capsaicin, the hot substance found in chilli peppers can help to combat inflammation in arthritis. Ultimately they hope their research will enable scientists to develop a new type of anti-inflammatory painkiller for the condition, which might help avoid the serious side effects caused by existing therapies.



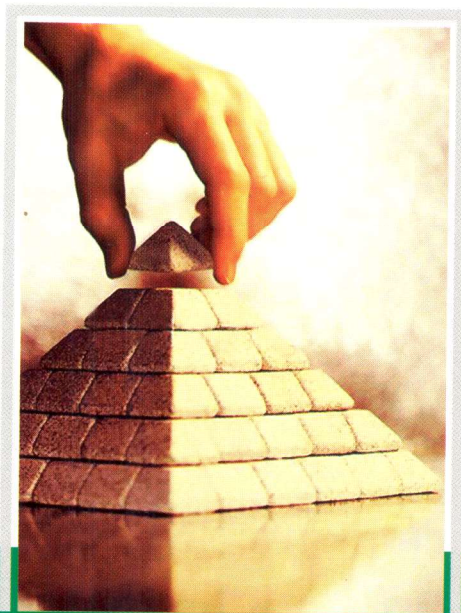
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