

IITG HOSPITAL NEWSLETTER



IIT Guwahati Hospital

Indian Institute of Technology Guwahati

Guwahati Assam

Pin Code: 781039

AIMS AND OBJECTIVES

The Medical Section appreciates the positive response it got for its effort in publishing the Hospital Newsletter Vol I during last year. So in order to maintain high standards of delivering quality health education for its patients the IITG Hospital has yet again come up with the 2nd Volume of the Hospital Newsletter. The newsletter contains articles on health related issues for meeting the noble objective of creation of more health awareness among the IITG community. Here's wishing all our esteemed readers and their family a good health for this new calendar year 2017.

With regards

Team, Medical Section IIT Guwahati

Volume II 2017

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HEALTH

Dr. Anuj Kr. Baruah. CMO & HOS (Medical)

What is Health? It is not so easy to define health but at least every one of us can feel what health is. There are lots of definitions of health and probably oldest among them is "absence of disease". Still debates are going on regarding the concept of health. Modern medicine is often accused for its preoccupation with the study of disease, and neglect of the study of health.

"Absence of disease" is a **Biomedical concept** of health. Criticism against this concept is that it has minimised the role of the environmental, social, psychological and cultural determinants of health. The biological model at least is not adequate to solve some of the major health issues, like chronic diseases, malnutrition, drug abuse, mental illness, environmental pollution, etc. After the biomedical concept, some other concepts of health developed, like ecological, psychological and holistic concept of health.

Definition of Health: in 1948 World Health Organization in the preamble to its constitution defined health as: "Health is a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity". Afterwards this definition has been amplified to include the ability to lead a "socially and economically productive life". This concept is a dynamic one and helps us live well, work well and enjoy ourselves.

New philosophy of health:

- Health is a fundamental human right
- Health is the essence of productive life, and not the result of ever increasing expenditure on medical care
- Health is inter sectoral
- Health is an integral part of development
- Health is central to the concept of quality of life
- Health involves individual, state and international responsibility
- Health and its maintenance is a major social investment
- Health is a worldwide social goal.

Dimensions of Health: "Health is multidimensional". The WHO defines three specific dimensions, physical, mental and social. The **physical health** means perfect functioning of the body. The physical dimension of health is easy to understand. Modern medicine has developed various tools and techniques for the assessment of physical health. But **mental dimension** is a complex one. Mental health is not mere absence of mental illness. Mental health has been defined as "a state of balance between the individual and the surrounding world, a state of harmony between oneself and others, coexistence between the realities of the self and that of other people and that of the environment". Psychological factors can induce all kinds of illness, not simply mental ones. The scientific foundations of mental health are not very clear and so, we do not have any precise tool for assessment of mental health. The **characteristics of a mentally healthy person** are as follows:

- 1. A mentally healthy person is free from internal conflicts; he is not at "war" with himself.
- 2. He is well-adjusted, i.e., he is able to get along well with others. He accepts criticism and is not easily upset.
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- 3. He searches for identity.
- 4. He has a strong sense of self-esteem.
- 5. He knows himself; his needs, problems and goals (self-actualization)
- 6. He has good self-control-balances, rationality and emotionality.
- 7. He faces problems and tries to solve them intelligently, i.e., coping with stress and anxiety.

One of the keys to good health is a positive mental health. Unfortunately, our knowledge about mental health is far from complete. **Social dimension**: social well-being implies harmony and integration within the individual, between individuals and the world in which they live. The social dimension of health includes the levels of social skills one have, social functioning and the ability to see oneself as a member of a larger society.

Apart from these three dimensions few other dimensions of health like spiritual, emotional and vocational dimensions also gained importance in recent years. Proponents of holistic health believe that the time has come to give serious consideration to the **spiritual dimension** and to the role this plays in health and disease. Spiritual health in this context refers to that part of the individual which reaches out and strives for meaning and purpose in life. Spirituality includes integrity, principles and ethics, the purpose in life, commitment to some higher being and belief in concepts that are not subject to "state of the art" explanation. **Emotional dimension** is closely related to mental one. Mental health relates to "knowing" while emotional health relates to "feeling". **Vocational dimension** is a new concept. Work often plays a role in promoting both physical and mental health. For many of us, this dimension represents the culmination of the efforts of other dimensions as they function together to produce what the individual considers life "success". The importance of this dimension becomes obvious when someone suddenly lose his job or is faced with mandatory retirement. From all these dimensions we can now realise that a huge range of factors to which other sectors besides health must contribute if all people are indeed to attain a level of health that will permit them to lead a socially and economically productive life.

Health in the broad sense does not merely mean the absence of disease or provision of diagnostic, curative and preventive services. The state of positive health means "perfect functioning" of the body and mind. Dubos said, "The concept of perfect positive health cannot become a reality because man will never be so perfectly adapted to his environment that his life will not involve struggles, failures and sufferings". Positive health will, therefore, always remain a mirage, because everything in our life is subject to change. Positive health depends not only on medical action, but on all the other economic, cultural and social factors operating in our community.

Responsibility for health: now the big question is who is responsible for our health. Health is not only a highly personal responsibility but also a major public concern. It involves the joint efforts of the individual, the community and the state to protect and promote health. Health is both a fundamental human right and essentially an individual responsibility. No community or state programme of health services can give health. In large measure, it has to be earned and maintained by the individual himself, which is known as "self-care".

There are four steps in responsibility for health. 1) Individual responsibility, 2) Community responsibility, 3) State responsibility and 4) International responsibility. Health services are required for adequate protection of health. But for proper health services, the active understanding and involvement of communities is very important. There are many things which the individual cannot do for himself except through united community effort. This means a more active involvement of families and communities in health matters, like, planning, implementation, utilization, operation and evaluation of health services. Now health care for the people is shifted to health care by the people. The Village Health Guides' scheme in India

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(1977) is an example of community participation. Henry Sigerist, stated that "The people's health ought to be the concern of the people themselves. They must struggle for it and plan for it. The war against disease and for health cannot be fought by physicians alone. It is a people's war in which the entire population must be mobilized permanently". In all civilized societies, the State assumes responsibility for the health and welfare of its citizens. The Constitution of India provides that health is a State responsibility. It is found in the Directive Principles of State Policy, in Part IV of our constitution. Our National Health Policy, approved by Parliament in 1983 and later on in 2002 have resulted in a greater degree of state involvement in the management of health services, and the establishment of nation-wide systems of health services with emphasis on primary health care approach. To achieve the health goal, cooperation of national and international organizations both within and outside the United Nations system is necessary. It includes exchange of experts, provision of drugs and supplies, border meetings with regard to control of communicable diseases etc. The WHO is an impotent organization in encouraging international cooperation for health. WHO acts as a directing and coordinating authority on international health work.

Though responsibility for health is divided in three to four categories the responsibility per individual is much more important. **Self-care** is a recent trend in health care. It means some measures undertaken by us to promote our own health, prevent our own diseases, to limit our illness and restore our own health. These activities do not require professional assistance; only require education, knowledge and some skills. We can observe some simple rules of behaviour relating to diet, sleep, exercise, weight, alcohol, smoking and drugs. We should give proper attention to personal hygiene, cultivate healthful habits and lifestyle. Some other important measures are, to perform selective medical examinations and screening; accepting immunization and taking other specific disease-prevention measures, reporting early when sick and accepting treatment, undertaking measures for the prevention of a relapse or of the spread of the disease to others. Family planning is also an essential individual responsibility.

Nowadays we have noticed a shift in disease pattern from acute to chronic. Today Non Communicable Diseases (NCD) has emerged as epidemics worldwide. For proper management of this problem, self-care becomes both a logical necessity and an appropriate strategy. By educating people for self-care, like own blood pressure monitoring and recording, self-monitoring of blood glucose (SMBG), we can reduce the burden on the official health services and at the same time it helps in self-empowerment also. To conclude Health is Wealth and it must begin with the Individual.

Source: Park's TB of Preventive and Social Medicine, 2015.

Acute Respiratory Infections during winter months

Dr. Mala Borthakur

During the change of seasons, young and adult people, particularly the elders suffer from respiratory infections which may lead to coryzae or common cold, influenza, pneumonitis and pneumonia, dust allergy, increase in symptoms of bronchial asthma, COPD or chronic obstructive pulmonary disease and smokers bronchitis etc.

Some of the above are caused by germs normally residing inside our throat, pharynx and nares and are called commensals but they turn pathogenic that is, disease producing when the pharyngeal environment becomes conducive to their growth. These are also caused by viruses in the environment as at these times the weather is dry and dusty. Some allergens inhaled may precipitate bronchial asthma. It is important to guard from the cold and remain away from suffering ones. Maintaining a strong immune system to ward off disease or recover quickly is important for not aiding the germs.

The throat comprises of several organs like tonsils, pharyngeal walls, tonsillar pillars and fauci, uvula, larynx with the vocal cords which is also known as the voice box and, the tongue with the papillae or taste buds. The bronchial tubes and lungs are the next organs to become infected as they are contiguous organs anatomically lower down.

Onset of these infections is sudden and gives rise to mild fever, headache, body ache, lethargy, weakness and stuffy nose with sneezing s and may lead to breathing difficulty with laboured breathing, a fast beating of the pulse, and unable to breathe while lying down on bed. Mild forms of these viral infections require mild medicines; however the severe forms of respiratory infections require immediate hospital attention, to receive nebulisation and drugs to alleviate breathlessness, called bronchodilators, suitable antibiotics and supportive medicines.

In case of bacterial pneumonias and viral pneumonitis, the lobes of the lungs are involved and patients may go on to develop complications like pleural effusions, pleurisy, consolidation and collapse of lung tissues. Timely intervention with appropriate antibiotics and support in hospitalized setting with X-rays and other tests is to be rendered.

There are a group of patients who repeatedly suffer from respiratory infections during season change. They may take precautions of rest and diet general health care like frequent hand washes with mild soap and water, warm water feet bath etc to reduce and avoid severity.

Vaccinations during infancy and childhood, including pneumococcal vaccines available for elders may help prevent some of the complications.

Environment inside our homes accumulate dust and books attract mites. These particularly affect people suffering from respiratory diseases. Gases and smoke released during cooking and deep frying without hoods similarly affect us unless we change cooking styles to boiling, broiling, steaming, sautéing, baking etc, passive smoking which means the smoke inhaled by a non-smoker by being in a common space with a smoker, environmental smog and industrial gases and smoke are other concern for respiratory health.

The human body assimilates minerals and vitamins better from natural and less processed food. It is certain that every respiratory disease would improve with diet appropriate for the person and prescribed only for him or her. This would alleviate food allergy from exacerbating to dangerous levels as well as providing good prevention.

The medicines prescribed in these conditions may also not be fully effective in disease control as the currently available medicines and emergency drugs in the world today are of one size fit for all and may not be efficacious to all the patients or at worst, cause anaphylaxis which may not respond adequately. However it is important to perceive any variation in one's health and obtain existing health care.

The writer is an MD in Medicine and is a CMO SAG of IITG

HAEMORRHAGE

Dr. L Barua, CMO (NSFG)

Haemorrhage or bleeding from any cause is a common medical emergency that causes concern and calls for immediate management.

Bleeding may be of two types

- 1. External bleeding for example bleeding from cuts, lacerations etc.in the body surface that is visible.
- 2. Internal or concealed bleeding that is bleeding within the body cavities. Examples are
 - (a) Bleeding into the abdomen from ectopic pregnancy or tubal rupture, splenic injury, mesenteric tear etc.
 - (b) Bleeding into the thoracic cavity from lung laceration i.e. haemothorax
 - (c) Bleeding inside the skull i.e. extradural or subdural haematoma.

From the point of view of the source of the bleeding haemorrhage may be classified as

- 1. Venous bleeding -This may be recognised by the fact that blood is dark red in colour, and with a steady and copious flow.
- 2. Arterial bleeding –the blood from the arterial bleeding is bright red in colour and spurting; it rises and falls with the pulse.
- 3. Capillary bleeding- Here also the blood is bright in colour but there is no spurting. Blood flows with a rapid ooze.

Regarding the time of bleeding, haemorrhage may be classified as

- 1. Primary haemorrhage It is the bleeding that occurs at the time of injury.
- 2. Reactionary haemorrhage- This is the bleeding that occurs within 24 hours of the primary injury either due to dislodgement of clot, slippage of ligature or cessation of vasospasm.
- 3. Secondary haemorrhage It occurs 7-14 days after the initial injury and is usually due to infection.

A considerable amount of blood loss leads to depletion of volume in the intra vascular space (within the heart, arteries and veins) .A person can tolerate about 10-15% loss of blood volume by compensatory mechanism. That is ,if a normal healthy adult person has 5 litres of blood then about 500 ml of acute blood loss is tolerated by increasing the heart rate (tachycardia)and constriction of the blood vessels within the body .Fluid also shifts from the tissues (third space) into the circulation.

This leads to dilution of the blood but restoration of the volume. Gradually plasma proteins are replaced by the liver. Recovery of the red cells of the blood to normal level takes about 5 to 6 weeks.

Continued bleeding above this level leads to hypervolemia with obvious clinical manifestation. Initially the blood is diverted from the splanchnic circulation (i.e. the blood supply to the intestines etc.) to supply the vital organs. The symptoms at this stage includes tachycardia (rise of pulse rate), increase in systolic blood pressure, cold calmly skin etc. Person may become drowsy and confused and respiratory rate may rise.

If the blood loss is so great that the compensatory mechanism also fails, then the blood supply to the heart and lung is compromised. Tachycardia changes to bradycardia (slow pulse rate) ,blood pressure falls and patient may become unconscious. Left untreated patient may die within a short time.

Steps to stop bleeding

- 1. Pressure and packing-- Pressure and pack is the first step to stop bleeding in a majority of the cases. Bleeding from limbs can be controlled by pressure applied by anything which is soft and clean with the dressing being bound tightly. Pressure by finger tips can stop bleeding from nose.
- 2. Position and rest –Elevation of the limbs can stop bleeding, particularly venous bleed. For example bleeding from veins of the legs can be minimised simply by elevating the feet.
- 3. Operative techniques Catching the tips of bleeding vessels by artery forceps and then ligature or diathermy coagulation of bleeding vessels, suturing of the wound are some examples of stopping bleeding.

Internal bleeding like splenic rupture, ruptured ectopic pregnancy will require emergency operation to remove the damaged and bleeding organ.

Measuring blood loss

The amount of blood loss can be roughly estimated by the following methods.

- 1. A clot of the size of a clenched fist is approximately about 500ml of blood
- 2. In case of fracture of the lower limb bones a moderate swelling of the leg below the knee in case of fracture tibia is about 500 to 1500ml of blood whereas a moderate swelling of the thighs in case of fracture femur denotes about 500 to 2000ml of blood loss.
- 3. Haemoglobin level estimation –The immediate estimation of haemoglobin level after an episode of bleeding is misleading. Haemoglobin level falls only after few hours after the dilution occurs following the fluid shift as discussed above.
- 4. Central venous pressure recording- Measuring the central venous pressure by placing intravenous catheter in the internal Jugular vein is a standard method of estimating hypervolemia and venous return.

Further treatment

After controlling the bleeding the patient needs to be reassured. Patients with shock need to be treated in the ICU with continuous monitoring of pulse, blood pressure, urine output, CVP etc.

The circulatory volume is to be restored by parenteral fluid therapy and blood transfusion.

Secondary haemorrhage is to be treated with proper antibiotics and other drugs

LOWER BACK PAIN AND ITS PHYSIOTHERAPEUTIC MEASURES

Dr. Kandarpa Jyoti Das

Lower back pain is neither a disease nor a diagnostic entity of any sort. Low back pain is leading cause of job related disability. It occurs in all cultures and interfere the quality of life. It is the most common cause for medical consultation. Most cases of low back pain improve in few weeks from the time they start and 40%-90% of cases completely better by 6 weeks. Acute back pain is mechanical in nature and subsides in few weeks with no residual loss of function. The sub-acute pain lasts for 6-12 weeks. But chronic low back pain persists for 12 weeks and sometimes longer than that and lead to work dissatisfaction, boredom. About 20% of people with acute low back pain involves muscles, nerves and bones of the back (vertebral column). The pain can be either constant dull aching or sharp pain that appears suddenly. Men and women are equally affected by low back pain. Generally the low back pain occurs between the age of 30-50years and pain becomes more common with advancing ages.

Acute lower back pain that does not extend to the legs is most commonly caused by a sprain or muscle tear, usually occurring within 24hours of heavy lifting of any object or overuse of back muscles. Chronic back pain occurs due mechanical strain caused by obesity, pregnancy, job -related stooping, bending or other stressed posture. Herniated disc or ruptured discs are most common cause of chronic low back pain. Low back pain that extends to the legs indicates involvement of sciatic nerve where the entrapped or pinched by herniated discs, tumors of cauda equina, spinal stenosis and compression fractures. Some patients complain of numbness or weakness of the legs as well pain. Software engineers, agriculture workers, and the professions that demands long sitting, standing or repeated forward bending are most prone for low back pain. A complete medical history and physical examination can help to find out the underlying cause of the pain. Under certain circumstances like spinal tumors and spinal stenosis, imaging techniques (X-Ray, MRI scan, CT-scan) are used.

Management of lower back pain:-The management of lower back pain generally depends on whether the pain is acute or chronic. Medically the pain can be manage by administration of nonsteroidal anti-inflammatory drugs(NSAIDs) to relieve the pain and inflammation, analgesic medications to relieve the pain, and muscle relaxants.

Physiotherapeutic management

The aim of physiotherapeutic /physiotherapy management is to decrease the pain, increase function and teach the patient a maintenance programme to prevent future back problems. Passive physiotherapeutic management includes application of heat or cold depending on the type of the low back pain. In most of the acute cases the application of cold packs gives better results in relieving back pain. For chronic cases application of deep heating modalities like short wave diathermy (SWD) can minimize the pain in a short period of time. Electrotherapeutic application like interferential therapy (IFT) and trans-cutaneous electrical nerve stimulation (TENS) can reduce the pain by closing the pain gate. Active physiotherapeutic management focuses on specific exercises and stretching that can improve the strength and flexibility of the spinal muscles. Ergonomic principles can help to reduce the work related back pain /occupational hazards and helps to maintain a healthy back.

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