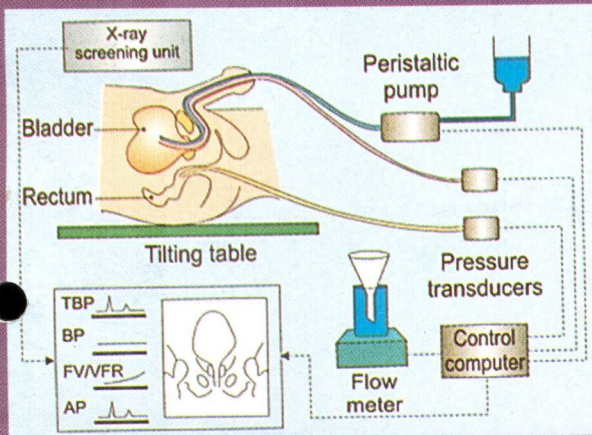


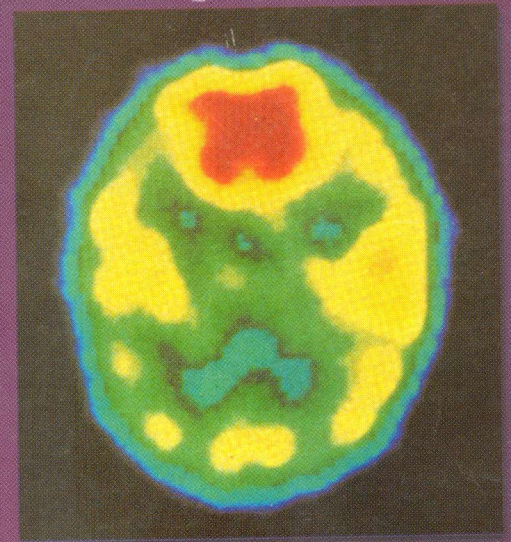
The ORION

Medical Journal

Outlines of Urodynamic Studies and Its Clinical Application.



Assessment of Coma and Impaired Consciousness- A Critical Review.



Management of Geriatric Patients.



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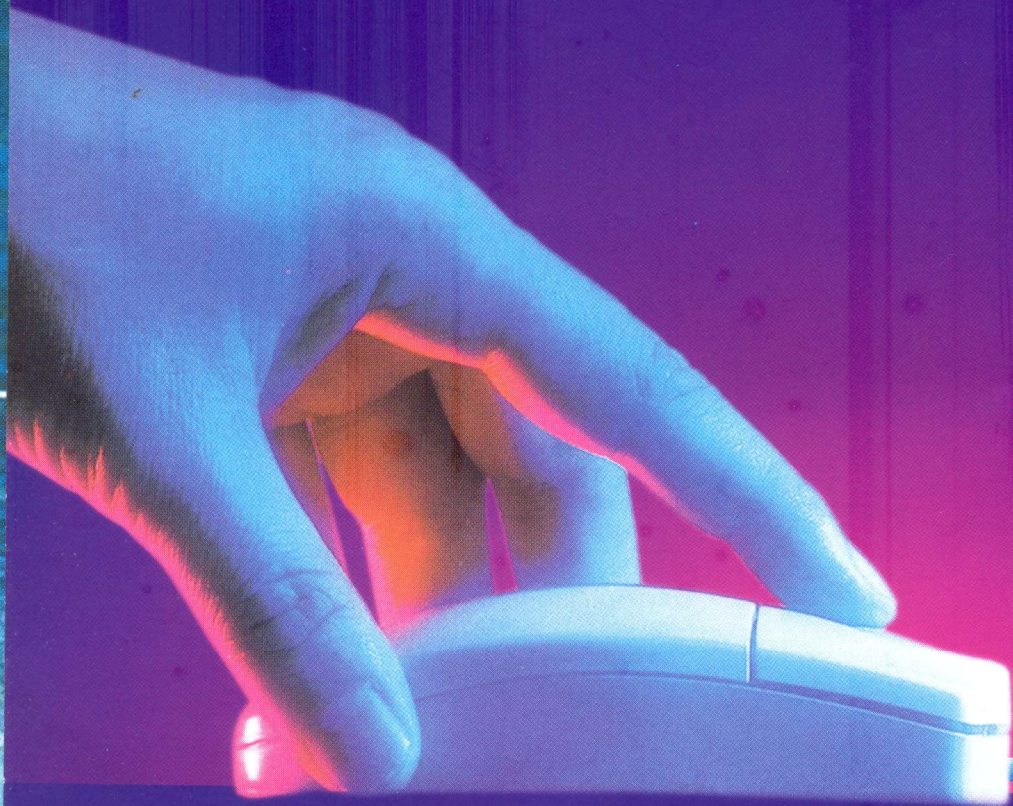
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COVER ILLUSTRATION

Pictorial depiction of Urodynamic Studies and Clinical Application by Schematic diagram of videocystometry and videocystometry, Assessment of Coma and Impaired Consciousness by CT scan of brain of an unconscious patient and management of Geriatric patients by the picture of a nurse who is giving medicine to an old patient respectively.

PUBLISHER'S NOTE

We acknowledge to quote different authors regarding their original contributions in the text books, journals and manuals etc. We reiterate that these deliberations are not of commercial uses and values. The views expressed in this publication do not necessarily reflect those of its editors or of Orion Laboratories Ltd.

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Editorial

With the publication of ten consecutive issues of "The ORION", this is our pleasure to believe, we have created a mile stone in achieving our objective in Continued Medical Education. It is a source of pride and inspiration to us that our Journal has been accepted by the Doctors Community with much ardour and appreciation.

We hope that we are moving towards our goal, that is, national and international recognition and reputation by active support, supervision and advice of the honourable members of the Advisory and Review boards.

Your response to the leading articles in the previous issues assured us that "The ORION" is gaining confidence of the professionals in updating the knowledge of medical science.

In view of the opinions from our esteemed readers in this issue we decided to focus Urology by the topic "Out Lines of Urodynamic Studies and Its Clinical Application", Surgery by "Assessment of Coma and Impaired Consciousness- A Critical Review", and Geriatric Medicine by "Management of Geriatric Patients".

Irrespective of age, sex and race a large number of population in our country are suffering from disorders in kidneys, urinary bladder and urethra. These carry constant risks of developing serious consequences which demand early and proper management. Urodynamic study provides an essential complement to the modern practice of Urology, Gynaecology, Neurology, spinal injury management and associated specialities.

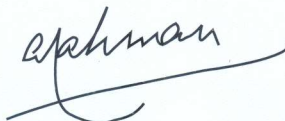
Coma and Impaired consciousness is a critical problem in the management of surgical and medical emergencies. In developed and developing countries thousands of people are rushing to hospitals and clinics with this acute problem everyday. This deserves timely assessment, diagnosis and appropriate management to save lives.

The nature is running in its own way. Aging process is normal phenomenon where inevitable degenerative changes in almost every organs of human body occur and ultimately leading to death. Geriatric Medicine, the medicine of old age encompasses much of knowledge and clinical skills of organ based speculation which applies to a particular age group.

We are committed to improving the quality and standing of "The ORION". To enrich our publication please take the time to share your thoughts and opinions with us.

We expect our effort will be of much helpful to all concerned.

May The Almighty bless you in the spirit of good health.



Dr. ATM Azizur Rahman
Chief Editor
and
Manager,
Medical Services Department.

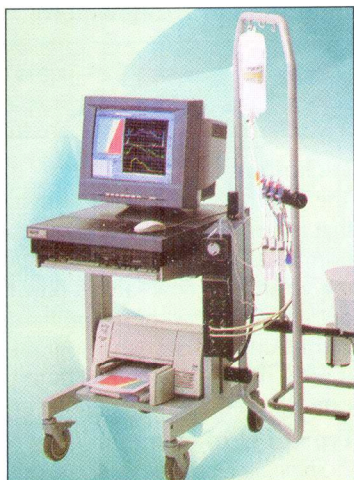
Outlines of Urodynamic Studies and Its Clinical Application.

M A Salam

GENERAL CONSIDERATION

Urodynamics is synonymous with hydrodynamics, which measures the flow and pressure of water. In urological practice urodynamics is a neuro physiological study of urinary tract which measures the pressure, flow and electrical changes in various component of urinary tract during the different phases of activity of upper and lower urinary tract. In practice the activity of bladder, urethral sphincter and pelvic muscle is recorded through especial equipment called urodynamic machine.

Urinary continence during bladder filling, urine storage in the bladder and the efficiency of subsequent voiding all depend on the accurate co-ordination activity of vesicoureteral segment. The interpretation of urodynamic study is simple in most cases and provides an essential complement to the modern practice of urology, gynaecology, neurology, spinal injury management, and associated specialities.



The Dream Machine of Urodynamics

INDICATION OF URODYNAMICS STUDY IN RESPECTIVE FIELDS

You may chose your desired test of bladder function for your patients. Urodynamic test proved to be invaluable to the specialist of the following subjects in a varieties of clinical conditions, some of them are outlined below.

UROLOGY

Urodynamics is essential in the evaluation of patient with Neuropathic bladder due to spinal cord trauma, Spinal cord disease, Central nervous system disease like Parkinsonism, Stress incontinence, over flow incontinence, Urge incontinence, LUTS (Lower urinary tract symptoms), Benign Prostatic Hyperplasia, Unstable bladder, Diabetic cystopathy, Doubtful Pelvic Ureteric Junction obstruction (whitaker test).

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NEUROLOGY

Patients with Neurological disorder often require urodynamics for evaluation of CNS or PNS disease associated with bladder dysfunction CVA, CVD, Parkinsonism, Spinal disease of almost all type Peripheral Nerve diseases, Autonomic neuropathy.

PAEDIATRIC SURGERY

Urodynamics is essential for VUR with suspected hyper reflexic bladder PUV with suspected hyper reflexic bladder, Decompensated bladder, Chronic retention of urine, Incontinence.

ENDOCRINOLOGY

Urodynamics is essential for evaluation of bladder function in disease like- Diabetes mellitus (diabetic cystopathy) with Lower urinary tract symptoms.

NEUROSURGERY

Neurosurgeons often require urodynamics for evaluation of patients with- Spina bifida, Disc prolapse, Spinal tumors, Spinal diseases e.g. Traumatic diseases, Infections, Neoplasm, Degenerative diseases, Urinary symptoms following brain surgery etc.

GYNAECOLOGY

Gynaecologists often require urodynamics for evaluation of patients with- Strees urinary incontinence, Lower urinary tract symptoms in women, Recurrent urinary infects.

ORTHOPAEDICS

Urodynamics is essential in the evaluation of patient with- Spinal injury, Hyper reflexic bladder, Hypo reflexic bladder, Spinal diseases like PLID, spinal tumor etc.

PAEDIATRICS

Evaluation of bladder function with urodynamics is important in-patients like, Enuresis, Incontinence, Spinal bifida, Cerebral palsy, Myelomeningocele.

GENERAL PRACTICE

Urodynamics is essential for evaluation of peoples complaining of lower urinary tract symptoms, such as Frequency, Urgency, Hesitancy, Poor flow, incomplete voiding etc. Incontinence due to any cause, Diabetes mellitus with voiding symptoms.

COMPONENTS OF URODYNAMICS

Urodynamics consists of a number of complimentary component of varying degrees of complexity, the needs to be tailored to meet the clinical requirements of each case. Some of the tests are clinical and very simple to perform, they are called as *simple urodynamics*. Other components of urodynamic tests is highly complex and require electronic equipments to record pressure, flow and electrical activity of the urinary tract and pelvic floor muscles they are called as *complex urodynamics*.

Components of Urodynamics

Simple Urodynamics	Complex Urodynamics
Observation of act of micturation	Cystometry:
Frequency volume chart	Filling phase study of bladder
Uroflowmetry	Voiding phase study of bladder
Ultrasound Cystodynamogram (USCD)	Sphincter EMG
	Whitaker-Test (upper tract studies)
	Urethral pressure measurement
	Ambulatory urodynamics.

For simple problem like assessment of voiding symptoms from benign prostatic hyperplasia, simple urodynamics consisting of observation of act of micturation in the toilet, frequency, volume chart analysis, estimation of urine flow by uroflowmetry or analysis of Ultrasound cystodynamogram may be cost effective and highly satisfactory investigation.

For assessing the complex neurolurgical problem like unexplained lower urinary tract symptoms (LUTS) or assessing the bladder function in spinal injury victims, more complex urodynamics study like Cystometry, Urethral pressure measurement, Sphincter EMG, Upper tract urodynamics (the Whitaker test) etc. would be appropriate. These tests are expansive and slightly invasive but can provide invaluable information for the correct management of the problem.

SIMPLE URODYNAMICS

Observation of Act of Micturation

Observing the act of micturation in a BPH patient will disclose the degree of discomfort felt by the patient and will allow to have a rough estimation of flow rate. The residual volume can be measured by clinical test at the end of voiding. This test is possibly the simplest visual or clinical urodynamics.

Frequency Volume Chart

Estimation of bladder activity and voided volume can be assessed simply by keeping a frequency volume chart which may give a clear indication about the volume of fluid intake and volume voided in a given time. Many people complaining of frequency, urgency and nocturia and their frequency volume chart may show that they are taking lot of water due to their obsessive drinking habit.

Uroflowmetry

The first simplest and most useful investigation in the assessment of voiding dysfunction (LUTS) is the measurement of urinary flow rate. On the basis of this test it is often possible objectively to confirm the presence of bladder outlet obstruction. Studies have demonstrated that simple uroflowmetry by itself is adequate investigation for uncomplicated bladder outflow obstruction in nearly 50% of patients.

The urine flow may be reduced also in detrusor under activity which may mislead the

clinician. Clear example is a case of chronic retention of urine due to BPH. Here the uroflow tracing will show evidence of obstruction but relieving the obstruction by TURP may not improve the flow of urine. In such instance a Cystometrogram (CMG) will confirm a under active detrusor.

In addition, it must be remembered that a normal flow rate can be present in the early stages of obstruction as a consequence of a compensatory increase in voiding pressure by hypertrophied detrusor which will maintain of an apparently normal flow rate. Ultrasound scan of the bladder will show a thickened bladder wall and cystoscopy will confirm the bladder out flow obstruction due to BPH or stricture urethra despite of a normal flow rate. In these cases the International Prostatic Symptom Score will guide the clinician.

Indication of Uroflowmetry

- BPH
- Carcinoma of prostate
- Stricture urethra
- Neuropathic bladder
- LUTS

Technique

The flow rate is measured with a flow meter, which is a device that measures the flow and indicates a quantity of fluid (volume or mass) passed per unit time; such machines normally indicate the volumetric flow rate. A flow rate estimation can be carried out either by itself or in combination with other techniques eg. Ultrasound Cystodynamogram (USCD), Cystometrogram (CMG), Video Cystometrogram (VCMG). The measurement is expressed in ml/s.

Type of Uroflowmeter

1. Spinning Disc type 2. Dip stick type 3. Weight transducer type.

Spinning disc method

The voided fluid is directed on a rotating disc lodged in a large funnel fitted with a comode. The amount flowing urine on the disc produces a retardation in its speed, and the power required to keep the disc rotating at a constant rate is measured, thereby allowing calculation of the flow rate of urine passed the disc. The calculations are plotted in the form of tracing on a thermal paper. This type of uroflowmeter is most dependable and durable and as such most of the urological centre prefers the equipment.

Electronic dipstick method

A dipstick is mounted in a collecting chamber and as urine accumulates the electrical capacitance of the dipstick changes. This allows calculation of the rate of accumulation of fluid and hence the flow rate.

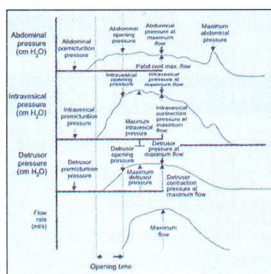
Gravimetric(weight transducer) method

Such instruments measure the weight of collected fluid or the hydrostatic pressure at the base of a collecting cylinder. This similarly allows calculation of a flow rate.

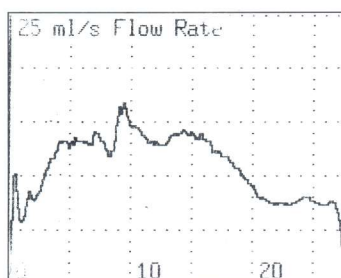
Practical guidelines

The following factors have to be considered when interpreting a flow rate and the pattern (in particular whether the flow is continuous or intermittent).

- Voided volumes of less than 150 ml can lead to erroneous results.
- Favourable surroundings was present during the test.
- Whether the patient is voiding supine or standing.
- Whether the patient voided with a catheter(during CMG).



Pressure-flow recordings of micturation with international Continence Society nomenclature.



Results of Uroflowmetry

Voiding Time	T100	68	s
Flow Time	TQ	65	s
Time to max Flow	TQmax	16.8	ml/s
Average Flow Rate	Qave	8.2	ml/s
Voided Volume	Vcomp	542	ml

Definitions

Voided volume. The total volume expelled via the urethra per micturation. Normally bladder can hold about 500 ml of urine. In poorly contractile or decompensated bladder, the voided volume may be small by keeping a large residue in bladder.

Maximum flow rate. The maximum measured value of the flow rate. On full bladder normal values : 20-25 ml/sec in male and 25-30ml/sec in females. Obstruction should be suspected if it is less than 15 ml/sec. A flow rate of less than 10 ml/sec is taken as definite obstruction.

Average flow rate. Voided volume divided by flow time. The calculation of average flow rate is only meaningful if flow is continuous and without terminal dribbling. Normal maximum flow rate with long average voiding flow rate is indicative of sphincter dysfunction.

Flow time. The time over which measurable flow actually occurs. Most adult male completes their voiding by 30 sec while female can do it by 20 seconds.

Time to maximum flow. The elapsed time from onset of flow to maximum flow. The flow pattern must be described when flow time and average flow rate are measured.

Intermittent flow. The same parameters used to characterize continuous flow may be applicable if care is exercised in patient with intermittent flow. In measuring flow time the time intervals between flow episodes are disregarded. It may occur due to detrusor contraction or abdominal straining.

Voiding time. Total duration of micturation, ie. including interruptions. When voiding is completed without interruption, voiding time is equal to flow time.

Comment

It is evident that the urinary flow rate provides important and useful information suggesting whether there is obstruction to the outflow tract. The flow rate pattern may indicate a possible aetiology. It should be always done after treatment of BOO to evaluate result and documentation.

Drawbacks

The flow rate can be misleading in the following conditions-

- If the detrusor function is normal or the detrusor is over active, the flow rate is maintained at fairly normal values despite the high urethral resistance due to BPH or other causes of bladder outlet obstruction.
- The flow rate is not diminished until the urethral calibre is reduced below 11 Ch.
- The flow rate may be misleading in patients where there is significant detrusor decompensation leaving large residual volume.
- The flow rate can be influenced by straining and this should be taken into account when interpreting results.
- Irregularities in the measured flow rate can be due to collecting funnel artefacts and to variations in the direction of the urinary stream.

Uroflowmetry by itself is an adequate investigation for uncomplicated prostate outflow obstruction in nearly 50% of patients. It is also invaluable in the assessment of voiding function across a spectrum of urological conditions. It must, however, be emphasised that most reliance should be placed on the observed flow pattern rather than the absolute data obtained. In view of the limitations outlined above, in certain circumstances where doubt remains following a flow rate, or in

particular where previous surgery has been carried out, more complex investigations are required. To provide more detailed information about bladder function a simple flow rate can be combined with ultrasound imaging (USCD) or with cystometrogram (Voiding CMG).

Ultrasound Cystodynamogram (USCD)

Ultrasound scan of urinary tract is combined with a flow rate to provide more practical information of bladder function. This investigation is performed routinely to all patients with lower urinary tract symptoms in men, women & children, BPH, stricture urethra, neuropathic bladder or assessing the result of treatment of bladder outflow obstruction etc.

Indication of USCD

- Diagnostic indication e.g. Bladder outflow obstruction
- Follow up e.g. Post TURP or Urethral surgery

Technique

The upper tract is scanned, then the bladder is scanned at maximum urgency for the thickness of the bladder wall, any filling defect and the maximum cystometric capacity is measured. The patient voids into a flowmeter in a uroflowmeter to obtain the uroflow tracing. Now a postvoid bladder scan is carried immediately out to measure the residual volume.

USCD Provides

- Information of the uppertract (Hydro nephrosis/ Hydroureter)
- Maximum cystometric capacity (Over 2500 ml indicates decompensation)
- Bladder wall thickness (Thick wall indicate over active bladder and thin wall bladder indicate poor bladder function)
- Filling defect in bladder (Tumor, blood clot, stone etc)
- Uroflowmetry (poor flow/ normal flow)
- Estimation of post void residue (Over 100 ml indicate poor bladder function or significant BOO)
- Approximate estimation of voiding function of bladder.
- Help to distinguish obstructive and non-obstructive voiding syndrome.

Practical guidelines

- Ensure that the patient has a subjectively full bladder prior to carrying out the study to provide a representative result.
- Make sure that the study is carried out in circumstances where the patient is relaxed, so as not to introduce error into the results obtained.

Comment

The USCD provides data on maximum cystometric capacity, the flow rate and postvoidal residue, will provide helpful information about the lower urinary tract function than a flow rate alone.

This test is entirely non invasive, cost effective and provide most useful clinical information for assessment of lower urinary tract dysfunction or follow up of treated cases in out patient clinics. USCD is currently used as a routine test for BPH, Stricture of urethra etc. The test can be performed satisfactorily by using any ultrasound machine added with a uroflowmeter.

COMPLEX URODYNAMICS

Cystometrogram

Cystometry is the method by which the pressure/volume relationship of the bladder is measured. Cystometrogram can be added to uroflowmeter to obtain simultaneous flow tracing or can be radiological evaluation of bladder neck during voiding in order to see the bladder neck activity to study incontinence. Based on above facts cystometrogram can be of three types:

1. Simple Cystometry
2. Voiding Cystometry
3. Video Cystometry

Simple cystometry

The term simple cystometry is usually taken to mean the measurement of detrusor pressure during controlled bladder filling and subsequent voiding to assess detrusor activity, sensation, capacity and compliance.

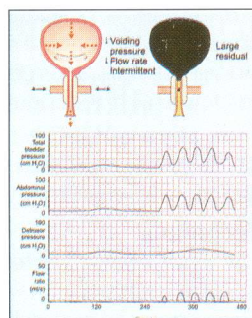
Voiding Cystometry

Voiding cystometry is a more perfect tool to determine the bladder function. This is accomplished by addition of measurement of the synchronous flow rate in addition of simple cystometry. Measurement of bladder pressure and abdominal pressure is simultaneously recorded. Substraction of bladder pressure from abdominal pressure will indicate the detrusor pressure. This subtraction of pressure is done by a built in computer. All three pressure, eg. 1) Bladder pressure, 2) Abdominal pressure and 3) detrusor pressure is recorded simultaneously during the test. Voiding cystometry is used to assess detrusor activity, sensation, capacity and compliance, uroflow and cystometric pressure during voiding.

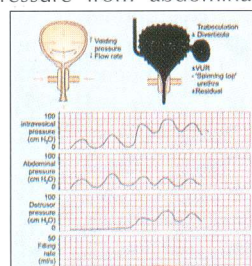
Video Cystometry

If appropriate radiological facilities exist, the bladder can be filled with contrast media, thus allowing the simultaneous screening of the bladder and outflow tract during filling and voiding can be conducted. When this procedures are combined with voiding cystometry, this results in the good standard investigation: the video cystometrogram.

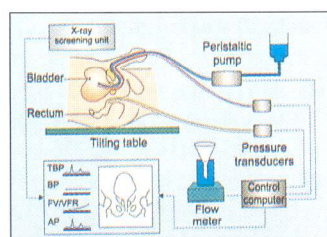
Radiological screening provides valuable additional anatomical information on the appearances of the bladder, the presence of ureteric reflux, the level of any outflow obstruction in the lower urinary tract, the degree of support to the bladder base during coughing and, by itself, is more than adequate for the diagnosis of stress urinary incontinence or sphincter weakness incontinence. This information, along with the accompanying pressure flow traces, can be recorded on a video tape or in CD allowing subsequent review and discussion.



Typical cystometrogram and Cystometrogram appearances for an underactive detrusor.



Typical cystometrogram appearances for detrusor-sphincter dyssynergia.



Schematic diagram of videocystometry and cystometry.

Videocystometry is, however, essential for the adequate assessment of the complex cases where equivocal results have been obtained from simpler investigations for the definition of neuropathic disorders, and in situations where there has been an apparent failure of a previous surgical procedure.

Indication of Video CMG

1. Study of stress incontinence
2. Post TURP incontinence

PRACTICAL POINTS OF URODYNAMIC STUDY

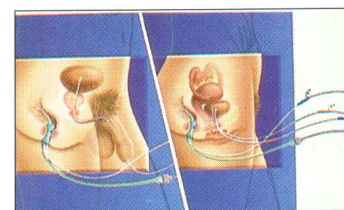
A number of variations in technique are currently available and the following points deserve specific consideration.

Access

Whilst the majority of cystometry is carried out via the transurethral route, percutaneous placement of catheters both for bladder filling and pressure measurement is essential in the investigation of paediatric patients and when the urethral access is not possible.

Type of catheter

Fluid-filled catheter is of various type and size with single or multiple lumen. Catheter tip transducer-specifications vary between manufacturers; these catheters tend to be expensive and too fragile for routine use.



1. lumen Pves Catheter, Infusion Catheter, Rectal Catheter used with Disposable Sphincter Electrode.

Urodynamic equipment

A number of commercial urodynamic systems are currently available. These vary greatly in terms of sampling rate, associated computer software backup and price.

Test medium (liquid or gas)

Normal saline is the most ideal medium for cystometry. Gas cystometry is rarely performed now a days. The major drawback with gas cystometry is aerodynamics not urodynamics.

Position of patient eg. Supine, sitting or standing.

Type of filling

This may be by diuresis or catheter. Filling by catheter may be continuous or incremental; the precise filling rate should be stated. When the incremental method is used the volume increment should be stated. Continuous pressure measurement is of greatest usefulness in clinical practice.

Techniques of videocystometry/cystometry

A full urodynamic history is taken before the test is performed. One of the goal during the test is to reproduce the similar symptoms the patient was complaining. The detrusor pressure is estimated by the automatic subtraction of rectal pressure (as an index of intra-abdominal pressure) from the total bladder pressure, thus removing the influence of artefacts produced by abdominal straining. During this study, notice is taken of the initial bladder residual, the bladder volume at the time of the patient's first sensation of filling, the final tolerated bladder volume and the final residual volume after voiding. All systems are zeroed at atmospheric pressure. For external transducers, the reference point is the level of the superior edge of the symphysis pubis. For catheter mounted transducer the reference point is the transducer itself.

2mm diameter saline-filled catheter is introduced into the rectum, the end of the tube being connected with a rectal

balloon or with a finger of a surgical gloves. A slit is cut in this to prevent tamponade producing artefactual results during the study. With the patient in the supine position, the external urethral meatus is cleaned with antiseptic solution. The urethra is anaesthetised with 1% lignocaine gel containing chlorhexidine and then a 5 Fr. Manufacturers double lumen or a 10 Ch Nelaton filling catheter with a 1 mm diameter saline-filled plastic pressure catheter inserted into the the bladder and the two catheters end is then disengaged. The bladder is drained of urine and this initial residual volume recorded.

The two pressure measurement lines are then connected to the transducers incorporated in the urodynamic apparatus. The lines are flushed through with saline, great care being taken to exclude all air bubbles from both the tubing and transducer chambers. Normal saline or normal saline mixed with contrast medium (for video urodynamics) at room temperature is then instilled into the bladder at a predetermined rate under the control a peristaltic pump. Fast-fill (>100 ml/min) is used routinely in most unit, although slower filling rates approaching the physiological range are mandatory in the assessment of the more complex cases.

The bladder is filled initially in the supine position and the volume at first sensation of filling is noted. When the subject first experiences discomfort, the radiographic table is tipped towards the standing position and subsequent bladder filling discontinued when at the maximum tolerated capacity. During bladder filling the patient is asked to consciously suppress bladder contraction. The Nelaton filling catheter is then removed from the bladder and the patient turned to the oblique position relative to the X-ray machine and asked to void into the flowmeter provided.

Throughout the study continuous rectal pressure, total bladder pressure and electronically subtracted detrusor pressure (total bladder pressure minus rectal pressure) measurements are sampled at a predetermined rate (1 Hz on most commercially available contemporary machines) and the results displayed on the video display unit/stored to disc/polygraph chart recorded depending on the equipment in use.

The adjacent X-ray screening apparatus allows the synchronous display of pressure and flow, and also radiographic data relating to bladder morphology, ureteric reflux and the appearances of the bladder outlet and urethra, to be displayed alongside the numerical data on a video display unit. The monitor images are recorded on video tape allowing review and detailed study.

Comment

Before starting to fill the bladder the residual urine may be measured. However, the removal of a large volume of residual urine may alter detrusor function, especially in the neuropathic disorders. Certain cystometric parameters may be significantly

altered by the speed of bladder filling.

During cystometry it is taken for granted that the patient is awake, unanaesthetised and neither sedated, nor taking drugs that effect bladder function. Any variations from this ideal must be taken into account when interpreting results.

The failure of the bladder neck mechanism to relax occurs in a small percentage of young men resulting in a clinical entity of bladder neck obstruction (dys-synergia). This abnormality is evident during videocystometry if the patient is asked to inhibit micturation voluntarily.

In a normal urodynamic study, contrast media will be milked back from the distal sphincter mechanism proximally through the bladder neck into the bladder, indicates a normal **stop test**. If there is any obstruction lies at the level of the bladder neck, contrast will be trapped between the bladder neck and external sphincter resulting a tear drop appearance of trapped contrast material in prostatic urethra. This is a reliable test for diagnosing the bladder neck hypertrophy.

During cystometry, under normal circumstances the bladder should fill to a capacity of approximately 500 ml before a strong desire to void is experienced. During subsequent bladder filling, whilst the patient is making a conscious effort to inhibit voiding, in practice the subtracted intravesical detrusor pressure should not rise significantly off its baseline value-although the International Continence Society on longer recognises a specific value as being essential to the diagnosis of detrusor instability. In practice, we have found that, if there is pressure rise greater than 15 cm of water, then detrusor instability can be said to be present. The only exception is represented by a gradual linear rise in pressure during detrusor filling-so called low compliance-which, although clearly defined, remains as an yet poorly classified entity.

During subsequent voiding the patient's bladder empties completely with a maximum detrusor pressure of 30-50 cm of water and a maximum urinary flow rate of 25 -30 ml/s in men and 30-40 ml/s in women.

Compliance indicates the change of the volume for a change in pressure. Compliance is calculated by dividing the volume change (dV) by the change in detrusor pressure (dP det) during the change in bladder volume ($C = dV/dP \text{ det}$). Compliance is expressed as ml per cm H₂O.

Filling rate

<10 ml per minute is slow fill cystometry-physiological filling.

10-100 ml per minute is medium fill cystometry

>100 ml per minute is fast fill cystometry.

During Filling Phase the following parameters are observed during the urodynamic study

Pressures	Sensation
Intravesical pressure	Normal desire to void
Abdominal pressure	Strong desire to void
Detrusor pressure	Urgency
	Pain
Bladder Capacities	
Maximum cystometric capacity	
Functional bladder capacity	
Maximum aesthetic capacity	

Rest of this article will be published in next issue of "The ORION"



Assessment of Coma and Impaired Consciousness-a Critical Review.

Anwarul Haider Chowdhury¹, Zillur Rahman², J D Sharma³

SUMMARY

Clinical scales has been evolved for assessing the depth and duration of impaired consciousness and coma. Three aspects of behaviour are independently measured: motor responsiveness, verbal performance, and eye opening. These can be evaluated consistently by doctors and nurses and recorded on a simple chart which has proved practical both in a neurosurgical unit and in a general hospital. The scales facilitates consultations between general and special units in cases of recent brain damage due to traumatic / non traumatic causes and is useful in defining the duration of prolonged coma, also helps in the diagnostic, prognostic and therapeutic index of altered consciousness.

INTRODUCTION¹⁻¹⁵

Coma is defined as a state of unconsciousness from which an individual can't be aroused by ordinary verbal, sensory, or physical stimuli. Prompt assessment, diagnosis and appropriate management may be life saving. A wide range of conditions may be associated with coma or impaired consciousness. Apart from acute brain damage due to traumatic, vascular or infective lesions, there are metabolic disorders such as hepatic or renal failure, hypoglycaemia or diabetic ketosis and also drug overdose and cerebral malaria. In gauging deterioration or improvement in the acute stage of such conditions, as well as in predicting the ultimate outcome, the degree and duration of altered consciousness usually overshadow all other clinical features is importance. It is therefore vital to be assess and to record changing states of altered consciousness reliably.

Coma scales, particularly the Glasgow coma scale (GCS), are widely used to assess patients with traumatic and non-traumatic coma. In patients with malaria, coma scaled are used to assess the degree of neurological dysfunction caused by the infection & the motor component of the GCS is used as a criterion for cerebral malaria, working in Blantyre coma scale (BCS). The BCS is like the GCS in that it has 3 components, but it measures different eye and verbal responses. This scale is widely used to define and assess the severity of cerebral malaria and to determine the prognosis and outcome of therapeutic trials.

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This scale, however, has not been formally validated. Furthermore, neither the BCS nor the World Health Organization (WHO) definition of cerebral malaria takes into account the inability of young infants to localize pain, which is important in interpreting the clinical data in this age group.

Impaired consciousness is an expression of dysfunction in the brain as a whole. This may be due to agents acting diffusely, such as drugs or metabolic imbalance or to the combination of remote and local effects produced by brain damage which was initially focal. Such focal brain damage may affect some of the responses which are used to assess the level of consciousness, and any scale devised for general use must allow for this possibility. A simpler scale might suffice for metabolic or drug coma, when the likelihood of structural brain damage is small, but in an emergency there may be insufficient information to assign patients confidently to a particular diagnostic category. Moreover, coma of mixed origin is not uncommon, as when head injury is suspected of being associated with ingestion of drugs or alcohol or with a vascular accident. These seem good reasons for devising a generally applicable scheme of assessment. The development of equipment for monitoring various functions in critically ill patients has not altered the need for doctors and nurses to assess the level of consciousness. There is an abundance of alternative terms by which levels of coma or impaired consciousness are described and recorded. Systems for describing patients with impaired consciousness are not consistent. Indeed, many clinicians retreat from any formal scheme in favour of a general description of the patient's state, without clear guidelines as to what to describe and how to describe it.

In practice, such unstructured observations commonly result in ambiguities and misunderstandings when information about patients is exchanged and when groups of patients treated by alternative methods are compared, or reported from different centres. There is no general agreement about what terms to use, nor are those in common use interpreted similarly by different workers. Almost every report of patients in coma offers yet another classification. Most divide the spectrum of altered consciousness into a series of steps like stupor, coma etc., which in the reports reviewed the scales ranged from 3 to 15 and were often described in terms which defined clear definition. Many assume the existence of clinical features which are unique to each "level", whilst others distinguish between coma and consciousness on the basis of only one aspect of behaviour.

The importance of careful and complete neurological examination in determining the nature and site of the lesion causing coma has been described at length by Fisher, Plum & Postner who emphasised that tests of brain stem function,

not usually included in routine examination, can be useful in the diagnosis of stupor or coma. Neither, however, was primarily concerned with repeated bedside assessment of the degree of conscious impairment. We are reviewing the assessment of coma and impaired consciousness critically.

THE BRAIN AND CONSCIOUSNESS¹⁶⁻¹⁸

Research into the mechanics of the mind reveals how the brain creates consciousness. With the help of new techniques for mapping brain function—such as magnetic resonance imaging (MRI) and positron emission topography (PET) which display images of the brain at work and new psychological techniques to probe the relationship between mind and behavior, are gradually discovering the neurobiological tricks behind the brain's amazing ability to learn and remember, to use and comprehend language, and to experience happiness and grief, pleasure and pain. One by one nature is yielding the secrets underlying the biology of memory, perception and problemsolving— even the biological underpinnings of social behavior and coming into the clear. Can the very mechanisms of consciousness itself be far behind?

Consciousness is not an illusion and neither is the mind. The subjective feeling we call "consciousness" is perfectly real and it is a reality that requires explanation. Although the study of subjective interior phenomena such as consciousness poses special problems, these can be overcome with the appropriate scientific methods cognitive experiments help as do MRI and PET technologies. Consciousness is unlikely to be a supreme and unsolvable scientific mystery, forever elusive and impossible to explain. At least some of the secrets behind the critical mechanism of consciousness are gradually being revealed.

An intelligent conversation about consciousness cannot take place without first announcing clearly which phenomenon is being discussed. The need for sharp distinction is even more important for those actually investigating these phenomena. Consciousness is not conscience, nor is it merely the contents of the mind. Consciousness is the biological phenomenon that permits us to survey the contents of our minds: our feelings, thoughts and knowledge. Consciousness is not the feelings themselves, nor is it merely the accumulated thoughts and knowledge. It is an elaborate write of passage into these feelings, these thoughts and this knowledge into everything that makes us human.

Research on consciousness have found it helpful to make a distinction between essential consciousness or "awareness" and extended consciousness or "consciousness" proper. Both are internal to the mind, but awareness is more basic than consciousness and the latter depends on the former. Both awareness and consciousness occur automatically; an individual's will can neither make them happen nor prevent them from happening. Awareness lets a living organism sense that the contents of its thoughts. Obviously all human beings have awareness, but we would venture to say that many animals do as well. Consciousness proper encompasses a broader canvas of thoughts that portrays not just the organism's present, but its past and anticipated future too. Nonetheless, consciousness proper performs the same

task for this larger mental faculty as awareness does for its much narrower range: it places mental contents in an individual perspective; and it gives the owner the sense that the owner can act on them.

These conditions are ideal for research on the neural mechanism underlying the difference between awareness and consciousness. Using PET or MRI imaging, it will be possible to determine with some reliability what permits him from point but prevents him from being aware of the thing to which he points.

In spite of the very real difficulties, the dream of understanding consciousness is likely to come true. It will probably happen gradually rather than suddenly, but we are even now coming closer to discovering how we know that we know

COMA IN THE PAEDIATRIC PATIENT¹⁷⁻²¹

Management of coma in children needs a thorough physical examination. The patient's air way & cardiorespiratory system must be examined immediately, and the vital signs must be recorded. If the patient is in shock or has had a cardiorespiratory arrest, the immediate management is directed to resuscitation & to the establishment of life support system. Generally, a child with a Glasgow coma scale of seven or less should be incubated and placed on a respirator. On the other hand, if the patient's vital signs and cardiovascular system are intact, attention may be directed to the history and physical examination.

The history may indicate the cause, but frequently the parent is unavailable or was not present at the onset of the coma. It is important to determine whether there has been a gradual change in personality & behavior or an abrupt loss of consciousness. The amount, type, and time of the last dose of insulin in the diabetic child is important to document. Because intoxication cause of coma in the toddler and adolescent patient, a careful review of medications & their location at home should be completed. Furthermore, the discovery of the child in close proximity to the medicine cabinet or storage area or the finding of pills and empty medication containers is overwhelming evidence of drug induced coma. If there is any doubt about the history or if the clinical and laboratory findings do not support the history a home visit may be invaluable. An altered state of consciousness in the newborn period associated with vomiting, failure to thrive, and seizures suggest an inborn error of metabolism. The patient in a postictal state following an initial seizure and the child with a history of chronic renal disease associated hypertensive encephalopathy may present with coma. A child with severe pulmonary or heart disease or profound anemia may develop coma as a consequence of cerebral anoxia and ischemia. Rarely, brain tumors or cerebral abscess, particularly if there is rupture into the ventricular system, may produce sudden coma. These children may have a history of headache, vomiting change in personality or congenital heart disease. Acute subarachnoid hemorrhage secondary to a bleed from an arteriovenous malformation causes a sudden alteration in consciousness.

The physical examination is helpful in distinguishing between a metabolic cause and structural cause for the coma. A slow, irregular pulse combined with systemic hypertension

indicates increased intracranial pressure or hypertensive encephalopathy. The rate and rhythm of the respiratory pattern provide useful information about the etiology of the coma. Regular and deep hyperventilation (Kussmaul breathing) indicates metabolic acidosis; and irregular, ataxic respiration suggests cerebellar herniation. Cherry red discoloration of the face and cheeks is associated with carbon monoxide poisoning. A fruity breath is typical of diabetic ketoacidosis; a putrid odor indicates hepatic coma; and a sweet-smelling urine suggests maple syrup urine disease.

The examination should include a careful search for trauma and should test for the presence of nuchal rigidity. CSF rhinorrhoea, hematotympanum and Battle sign (bruising over the mastoid) are suggestive of a basilar skull fracture. Nuchal rigidity may indicate meningitis, encephalitis, subarachnoid bleed, or herniation of the cerebellar tonsils. Pinpoint pupils are associated with narcotics, barbiturate toxicity, organophosphates, and phencyclidine. Small and irregular pupils suggest a lesion in the pons, and dilated and unresponsive pupils are seen in the post-ictal state, with botulism, and with certain drugs including glutethimide, amphetamine, atropine, cocaine, ethyl alcohol, and mydriatics. A unilaterally dilated and unresponsive pupil in the comatose child indicates herniation of the uncus of the ipsilateral temporal lobe. Check to ensure that a mydriatic was not the cause of the abnormal pupil. The integrity of the extraocular muscles may be tested by the doll's eye maneuver. The fundi must be examined for the presence of papilloedema and retinal hemorrhages.

Brain stem function may be evaluated by ice water caloric testing (unless the tympanic is ruptured). The comatose child with an intact brain stem shows a fixed deviation of the eyes to the side of the stimulus, and the patient with irreversible coma has no response.

Focal neurological signs may be difficult to elicit in the comatose patient. Hemiparesis may be demonstrated by passively flexing the legs and hips. The examiner suddenly releases the extremities. The hemiparetic leg will rapidly fall to an externally rotated position, whereas the normal limb will slowly slide back to the original posture. This maneuver should be carried out with the patient supine and on a flat surface.

The quadriceps may be flattened, and the foot of the affected extremity is externally rotated owing to a decrease in muscle tone. Finally, the hemiparetic extremities may have altered reflexes, changes in muscle tone, and an extensor plantar reflex.

During the initial evaluation an I/V line is established and blood is obtained for a complete blood count, electrolytes, calcium, phosphorus, glucose, creatinine, blood gases, liver function studies, prothrombin and partial thromboplastin, ammonium level, and a toxic screen. It is important to collect and store an additional 5 ml of heparinized blood that can be utilized later if a specific metabolic disease becomes apparent. A thorough knowledge provides a framework to differentiate the various common causes of metabolic coma. If the initial Dextrostix suggests hypoglycemia, 2 ml / kg of 25% dextrose should be given I / V. A urinary catheter is inserted, the urine volume is noted; and a sample is examined for glucose, ketones, and further studies as

indicated. A nasogastric tube is placed in position, and the stomach is emptied with care to prevent aspiration, particularly if a toxin is suspected the stomach contents may be analyzed in the laboratory for specific toxins.

Structural causes of coma include concussion, contusion, subdural and epidural hematoma, cerebral edema, brain tumors and cerebral abscess.

The principles of treatment include maintenance of the respiratory status, normalization of cardiovascular function, and correction of acid-base, fluid, and electrolyte abnormalities. Seizures, increased intracranial pressure, and hyperthermia (or hypothermia) are managed appropriately. The primary goal of problem in a safe and controlled fashion.

The use of invasive intracranial pressure monitoring should be considered for any infant or child with non traumatic coma and suspected increase in intracranial pressure to assess cerebral perfusion and to anticipate shifts in brain tissue. Cerebral perfusion is calculated as the difference between the mean arterial blood pressure and the mean intracranial pressure. Neurologic outcome is improved if the intracranial pressure can be reduced and maintained at 15 mmHg or less and if the cerebral perfusion pressure is above 50 mmHg. Poor Neurologic outcome or death is associated with intracranial pressures above 50 mmHg or cerebral perfusion pressures of less than 40 mmHg. Intracranial pressure in the child may be monitored by the use of a subarachnoid screw, a subdural pressure transducer, or a fluid-filled intraventricular catheter. Raised intracranial pressure may be lowered by paralysis and sedation with pancuronium, phenobarbital, morphine, or diazepam, mechanical hyperventilation (p_{CO_2} lowered to 30-35 mm hg), osmotherapy with I/V mannitol or frusemide, or drainage of CSF through the ventricular catheter. A decrease in cerebral perfusion pressure associated with a low systemic arterial pressure may be enhanced by infusions of colloids or dopamine.

The induction of pentobarbital and the use of steroids does not appear to influence the neurologic prognosis in the comatose child. The prediction of coma outcome during the acute illness depends in part on the etiology of the condition; diabetic ketoacidosis has a more favorable outlook than Reye's syndrome. However, certain physical signs provide some indication of outcome before inducing paralysis and placement on the respirator. These signs include severity of the coma (i.e., modified Glasgow score), eye movement, pupil reaction, level of blood pressure, temperature, motor patterns, and the seizure type. The EEG as also useful to estimate the potential for neurologic recovery. For example, the reappearance of normal sleep spindles is an encouraging finding even if associated with high voltage slow waves that have no predictive value. EEG patterns associated with a poor prognosis include burst suppression and like activity, very low amplitude activity for age, and electrocerebral silence. Neurophysiologic studies have also been used to make a prognosis about comatose children, including brain stem auditory, visual and somatosensory evoked potentials. Generally the absence of all wave forms in these three modalities is associated with death of severe Neurologic residue. Somatosensory evoked potentials are the most sensitive and reliable method for the evaluation of neurologic outcome in the comatose child.

TYPES OF COMA SCALE¹⁻²⁷

The Glasgow coma scale		Score
Eyes opening		
spontaneously		4
to speech		3
to pain		2
none		1
Best verbal response		
oriented		5
confused		4
inappropriate words		3
incomprehensible sounds		2
none		1
Best motor response		
obeys commands		6
localises pain		5
withdrawal (pain)		4
flexion (pain)		3
extension to pain		2
none		1
Total		3-15
Unrousable coma < 7		

GLASGOW COMA SCALE¹⁵⁻²⁷:- To be generally accepted, a system must be practical to use in a wide range of hospitals and by staff without special training. But the search for simplicity must not be the excuse for seeking absolute distinctions where none exist: for that reason no attempt is made to define either consciousness or coma in absolute terms. Indeed, it is conceptually unsound to expect a clear watershed in the continuum between these states. What is required is an effective method of describing the various states of impaired consciousness encountered in clinical practice. Moreover, this should not depend on only one type of response because this may, for various reasons, be unstable. The three different aspects of behavioral response which we chose to examine were motor response, verbal response, and eye opening, each being evaluated independently of the other. These features in many previous reports on coma but not in the formal system we propose. This depends on identifying responses which can be clearly defined, and each of which can be accurately graded according to a rank order that indicates the degree of dysfunction.

Motor Responses

The ease with which motor responses can be elicited in the limbs, together with the wide range of different patterns which can occur, makes motor activity a suitable guide to the functioning state of the central nervous system. Indeed, every one of the reported scales which we reviewed included some aspect of motor responsiveness as a criterion. Obeying commands is the best response possible, but the observer must take care not to interpret a grasp reflex or postural adjustment as a response to command. The terms "purposeful" and "voluntary" are avoided because we believe that they cannot be judged objectively.

If there is no response to command, a painful stimulus is applied. The significance of the response to pain is not always easy to interpret unless stimulation is applied in a standard way and is maintained until a maximum response is obtained. Initially, pressure is applied to the finger nail bed

with a pencil; this may result in either flexion or extension at the elbow. If flexion is observed stimulation is then applied to the head and neck and to the trunk to test for localization in brain death, a spinal reflex may still cause the legs to flex briskly in response to pain applied locally. For this reason, and because the arms show a wider range of responses, it is wise always to test them, unless local trauma makes this completely impossible.

A localizing response indicates that a stimulus at more than one site cause a limb to move so as to attempt to remove it. A flexor response may vary from rapid withdrawal, associated with abduction of the shoulder, to a slower, stereotyped assumption of the hemiplegic or decorticate posture with education of the shoulder. Experienced observers may readily distinguish between normal and abnormal flexion, but for general use in the first few days after brain damage has been sustained it is sufficient to record only that the response is flexor.

Extensor posturing is obviously abnormal and is usually associated with adduction, internal rotation of the shoulder, and pronation of the forearm. The term "decerebrate rigidity" is avoided because it implies a specific physioanatomical correlation.

No response is usually associated with hypotonia and it is important to exclude spinal transection as an explanation for lack of response; and also to be satisfied that an adequate stimulus has been applied. When recording motor response as an indication of the functional state of the brain as a whole, the best or highest response from any limb is recorded. During a single examination some patients give variable responses, these usually becoming better as the patient becomes more aroused; responses from the right and left limbs may also differ. Any difference between the responsiveness of one limb and another may indicate focal brain damage and for this purpose the worst response should be noted. But for the purpose of assessing the degree of altered consciousness it is the best response from the best limb that is recorded.

Verbal Responses

Probably the commonest definition of the end of coma, or the recovery of consciousness, is the patient's first understandable utterance; speech figured in nearly all the reported scales which we reviewed. Certainly the return of speech indicates the restoration of a high degree of integration within the nervous system, but continued speechlessness may be due to causes other than depressed consciousness (e.g., tracheotomy or dysphasia).

Orientation implies awareness of the self and the environment. The patient should know who he is, and why he is there; know the year, the season, and the month. The words "rational sensible" are avoided because they cannot be clearly defined.

Confused conversation is recorded if attention can be held and the patient responds to questions in a conversational manner but the responses indicate varying degrees of disorientation and confusion. It is there that verbatim reporting of the individual patient's responses can be useful. Inappropriate speech describes intelligible articulation but implies that speech is used only in an exclamatory or random way, usually by shouting and swearing; no sustained conversational exchange is possible.

Incomprehensible speech refers to moaning and groaning but without any recognizable words.

Rest of this article will be published in next issue of "The ORION"

Management of Geriatric Patients.

Md. Shahidur Rahman

INTRODUCTION

"And so from hour to hour, we ripe and ripe,
And then, from hour to hour we rot and rot,
And there by hangs a tale."

— William Shakespeare

Can we reverse the content of Shakespeare's poem? There are inevitable degenerative changes in almost every organ system of human body with advanced age. Molecular biology has improved so much that scientists are thinking of producing human being from clone technology. Will we be able to stop the aging process so that there will be no natural death and people will remain ever young? The nature will run in its own way. Now we are able to prevent and cure many killing diseases except vandalism of aging. So the number of fair old will increase tremendously in near future.

Geriatric medicine, the medicine of old age encompasses much of the knowledge and clinical skills of organ based speculation & applies these to a particularly complex group, the frail elderly of the age over 75. The old man or woman may not be aware of actual illness making him or her moribund due to altered sensation or atypical sign and symptoms. The relatives around may think that these symptoms or illness behavior might be normal for this age group. Older are also particularly prone to adverse drug reaction because of age related changes in response to drugs and their elimination.

DEMOGRAPHY

There is sharp decline in the morbidity and mortality of global population and average life expectancy has been increased in the recent past due to improved health care facilities. Population projection suggest that these demographic changes will continue over the next 20 years in under developed and rapidly developing countries. These will have major impact on health and social services, as there is an exponential increase in disability and in mental and physical morbidity in people aged over 75 years.

NORMAL AGING

We should have an appropriate baseline against which symptoms and signs in the elderly people can be assessed. So it is difficult to define normal aging. An important feature of aging is the increase in variation in function.

So that a particular feature may appear to undergo a moderate decline with age, it may remain unchanged in some older people but be so everly impaired in others that it causes serious problems. Under baseline conditions the effect of aging may not be sufficient to produce diseases but may reduce the reserve capacity of body functions, so that minor stress or illness may precipitate a problem. Some features of aging are age determined such as depigmentation of hair and some are age related such as lack of exercise or poor diet, or are accelerated by habits such as smoking, taking heavy alcohol or over exposure to sun light. Age related changes can therefore be slowed or prevented by healthy life style.

MAJOR MANIFESTATIONS OF DISEASE OF OLD PEOPLE

The old people present with falls, acute confusion and incontinence rather than more specific signs symptoms in a wide variety of illness as diverse as acute myocardial infarction, pneumonia, urinary infections, anemia, etc. This is one of the fundamental elements of geriatric medicine. This is not always easy to explain the reason but may reflect the aging, poor nutrition and presence of multiple pathology.

THE FOUR MAJOR AREAS ARE-

A. Falls and poor mobility

The principal cause of fracture neck of femur in old age group is fall. Only 10-15% of falls result in serious injury. Osteoporotic necks are more vulnerable to crack than others. Other cause of pain and restricted mobility are osteoarthritis of weight bearing joints and wasting of attaching muscles. Vertebral osteoporosis, multiple myeloma and secondary deposits in the vertebral bone from prostate, ovary, breast etc. make the vertebrae frail and collapse. Osteoporosis is common in old older than 75. But post menopausal osteoporosis is more common and need to be considered while counting collapse vertebrae and fracture neck of femur.

COMMON CAUSES OF FALL IN OLD

1. Simple trip or accident

2. Collapse due to acute illness

3. Syncope

4. Multiple risk factors-

- | | |
|--|------------------------|
| ◆ Cerebrovascular disease | ◆ Alzheimer's disease |
| ◆ Parkinson's disease | ◆ Depression |
| ◆ Arthropathy of weight bearing joints | |
| ◆ Poor balance | ◆ Muscle weakness |
| ◆ Gait abnormalities | |
| ◆ Poor vision | ◆ Cognitive impairment |

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Treatment and Prevention of falls

Treatment of falls requires the identification of cause. Supportive and specific treatment if available should be given; Cardiac causes of syncope should be thoroughly investigated. Recurrent falls can be prevented by giving attention to some of the risk factors such as polypharmacy postural hypotension, poor balance and strength. Medication can be rationalized and this may help reduce postural hypotension. For control of Parkinson's disease and osteoarthritis, balance training by physiotherapy in conjunction with medication is particularly important. Poor mobility can be improved with appropriate intervention. Safe environment for mobile old should be ensured. This is best assessed by occupational therapist. Mobility aid and personal alarms can be provided.

B. Acute confusional state

Acute confusional states cause a global impairment in mental function with varying degree of impaired conscious level and memory disturbances.

COMMON CAUSES OF CONFUSIONS

Infection

- ◆ Chest
- ◆ Urinary

Metabolic disturbances

- ◆ Uraemia
- ◆ Hyponatraemia
- ◆ Hypo-/hyper thyroidism
- ◆ Hepatic failure
- ◆ Hypothermia

Hypoxia

- ◆ Pneumonia
- ◆ Exacerbation of COPD
- ◆ Pulmonary oedema
- ◆ Pulmonary embolism

Hypotension

- ◆ Acute myocardial infarction
- ◆ Sudden blood loss e.g gastro intestinal bleeding
- ◆ Gram negative septicaemia

Toxic states

- ◆ Drugs e.g digoxin, opiate
- ◆ Drug withdrawal
- ◆ Drug interactions

Other cerebral pathology

- ◆ Stroke/transient ischaemic attack
- ◆ Subarachnoid haemorrhage
- ◆ Chronic subdural haematoma
- ◆ Tumor
- ◆ Epilepsy/post-ictal state

Management

Management is essentially that of underlying cause. A full examination is required particularly for signs of infection or focal neurological abnormalities. Supportive measure such as fluid and electrolyte balance must be provided before elaborate investigation or specific treatment is made.

C. Urinary incontinence

Urinary incontinence is defined as involuntary loss of urine sufficiently severe to cause a social or hygiene problem. Three categories for persistent incontinence are: stress incontinence, urge incontinence and overflow incontinence.

Stress incontinence

This occurs when abdominal pressure rises e.g. during coughing, laughing or carrying heavy weight. Continence can be improved by pelvic floor exercise. In severe cases surgical intervention is necessary.

Urge incontinence

Patients with urge incontinence are unable to inhibit leakage of urine when they fill the urge to micturate. In motivated patients symptoms can be improved by bladder retraining in some cases.

Retention and overflow incontinence

Overflow incontinence occurs when urinary retention progress to the point at which the bladder can no longer expands and the pressure within the bladder exceeds outlet pressure. It may be caused by out flow tract obstruction or abnormalities of neurological control. Treatment of outlet obstruction is surgical. For neurological case bladder retraining is the best long-term management.

D. Dizziness

Dizziness is very common presenting symptom in the elderly, affecting at least 30% of those aged over 65 in community surveys. It is an excellent example of the importance of a problem based rather than an organ based approach in old age, as it can be caused by disease in many find it difficult to describe the sensation they experience. Light headedness suggest presyncope, vertigo with tinnitus and hearing loss suggest vestibulocochlear pathology. unsteadiness on head and neck movement suggests cervical spondylitis. Postural hypotension are commonly due to anti-hypertensive and diuretics. Cerebrovascular diseases and hypertensive encephalopathies are other causes of dizziness.

REHABILITATION OF GERIATRIC PATIENTS

The basic tool of rehabilitation of the elderly is a team of medical nursing and paramedical personnel, each with a special role. The co-ordination of the activities of the group usually falls to the doctor, though he may well not be the most important member of the team at particular time during the rehabilitation of a particular patient. Nurses have a central place because they spend much time with the patient. The functions of the paramedical member of the team (physiotherapist, occupational therapist, speech therapist and social worker) are the assessment of the patient's disability in terms of their own discipline, treatment by appropriate techniques and the counselling of patients and their relatives. The physiotherapists' principal concern is mobility; the occupational therapists' are for the activities of daily living, the provision of aid and the adaptation of the home environment to the patients disabilities. The speech therapist is concerned with communication disorders and their treatment. The social worker is concerned with the social and family problems presented by illness and disability.

The objectives of rehabilitations programme for an individual rest on a detailed assessment of the patients' current disability in term of functions.

Each patient needs an individual rehabilitation programme, and each of the team must know what is expected. The programme must be flexible & take into account the unforeseen. Common problem in geriatric hospital practices are stroke, Parkinson's disease, arthritis of weights bearing joints, dementia and psychological problem. The process of assessment should be ongoing and reviewed regularly amongst all member of the rehabilitation team, and with the patients and his or her career, so that any changes in the treatment programme can be agreed. The emphasis required will be different depending on patient's disabilities.

ROLE OF REHABILITATION TEAM

Team member	Role
Physiotherapist	Promotion of balance, mobility and upper limb function.
Occupational therapist	Promotion of activities of day to day living e.g. dressing, cooking. Assessment of home movement.
Speech and language therapist	Management of speech and swallowing disorders.
Dietitian	Management of nutrition
Social Worker	Organisation of WHO support services or institutional cares.
Nurse	Reinforcement of rehabilitation programme. Encouragement to regain independence. Communication with relatives and other professionals.
Doctor	Management of medical problems. Coordinator of rehabilitation programme.

CONCLUSION

45 percent of those persons over the age 65 have some limitations to perform activities of daily life and of those over 85 years, 60 percent show such limitations. Rehabilitation medicine seeks to reduce these limitations by improving the functional capacity of the elderly disabled persons. Based on this principle rehabilitation in the elderly population should emphasize prevention through training to preserve unimpaired function and to restore those function that are impaired. Geriatric patients are likely to have multiple problems that make

rehabilitation in these cases more difficult. Emphasis should be given to instrumental activities of daily living so that they can remain more independent in the society. Comprehensive assessment followed by co-ordinated management and use of the members of the rehabilitation team as necessary results in the restoration and preservation of high quality of life for geriatric patients.

REFERENCES

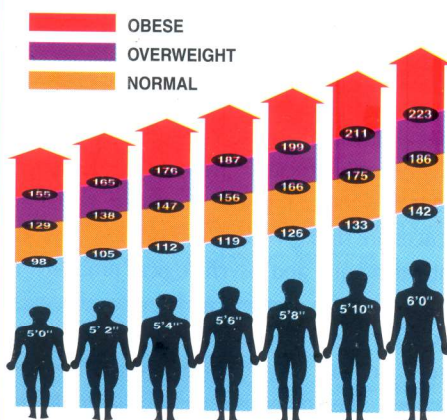
1. Colledge NR, *Principle of Geriatric Medicine in Davidson's Principle and Practice of medicine 18th Edition churchil Livingstone 1999 P: 1065-1072.*
2. Young J., *Rehabilitation and older people: BMJ 1996 : 313;677-681.*
3. Bennet G.C.: *J.Ebrahim The essential of health care in old age (2nd edition) 1995 Edward Arnold, London.*
4. Chang-Zern Hong, Jerome S. Tobis *Physiatric rehabilitation and Maintenance of the Geriatric patients Krusen's Handbook of physical Medicine and Rehabilitation (4 th edition) WB Saunders, 1990 P: 1209-1216.*
5. College N.R. barr-Hamilton RM, Lewis S.J. *sellar Evaluation of investigation to diagnose the cause of dizziness in elderly people BMJ 1996: 313, 788-792.*
6. Tinetti M.E; Baler D.I; McA0vaygatal A *multifactorial intervention to reduce the risk of falling among elderly people living in the community New Enland Journal of Medicine 1994; 331, 821-827.*
7. Anderson W.F and William B.D. *Practical Management of elderly (4th edition).*
8. F.J. Caird " *medicine in old age" oxford textbook of medicine (2nd edition) Oxford publication 1988 P; 27.1-9.*
9. Brocklehurst j.C *Textbook of geriatric medicine gerontology 3rd edition Churchil Living stone, Edinbrug 1994.*
10. Tobis J.S. *rehabilitation of geriatric patients In Rossman I : Clinical geriatrics (2nd edition), Philadelphia J.B. Lippincott Company, 1979.*
11. *Exercise and skeletal health J. Am Geriatric society, 1981; 29; 104-107.*

WEIGHT WATCHING

To see if your weight is putting you at a health risk, check our chart below. If you fall into either the violet or red zones- the areas where weight can impair your health and enjoyment of life-get back to good, old-fashioned calorie counting. Keep a record of the calories you eat, then compare it to your daily calorie burn-between 1,800 to 2,200 calories for most people. If your food calories are higher, you're going to keep gaining. Exercise is essential too, but it can't defeat calorie pollution by itself.

KNOW AT A GLANCE WHERE YOU STAND

Find your height on the chart below, whether you're a man or a woman. Follow the line upward to see in which zone your weight falls-then read the consequences at right. (Note: All weight are in pounds. To convert to kilos, divide your figure by 2.2)



RED ZONE : ALERT!!!

Your weight is putting you at ultrahigh risk for chronic diseases. Four out of five people in this range have diabetes, high cholesterol levels, high blood pressure, heart disease, gallbladder disease, or osteoarthritis. And 40 per cent have two or more of these ailments.

VIOLET ZONE : CAUTION!!

Your enjoyment of life will start to be impacted by excess pounds. Nonsmoking violet-zoners, for instance, have as much trouble walking uphill as pack-a-day smokers. You'll start to see a rise in rates of diseases such as diabetes and hypertension, with more illness the higher up the scale you go.

ORANGE ZONE: CONGRATULATIONS!

Your weight enhances your chances of living a long, vigorous life. But don't let your guard down-maintaining health weight takes a lifelong commitment.

HEALTH IN THE LIGHT OF ISLAM

In the previous article published in volume eight it was stated that human body is the only effective vehicle of soul's journey to heavenly height and pinnacle leading a *Mumin* to his eternal abode where he will meet his beloved Creator, The Allah Subhana-wa-Taa'la. So human body where heart and soul remain and act together, can not be neglected. Heart is the most important organ and the driving force behind all activities and movements to maintain healthy condition of human body. Righteous state and sickness of the body depends on good condition and sickness of the heart and soul.

The Prophet Muhammad S.A rightly said "Lo! There is a piece of flesh in human body. If it is in right and good condition then whole body will be in good and right condition. If it is in worse and rotten condition, the body will also be so. Lo! it is heart (QALB)".

(Bokhari Sharif-1st part, p-13 and Muslim Sharif-2nd part, p-28)

From this Hadith we come to know that physical sicknesses, diseases, infirmities and disorders are directly or indirectly related to the heart and soul. So the heart and mind should be always pure, free from all diseases and evil forces. Satan always tries to create bad desires in mind and shows the materials of this mundane world in a decorated way. Thus man leans slowly towards the exterior dazzling aspects of the world. He forgets his Creator and becomes slave to satan. Thus Noor, heavenly light is diminished and darkness engulfs his mind. He loses the capacity to distinguish between good and bad, heart and soul become so weak that the evil force reigns supreme over these.

In this situation diseases get easy passages to human body. So every *Mumin* should take care of heart and soul providing proper nourishment, enables these to combat satan and diseases. Remembrance of The Allah (Jikrullah) can only bring back heart and soul to their original and powerful positions. *Jikrullah* can remove all rusts from heart and soul, illuminate these and save human body from their vulnerabilities to diseases. -Maolana Sheikh Shamsuzzaman

Results of Intralesional Injection of Methyl prednisolone with Local Anaesthetic in de-Quervain's Disease.

Dipankar Nath Talukder¹, Naresh Kumar Roy², Gouranga Bairagi³, A.F.M. Anwar Hossain⁴

SUMMARY

Two hundred fifty five patient of de`-Quervain's disease were included in this series with local corticosteroid and with local anaesthetic xylocain infiltration into the common tendon sheath of abductor pollicis longus and extensor pollicis brevis avoiding the tendons. Two hundred fifty patients were followed up for a period of 6 month to 1 year, (Mean average 8.2 months). Five patients absconded from follow up. Age range of the patients were 35 years to 55 years (average mean 42 years). Sex incidence men 38 (15.2%), women 212 (84.8%). Finklestein's test and tenderness clinically assessed in the patients over the tip of radial styloid process¹. 212 (84.8%) patients cured after one injection. 32 (12.8%) patients needed 2 injections for cure. 6 (2.4%) partially cured, subsequently needed operative treatment for full recovery. Bilateral affections were noted in 36 (14.4%) patients. No side effect encountered in patients. Middle aged female, mostly of middle or lower socioeconomic classes affected^{2,3}. All patients were treated with nonsteroidal anti-inflammatory drugs (NSAIDs) for one week either orally or in the form of suppository in patients with peptic ulcer disease.

INTRODUCTION

The disease is the painful thickening of the tendon sheath containing extensor pollicis brevis and abductor pollicis longus was first described by Fritz de-Quervain almost 100 years back¹.

The condition is due to prolonged or excessive friction at the distal end of radius. The sheath becomes inflamed and thickened but tendons are normal.

PATIENTS AND METHODS

Between August 1996 to December 1999, a total 255 patients of de`-Quervain's disease were treated with infiltration of 1cc of inj. Methyl prednisolone with 1.5cc 2% Xylocaine within the tendons sheath of abductor pollicis longus and extensor pollicis brevis in Rehabilitation institute and Hospital for Disabled (RIHD), Dhaka, Hobigong and Brahmanbaria Sadar Hospital

and in private chamber. Out of 255 patients, 5 absconded from follow up and total 250 patients were taken into the consideration for the study. Out of 250 patients, 212 patients (84.8%) cured after one injection, 32 patients (14.4%) cured after two injections with 6 weeks interval, 6 patients (2.4%) partially cured subsequently needed operative treatment.

After clinical assessment with history of duration of pain which aggravates on movements of thumb during resisted abduction with difficulty in grasping, gripping and wringing. Pain is localised or radiating proximally or distally. Localised swelling or tenderness is present over the radial styloid process. It is confirmed by Finklestein's test i.e patient places his or her thumb over the palm, fingers close over it. Physician then moves the patient's wrist in ulnar deviation which incites pain at radial styloid⁷.

Radiological examination of the wrist is only done in patients who needed second injection for cure or cured partially to see irregularities in radial styloid process or oosteoarthritic change in the wrist or carpal joints.

METHODS

After confirmation of the diagnosis clinically, under all aseptic precautions 1cc injection of Methyl prednisolone 40mg mixed with 1.5cc 2% Xylocaine taken into 5cc disposable syringe was infiltrated into the stenosed tendon sheath. Care taken so that drug is not infiltrated into tendon. Local anaesthetic agent was used to get immediate relief of pain and confidence. Naproxan and Ranitidine after meal 12 hourly used for 5 to 7 days.

RESULTS

The results were analyzed on basis of the patients' statements regarding the relief of pain and clinical findings. 212 patients (84.8%) cured after one injection of corticosteroid mixed with local anaesthetic, 32 patients (14.44%) cured after two injections with 6 weeks interval, 6 patients (2.4%) partially cured after two injections with recurrence of symptoms later on, subsequently underwent surgical treatment. All patients were treated with NSAIDs bd. after meal orally or by suppository per rectum twice daily in those patients with peptic ulcer problem. Ranitidine preparations 150mg twice daily prescribed to all patients as coverage treatment of NSAIDs.

Table-I

Age	Distribution of the patients
Age Group	No of the patient
35-45	177(70.80%)
45-55	73(29.2%)
	250 (100%)

Table - I. Showing the age distribution of the patients

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Table - II
Sex incidence

Patients	No.	Percentage
Male	38	15.2%
Female	212	84.8%
Total	250	100%

Table -II Showing prevalence of the disease is much more common in female patients.

Table - III

	No. patient	No. of patient
No. of Injection	Cured (%)	Not Cured (%)
One injection	212 (84.8%)	-
Two injections	32 (12.8%)	6 (2.4%)
Total	250	

Table - III Showing out of total 250 patients, 212 (84.8%) cured by one injection, 32 (12.8%) cured by two injections and the remaining 6 (2.4%) not responded with 3 injections required operative treatment. $P < 0.001$ i.e recovery result is statistically significant.

DISCUSSION

de`-Quervain's disease is a localised disease. Local infiltration of methyl prednisolone mixed with 2% xylocain provides good result. 250 patients of the series were under the treatment of NSAIDs and physiotherapy without any benefit but after infection of 40mg methyl prednisolone mixed with 1.5cc of 2% xylocain into common tendon sheath of abductor pollicis longus and extensor pollicis brevis provided very good result without side effects.

The tendons of abductor pollicis longus and extensor pollicis bravis glide through the fibro-osseous tunnel between extensor retinaculum and radial styloid process. In de`-Quervain's disease there is tenosynovitis of the two tendon's common styloid process.

Due to repeated friction as a result of overuse and frequent unusual movements of the thumb and wrist specially supination-pronation or crystal deposition due to gout, the tendon sheath becomes thickened, swollen and stenosed but the tendons remain normal. As a result of anatomical variation and sharp angulation, frictions between the tendon sheath and bony prominence of radial styloid process causing tenosynovitis resulting fibrosis, stenosis, thickening and entrapment in fibro-osseous tunnel.

No clicking sound due to absence of catching and giving way as there is no free and sharp edge of wrist extensor retinaculum.

Middle aged female patients were affected more than five times than those of male probably due to repeated

forceful use of hand involving thumb and wrist. Grasping, wringing and supination-pronation movements of the wrist during house-hold works as in cooking, washing, baby nursing and needle working. One or two injection of methyl prednisolone is less soluble providing local cure the disease, methyl prednisolone is less soluble providing local anti-inflammatory action for prolong period without any recordable side effects in this series. In severe stenosed cases require operative release of the tendons sheath.

CONCLUSION

de`-Quervain's disease is a common problem which can be diagnosed easily from the this history and by Finklestein's test. It can be easily and economically treated by intrathecal infiltration of long acting one or two corticosteroid (methyl prednisolone) 40 mg with 1.5 ml of 2% xylocain.

REFERENCES

1. Apley-GA, solomon L. The wrist : In Apley's system of Orthopaedics and fractures 7th ed . ELBS 1993; 307-8.
2. Lealol, de`-Quervain's disease : A clinical and anatomical study, J.B.J. S-40-A;10-63.
3. Murphy ID. An unusual form of de`-Quervains' disease, Trigger digit, clin, orthop. 1959;13:164.
4. De- Albrea LB. And moreia RG. Intrathecal infiltration of steroid in de`- Quervain's disease JBJS. 1958: 40-A:1426.
5. Kcon-cohen B. de`-Quervain's disease J' bone joint surgery, 1951:33B : 96.
6. Bauman M. Stenosing synovitis of the dorsal and volar compartments of the wrist, Arch. Surgery. 1952:65:752.
7. Lacy T, Goldstein LA Tobin CE, Anatomical and clinical study of variation in the insertion of abductor pollicis longus tendon associated with stenosing tendo vaginitis, J. Bone joint surgery 1951;33-A:347.

PROFESSIONAL JOCK

Doctor : I have some bad news and some very bad news.

Patient : Well, might as well give me the bad news first.

Doctor : The lab called with your test results. They said you have 24 hours to live.

Patient : 24 HOURS! Thats terrible!! WHAT could be WORSE? What's the very bad news?

Doctor : I've been trying to reach you since yesterday.

Rhinoplasty - Review of Seven Cases Performed at the Plastic Surgery Department of Z. H. Sikder Women's Medical College and Hospital.

S.A.Siddiky¹, M. Ataur Rahman², Firdous Quader³, Md. Zohurul Islam⁴, Md. Abdul Wahab⁵

ABSTRACT

The history of rhinoplasty dates back to 2500 years. It was first documented in the Indian subcontinent by Sushruta in 600 BC. In the west rhinoplasty is a very commonly performed operation but it has not gained popularity in Bangladesh due to lack of expertise and Knowledge. In the newly commissioned plastic surgery department of Z.H. Sikder Woman's Medical College Hospital we have performed seven cases of rhinoplasty during the last two years, four being cosmetic and three reconstructive. Detailed history and local examinations were also discussed with the patient. Excellent results were found in four cases and satisfactory in three. The only complication encountered was a graft necrosis; (which was a composite graft taken from pinna and occurred due to accidental trauma to the recipient site by the patient herself). The procedure for augmentation rhinoplasty consisted of reconstruction of mid dorsum of the nose by conchal cartilage graft taken from external ear. Reconstructive rhinoplasty was performed with median forehead flap(MFF).

We conclude that if expertise is developed, rhinoplasty whether cosmetic or reconstructive can be performed more frequently.

Key words: Rhinoplasty, Cosmetic, Reconstructive.

INTRODUCTION

The history of rhinoplasty dates back to 2500 years. Reconstructive rhinoplasty was documented first in the Indian subcontinent by Sushruta in 600 BC¹ whereas cosmetic rhinoplasty was first performed in 1887 by John Orlando Roe in New York. In the west, rhinoplasty is a very commonly performed operation. But it has not gained popularity in Bangladesh. The reason being lack of adequate number of expertise. There is also lack of knowledge about this wonderful operation on part of the general public. The practicing doctors throughout the country also seem to know very little on these regard. In view of the good results attained in our cases, we believe that rhinoplasty can easily become a common operation in our country as well. In the newly commissioned Plastic Surgery Department of Z.H.Sikder Women's Medical College Hospital we have performed seven cases of rhinoplasty during the last two years; 4 being cosmetic rhinoplasty whereas other three were reconstructive in type. We have tried to review all these cases specially with regard to the results and hence patient satisfaction.

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MATERIALS AND METHODS

This study was done at ZHSMCH during December 1998 to December, 2000. Seven patients were operated, five being females and two males (Table-1), age distribution was 20 to 42 years.

Table-I
TYPES AND SEX DISTRIBUTION OF RHINOPLASTIES

Indications	Number of patients n=7	Sex distribution	
		Male	Female
Cosmetic	4	1	3
Reconstructive	3	1	2

Among the indications four were cosmetic and three were reconstructive. Out of these four cosmetic indications one had depressed mid dorsum of the nose, one had prominent dorsal hump, one had bifid tip and other had unilateral alar deformity. Of the three reconstructive rhinoplasty procedures two of them were for human bites and the other was accidental injury causing complete dissection of the nose with some tissue loss (Table-II).

Table-II
INDICATIONS OF RHINOPLASTIES

Cosmetic	1. Depressed mid dorsum of the nose
	2. Dorsal hump
	3. Bifid tip
	4. Unilateral alar deformity
Reconstructive	5. Human bite
	1. Human bite
	2. Accidental dissection of nose with tissue loss

Detailed history and local examination was done in each case. Frank discussion with the patients were made pre-operatively taking into account their expectations and probable results of surgery. The procedure involved and possible complications were also discussed. Pre and post operative photographs were taken (Fig 1, Fig 2) in all cases. Photographs were taken in front, profile and extended neck positions.

RESULTS

Excellent results were found in four cases and satisfactory result in three.

All the patient's of cosmetic rhinoplasty were very happy with the outcome. The results were therefore classified as excellent. Follow up of all these four patients did not show any complications (Table-III) and till date there is no evidence of cartilage displacement or resorption. Out of the three cases who underwent reconstructive rhinoplasty, two had excellent results whereas the other had a rather satisfactory result

Table-III
COMPLICATIONS OF RHINOPLASTIES

Complication	Number
Haematoma	0
Infections	0
Nasal obstruction	0
Flap/Graft necrosis	1
Cartilage displacement	0
Cartilage resorption	0



Fig : 1 : Preoperative picture of a young girl with depressed deformity of the nose.



Fig : 2 : Postoperative picture of the same patient as in fig. 1 after augmentation rhinoplasty.

The only complication encountered in one of the patients undergoing reconstructive rhinoplasty was graft necrosis. This was a composite graft (consisting of two layers of skin along with the subcutaneous tissue and intervening wedge of cartilage) taken from the pinna to reconstruct the nasal tip.

PROCEDURE

Four patients underwent cosmetic rhinoplasty : of them two had augmentation while the other two reduction rhinoplasties. The procedure for augmentation rhinoplasty consisted of reconstruction of the mid dorsum of the nose by conchal cartilage graft taken from the external ear. A trap door incision placed on the back of the ear was used to excise an adequate amount of cartilage along with its covering perichondrium. This cartilage was trimmed and shaped according to the patient's need. Then it was placed in position by open rhinoplasty approach (Fig-3).

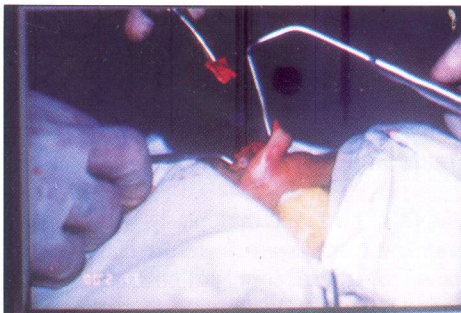


Fig : 3 : Conchal cartilage being placed in the depressed area during cosmetic rhinoplasty by open approach.

The patient with bifid tip was also operated by open approach. Here the two lower alar cartilages (LAC) were dissected free and reshaping of the tip done by approximating the medial crurae of the LAC by fine absorbable suture. An intervening strip cartilage was also needed in the center to provide the nose with additional prominence and projection². The reduction rhinoplasty consisted of reshaping a dorsal hump in one patient and reducing a unilateral alar deformity in another.

The reconstructive rhinoplasty was performed with median forehead flap under general anaesthesia. The flap was marked out ink, extending from the root of the nose upwards to 1 mm short of the hairline. The width was 3 cm and the upper end of the flap was made wavy to conform to the new nasal tip. The incision was deepened to the pericranium near the upper end, but was only skin deep as it proceeded towards the root of the nose. This was done to avoid injury to the supratrochlear vessels which run vertically upwards from the root of the nose. This formed the vascular pedicle of the flap. The frontalis bellies were not disturbed as we worked in between them. Primary closure could be done after some undermining on either side. The flap was then lined on the inside with a split skin graft (after meshing) harvested from the left arm. It was stitched in place with 6 '0' vicryl. The flap was then rotated and turned downwards to reconstruct the nasal defect. The flap was sutured to the wound margin in two layers again with 6 '0' vicryl. Due to rotation of the flap the grafted inner surface formed the new lining of the nasal cavity, the skin portion remaining outside. Light packing of the nasal cavities was done and small plaster of paris splint applied over a sterile dressing. After 24 hours and 48 hours the flap appeared healthy and viable. Nasal pack was then removed. The patient was happy to breathe through her nose once again (Fig 4,5,6).



Fig : 4 : Preoperative picture showing nasal defect resulting from human bite.



Fig : 5 : Reconstructive rhino-plasty after (Stage-1) : here reconstruction was performed by using median forehead flap-the pedicle containing the supratrochlear vessels.



Fig : 6 : Reconstructive rhinoplasty (Stage-2): after devisor of the pedicle and final inseting.

DISCUSSION

The fact that rhinoplasty is not a commonly performed operation in our country does not mean there are lack of patients who need this surgery. We believe that there are lots of patients who need rhinoplasty due to various indications. With a limited experience of 7 cases we have learned that these patients and their attendants previously believed that rhinoplasty is not possible in Bangladesh. Infact five of the these patients were prepared to go abroad for their treatment. We therefore believe that the general people as well as practicing doctors should be made aware about this sort of cosmetic surgery being carried out in our country. It will enhance referral of patients and alleviate patients suffering. We had the opportunity to discuss the outcome of rhinoplasty with surgeons who have tried this operation once or twice, but have not continued to practice this surgery due to unrewarding results. It is obvious that we cannot start practicing a new sort of surgery on patients without appropriate training and supervision. We think that rhinoplasty is not an extremely difficult operation, as compared to many of the other surgeries being carried out through out the country. The bottle neck is an inadequate training facility and minimal support for surgeons intending to venture into rhinoplasty procedure. We know some of our neighboring countries have progressed significantly in most of the surgical specialties including plastic surgery. We can at least try to follow their methods of developing a center of excellence and in development of expertise. Here plastic surgeons and ENT surgeons can work together to attain this goal. Interested surgeons can be brought together in groups during intensive training programs which will include basic anatomy, cadaver dissection and live demonstration of surgical procedures. History of reconstructive rhinoplasty back to 2500 years but in contrast cosmetic rhinoplasty has come into practice during the last hundred years or so. Reconstructive rhinoplasty is probably the greatest challenge for a plastic surgeon. There have various modification for the Indian Median Forehead Flap (M.F.F) such as Lisfrank, Labats, oblique modifications etc³. We have used Lisfrank type in our patient where the flap from the forehead was lined internally with split skin graft (SSG). In previous days surgeons did not use skin graft. This lead to fibrosis in the inner side which ultimately caused disfigurement of the flap. Now a

days plastic surgeons always use SSG on the inner side of the flap. Which prevents disfigurement³.

The timing of the second stage of surgery in case of reconstructive rhinoplasty cannot be over emphasized. The second stage consists of division of the pedicle and inseting of the flap. Ideally this should be done 3-4 weeks after the first stage⁴. Delay behind this liming results in progressive loss of pliability of the tissues in the flap giving rise to some amount of stiffness. This gives rise to difficulty during inseting of the flap. We had to face this problem in one of our patients because the second stage of surgery had to be delayed due to her pregnancy. This delay resulted in stiffness of the flap (as expected) and therefore we had to be satisfied with the final inseting being completed with some tissue excess on one side. But this can be easily remedied by reshaping the flap in another sitting.

Regarding cosmetic rhinoplasty we have performed the augmentation by using cartilage graft from the auricle of the patient. The other options are outer table of the skull, the olecranon, rib and bovine cartilage⁵. Now-a-days silicone blocks are available which can be cut to shape and implanted for nasal augmentation. There are advantages and disadvantages in closed as well as in open rhinoplasty⁶.

We have preferred open rhinoplasty in most of our cases. The reason being good exposure and easy handling of the cartilage graft. Of course a single marginal incision inside one of the nostrils is enough to carry out simple procedures like reduction of dorsal hump. When osteotomies are required (during reduction-rhinoplasty) an additional marginal incision on the opposite side is required. In fact there are plastic surgeons who can perform most of these procedures by closed method. Uniting the marginal incisions in the midline inferiorly converts the closed to an open method, which provides the surgeon with excellent exposure.

The problem of cartilage resorption and recurrence of deformity can be frustrating for the patient and surgeon alike. We have avoided this complication by taking the cartilage graft along with its perichondrium. This helps the cartilage to remain in shape as cartilage resorption does not occur as long as the perichondrium is included in the graft¹, recurrence of deformity can thus be avoided.

CONCLUSION

We conclude that rhinoplasty whether cosmetics or reconstructive is not a difficult procedure. If proper expertise and good centers are developed this surgery can be performed on a regular basis.

REFERENCES

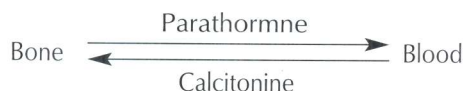
1. Rechar B Stask ; Rhinoplasty, Aesthetic plastic Surgery, 11st, 1978, little brosen and cour party, page 173.
2. Mc kinney, PO. Nasal tip cartilage grafts, Ann plast Surg. 1 : 177, 1978.
3. Diamond, H. Rhinoplasty technique surge, Clin, North America, 51: 317, 1971.
4. Ulloa-Gregori-AO; et al, Use of the nasal SMAS to reconstruct defects of the tip, alae, columella, or spetum, Plast-Reconstr-Surg. 1999 Sep; 104 (3) : 631-6.
5. Pittet-B; Montandon-D; Nasal reconstruction in children: a review of 29 patients; J-Craniofac-Surg. 1998 Nov; 9 (6): 522-8.
6. Miller-PJ; Grinberg-D; Wang-TD; Midline cleft. Treatment of the bifid nose, Arch-Facial-Plast-Surg. 1999 Jul-Sep; 1 (3) : 2003.
7. Miller-PJ et al, Arch facial-plast-surg 1999 Jul-Sep; 2003 New York, USA.

Calcium: Its Role in Neonates and Rickets of Prematurity.

M.A.K. Azad Chowdhury

INTRODUCTION

Calcium forms the rocks and mountains of the earth and stabilizes it. It forms the bones, teeth and skeleton of humans. Virtually all the constituents of our body are there in the earth (**"Humans are created from the soil" : "AR-RAHMAN"**). Most of our body calcium (about 99%) reside in our bones and continuously shuffles with blood to maintain a, more or less, constant steady blood level in order to execute many other functions-



Rest of the small amount of calcium (1%) perform various important functions of our life. Viz:

- ◆ Excitation of neurones, transmission of nerve impulses, contraction of muscle.
- ◆ Regulation of heart muscles rhythm.
- ◆ Coagulation of blood.
- ◆ Regulation of permeability of capillary walls.
- ◆ Absorption of Vitamin B₁₂
- ◆ Prevention/treatment of high blood pressure.
- ◆ Reduction of prematurity, pre-eclampsia.
- ◆ Alleviation of pre-menestraul symptom.
- ◆ Etc.

ASSOCIATION WITH OTHER MACRO/MICRO NUTRIENTS

- It always goes side by side with phosphate - absorbed, deposited along with it and maintains a fairly constant ratio in the blood.
- Magnesium and calcium also works in close cooperation. Magnesium assists in parathormone release, bone resorption and other cellular functions of calcium. Deficiency of both may be present at a time and correction of one may not relieve the symptom.
- Too much of calcium blocks absorption of iron and zinc.

CALCIUM DEFICIENCY MAY LEAD TO-

- | | |
|---|---|
| ☐ Retarded calcification of bone, teeth (enamel hypoplasia, caries). | ☐ Rickets and Osteomalacia |
| ☐ Retarded growth in children | ☐ Tetany |
| ☐ Osteoporosis in adults | ☐ Paralytic ileus |
| ☐ Rickets (Osteopenia) of prematurity | ☐ Etc |
| ☐ Cardiac arrhythmia | |
| ☐ Seizures in newborn | |

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PROBLEMS IN NEW-BORNS

Hypocalcaemia with or without symptoms is a common neonatal problem. There may be

A. Early Hypocalcaemia (within 3 days of birth)

- ◆ In case of Pre term/ low birth weight; Infant of diabetic mother,
- ◆ Perinatal stress/asphyxia, (Tissue damage-phosphate release - lowered calcium-delayed parathormone release possibly due to low magnesium),
- ◆ Exchange transfusion.

Or

B. Late hypocalcaemia (usually after 7-10 days)

In cow's milk/formula fed babies due to high phosphate level. Significant hypocalcaemia (some times along with hypomagnesaemia) may present with fits which are usually focal, multifocal and migratory. Baby is alert in between the fits. Late complications or neurological sequelae are rare. Persistent hypocalcaemia excluding other primary cause may be due to hypomagnesaemia which will need parenteral magnesium and hypoparathyroidism should be excluded.

RICKETS OF PREMATUREITY

We all know about rickets which is inadequate/ defective mineralization of the growing bones. And we are mainly familiar with the nutritional rickets of toddlers and adolescents presenting with bowed legs, enlarged metaphyses, rickety rosary etc. But we are less familiar with the similar problem of improper mineralization and poor skeletal growth of huge number of pre-term, low birth weight babies (about 40% of all births) of our country. Again about half of our low birth weight babies are of very low birth weights (birth weight less than 1500 gms) who are mainly the victims of this problem which is termed Rickets and/or osteopenia (decreased bone density) of prematurity. The symptoms of this are subtle or not so obvious, fails to draw our attention in most cases, and remain unattended, untreated with long term consequences of fractures, growth failures and stunting.

The pathophysiology is similar to that of nutritional rickets with lack of adequate calcium, phosphate, vit D and/or inability to utilize them properly.

PATHOGENESIS

○ Reduced intrauterine acquisition of calcium, phosphorous, Vit D

- ☐ There is six-fold increase in placental transfer of Ca, P during the last trimester (This cannot take place in pre-terms).
- ☐ For calcium it is about 140 mg/kg/24 hrs
- ☐ Phosphate it is 75 mg/kg/24 hrs.

○ Reduced intake/absorption/metabolism.

- ☐ 50-70% of human milk Ca is absorbed
- ☐ 20% from formula milk

- ☐ Phosphate absorption is about 90%. (Ca intake is about 1/5th of in-utero, phosphate intake is about 1/3 rd of in-utero)
- ☐ Poor vit D absorption and metabolism (1α hydroxylation)
- ☐ Reduced parathormone release.
- ☐ Prolonged immobilization
- ☐ Hypoalbuminaemia.
- ☐ Prolonged ventilation with bronchopulmonary dysplasia (BPD)
- ☐ Use of diuretics (increased urinary excretion of Ca), Steroids
- ☐ Cholestasis/hepatitis/Poor hepatic function.
- ☐ Low level of serum copper.

PRESENTATION

Majority are sub-clinical-

On careful examination there may be

- ◆ Poor formation of skull bones with separated sutures, craniotables, etc.
- ◆ Approximately 50% of every low birth weight babies develop clinical or sub-clinical rickets (osteopenia) usually between 6th to 12th weeks of postnatal age³.
- ◆ one study shows radiological changes in 55% of less than 1000 gm. Birth wt. Babies & 23% of less than 1500 gm birth wt. Babies⁴.
- ◆ Other than bony changes or growth failure, there may be symptoms like-
 - * Listlessness
 - * poor feeding
 - * Rapid shallow breathing
 - * Muscle weakness/hypotonia

They may present later with

- * Reduced bony length at about one year¹.
- * Enamel hypoplasia, dental caries.
- * Reduced adult weight and height (which is directly related to development of peak bone mass in early life)².

DIAGNOSIS

1. Clinical

2. Biochemical

Calcium - N or low

phosphorous - low
Alkaline phosphatase - high

3. Radiological

Decreased bone density and growth,
? Fractures

MANAGEMENT

- ☐ Early appraisal, recognition and adequate supplementation.
- ☐ Ca-gluconate/Ca - lactate-Ca 100mg/kg/day
P- 50 mg/ kg/ day
- ☐ Calcium di-sodium phosphate/ Lactate
- ☐ Buffered phosphate
- ☐ Vitamin D
- ☐ Gentle mobilization/Exercise

Along with supplementation exercise stimulates bone growth and density³.

Actually we need some special preparation of calcium and phosphate to supplement the very low birth weight and pre-term babies. Unfortunately this is not yet easily available in our country. But whatever preparation (tablets, solutions) is now available can be used for supplementation with adjusted dose along with the feeds of the pre-terms. Vit-D should also be given at 400-800 IU/day.

CONCLUSION

We, specially all paediatricians should be more vigilant about this problem and try to ensure proper supplementation in due time as more and more of our pre-term, low birth weight babies are surviving now-a-days.

REFERENCES

1. Azad Chowdhury et al. Growth and Development of Neonates Discharge from the special care Baby unit of Dhaka Shishu Hospital. DSH Journal; Vol. 8; No. 122:21-29
2. Weiler et al. "Weight at one year corrected age of infants <1500 gms at birth is positively associated with weight, height and bone mineral content of adolescents." Paediatric Research 1997; 41: 190 A # 1127.
3. Moyer-Mileur Physical activity and diet: Key components of improved bone mass in pre-mature, very low weight infants. Paediatric Research 1999; 45:287A#1692.
4. Blackstrom-MC; kunsela-AL; Maki R. Metabolic bone disease of prematurity. Ann-Med. 1996 Aug; 28 (4) : 275-82.

MORE POTENT THAN CISPLATIN

A European-US collaboration has produced a new platinum-based drug that may hold promise for patients with difficult-to-treat ovarian cancer.

The new drug, code-named BBR3464m belongs to new class of platinum drugs in which the molecular structure has been manipulated to attack cancer cells' DNA more aggressively to prevent tumor growth and metastasis. It is the result of joint studies by researchers at Novuspharma SpA (formerly Boehringer Mannheim Italia R&D) in Monza, Italy and Virginia Commonwealth University. Preliminary data on the drug were presented last month during the International Chemical Congress of Pacific Basin Societies in Honolulu. The American Chemical Society and its counterparts in Australia, Canada, Japan and Newzealand sponsor the meeting.

In phase 1 studies of 47 patients with cancer conducted in Europe, the drug showed activity against melanoma and pancreatic and lung cancers. Phase 2 studies that include a trial specifically examining the drug's activity against ovarian cancer are under way in Europe and the United States. The drug has been active against ovarian cancer in animal studies.

One of the reasons ovarian cancer is so difficult to treat is that ovarian cancer cells quickly develop resistance to cisplatin, one of the principal platinum drugs used to treat the disease. Researchers said BBR3464 could be on the market as early as 2004.

Source : JAMA

Diagnosis, Management and Prevention of Carcinoma Lung.

Syed Akram Hussain¹, M.A. Hai²

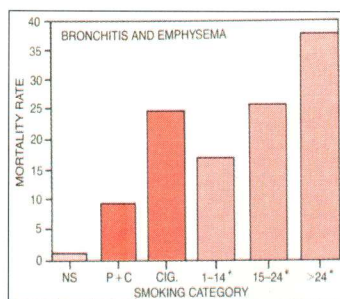
INTRODUCTION

Cancer, as a common disease, injured human health grievously. Though people generally regarded cancer as an "Incurable disease", in fact, if cancers are found or treated at an early stage, more than 85% of them can be cured. Nevertheless, due to people's ignorance of the regular pattern of cancer's occurrence, when patients receive medical advice, most of them have reached the late stage and reduce chances of successful treatment." *The rising wind forebodes the coming storm*", as the old saying goes. Everything has certain signs before appearing and developing. Therefore we can discover cancer at an early stage as long as we explore it conscientiously. Lung cancer is the most common cause of cancer death in both men and women world wide. Though nicotine is the key etiology factor, has been known for years, the long lag between exposure and the clinical symptoms of tumor has hampered the initiation of preventive programs in this disease. In addition, reducing tobacco use has major economic and political ramifications.

In the United States alone, 178,000 new lung cancer cases were expected in 1998 and 160,400 deaths. The incidence of lung cancer has increased rapidly during the last four decades. The continuous increase in the incidence of lung cancer makes the understanding of etiology, prevention and treatment of this disease more important than ever.

Although genetic factors may predispose patients to develop lung cancer, environmental exposure to carcinogens is responsible for the vast majority of cases. It is well established that dominant risk factor for lung cancer is cigarette smoking.

Tobacco smoking accounts for 85% of all lung cancer cases, and the risk of developing lung carcinoma is directly proportional to the amount of tobacco smoked. After cessation of smoking, the risk declines exponentially beginning 5-6 years after cessation and asymptotically approaching that of nonsmokers after 15 years. In addition, passive exposure to cigarette smoke increases the risk of lung cancer in non-smokers 2-3 times and accounts for 25% of lung cancer cases in nonsmokers. Previous pulmonary pathology



may be associated with lung cancers such as bronchitis and emphysema (COPD) appear to be at a substantial risk of developing lung carcinoma as many as 8.8% developing cancer within 10 years. Many of these are "scar carcinoma" with adenocarcinoma histology. Progressive systemic disease such as scleroderma significantly increased the risk of developing lung cancer, especially broncho-alveolar carcinoma.

Some occupations have been linked to an increased risk of lung cancers. Increases in lung cancer risk accompany exposure to carcinogens, such as asbestos, radon, bis (chloromethyl) ether, polycyclic aromatic hydrocarbons, chromium, nickel, and inorganic arsenic compounds. Asbestos exposed personnel have been suffered from all types of lung cancer, although small and squamous cell carcinoma are the most commonest. The association with occupational exposure to these agents appears to be independent of cigarette smoking.

Air pollution has been incriminated in the development of lung cancer.

PATHOLOGY

Histogenesis

Evidence is increasing that lung cancer is derived from a pluripotent stem cell that is capable of expressing a variety of phenotypes. This epithelial stem cell, in normal histogenesis, differentiates to those cells found in the tracheobronchial tree, including pseudostratified reserved cells, ciliated goblet columnar cells, neuroendocrine cells, and type I and II pneumocytes seen lining the alveoli. Cells that are capable of division can express hyperplastic, metaplastic or neoplastic change.

Four main histological types are as follows-

- Squamous cell carcinoma (50%)
- Adenocarcinoma (10%)
- Large cell carcinoma (Anaplastic type) (20%)
- Small cell carcinoma (20%)

Location

Carcinoma lung is common in the right than in the left. The

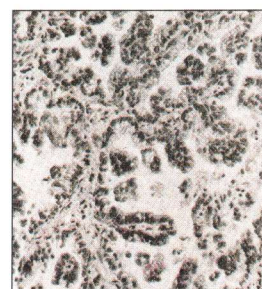
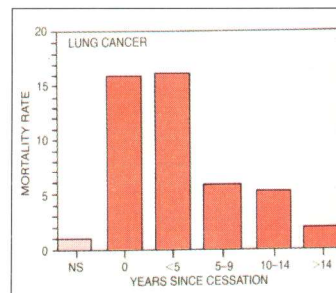
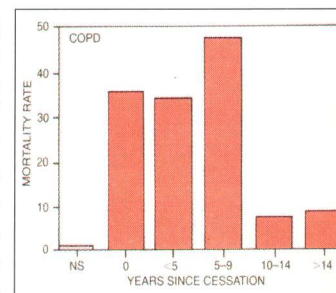


Fig. Terminal bronchiolar (alveolar) carcinoma with characteristic tall columnar cell papillary growth.

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upper lobes are involved more than the lower lobes. Location of the lesion generally depend on histology.

Squamous cell carcinoma commonly occur centrally and invade the bronchial cartilage and causing obstruction. Metastases relatively in late.

Adenocarcinoma mostly arise peripherally and tend to invade pleura. The broncho-alveolar variant are associated with previous lung damage from various chronic pulmonary diseases. But papillary adenocarcinoma developed from scar.

Large cell carcinoma anaplastic type consists of poorly differentiated squamous and adenocarcinoma components and occur both centrally and peripherally. Giant cell variant is very fatal and clear cell type may be confused with metastatic renal cell carcinoma.

Small cell carcinoma are composed of submucosal anaplastic cells. Types are - Oat cell type, combined type. Anaplastic tumours arises centrally and metastasize early. Metastases to bone may osteoblastic in appearance.

CLINICAL FEATURES

Loco-regional manifestation

Local manifestation

Central tumour produces cough, hemoptysis, respiratory difficulty (wheezing, dyspnea, stridor), pain and symptoms of pneumonia.

Peripheral tumour produces cough, pain in the chest wall, respiratory difficulty (dyspnea), Pleural effusion, symptoms of lung abscess (cavitary squamous tumour); and Pan coast tumor presenting with pain in the shoulder and arm and Horner's syndrome (ipsilateral miosis, ptosis and anhydrosis).

Regional manifestation

Direct extension from the primary tumor can result in hoarseness of voice (paralysis of recurrent laryngeal nerve). Superior Vena Caval Obstruction Syndrome from compression or invasion to superior vena cava and pericardial tamponade (pulsus paradoxus, distended neck veins, tachycardia, pericardial rub, distant heart tones and kussmaul's sign).

Nonmetastatic Generalized Features

The anorexia-cachexia syndrome and generalized weakness and fatigue are the most common and least understood nonmetastatic complications of lung cancer.

In addition, a variety of **paraneoplastic syndromes** associated with epithelial lung cancer have been identified. Hypertrophic Pulmonary Osteoarthropathy (HPO) occurs frequently in NSCLC patients. Symptoms of bone and joint pain herald the onset of this condition and can be the presenting signs of lung cancer. Clubbing of the digits is observed. The alkaline phosphatase level is commonly elevated, while serum hepatic enzyme levels are normal.

Metastatic Manifestations

Lung cancer metastasize through lymphatics and blood circulation. Nearly all patients with advanced inoperable NSCLC demonstrate symptoms referable to their disease at the time of initial presentation. Most patients, in fact, have more than one symptom at the onset of their illness. Fatigue and decreased activity were reported by more than 80%, and most patients also experienced cough, dyspnea, decreased appetite, and weight loss.

Although lung cancer can metastasize to virtually any organ, the most common sites of spread that are clinically apparent are the pleura, lung, bone, brain, pericardium, liver and adrenal glands. The presenting complaints of a patient with metastatic spread

are largely determined by the specific metastatic organ site involved. For example, bone metastases present with pain and limitation of function in the affected area.

DIAGNOSTIC WORK UP

A. Medical History and physical examination: A detailed history and accurate physical examination remain the most important steps in assessing a patient with lung cancer. Smoking history, past exposure to environmental carcinogens and family history may suggest a higher probability of lung cancer.

New symptoms, including a change in cough, hemoptysis, or history of recurrent respiratory infection, are of concern. Symptoms suggesting locoregional spread include chest pain, symptoms of recurrent nerve palsy, or superior vena cava obstruction. Symptoms suggestive of metastatic disease frequently include focal neurologic symptoms, bone pain or weight loss. Occasionally, patients suffering from NSCLC present with symptoms and signs of a paraneoplastic syndrome but not as frequently as with small cell tumors.

Physical examination should look for signs of partial or complete obstruction of airways, atelectasis or pneumonia, and pleural effusions. Examination of the head and neck, including the draining regional lymph node areas in the supraclavicular area, may demonstrate lymphadenopathy, indicating regional lymphatic (N3) spread.

B. Primary tests and procedures: All patients with suspected lung cancer should have the following tests performed.

I. Non Invasive procedures

1. Blood tests

2. Sputum cytology: With sputum samples, up to 80% of central tumors can be diagnosed. The yield is much smaller for peripheral tumors, dropping to less than 20% for peripheral tumors smaller than 3.0 cm in diameter. A 3-day collection of early morning sputum, preserved in Saccamano's solution, appears to be the optimal method of assessment. Squamous cell tumors, being more proximal, are more frequently diagnosed by cytology than adenocarcinoma or large cell tumors.

3. Pulmonary function tests

4. Imaging Studies:

- Chest Radiography:** Chest radiography is probably the most valuable tool in the diagnosis of lung cancer. A perfectly normal chest radiograph rules out this diagnosis in most instances, except for the rare occult tumor.

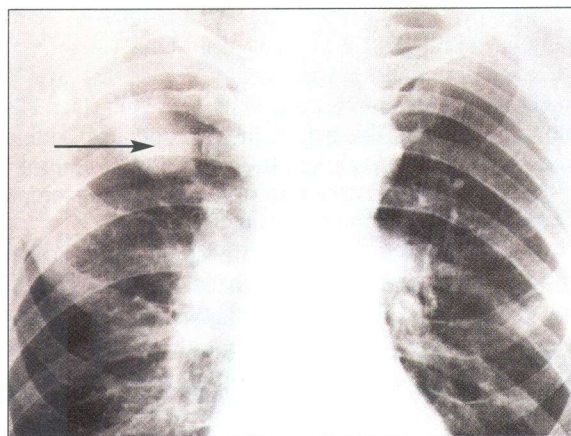


Fig. X-ray chest P/A view shows carcinoma in the right upper lobe with an extension into the enlarged hilum.

- b. Computed Tomography of thorax : CT imaging can confirm abnormalities seen on plain chest radiographs, can often detect early (<1 cm) lesions that cannot be seen on chest radiographs, and has played an important role in staging of lung cancer, especially spread to areas of the mediastinum undetected on plain films.

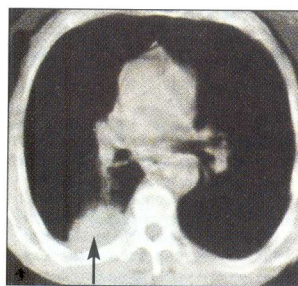


Fig. CT-Scan shows bronchial carcinoma in right paravertebral gutter demonstrating cavitation and spread to hilum and chest wall.

- c. Magnetic Resonance Imaging (MRI): Magnetic Resonance Imaging MRI investigation of pulmonary lesions has been disappointing and has offered no improvement over CT scan.

II. Invasive Procedures

- Fine Needle Aspiration Cytology from:
 - ☆ Lung Tumour ☆ Regional Lymph Node
- b. Bronchoscopy
- c. Transthoracic percutaneous needle biopsy

MANAGEMENT

A. Surgery

Excluding small cell lung cancer, surgery provides the best chance of cure in lung cancer patients. Generally resection is indicated in patients whose gross disease and those do not having any surgical or medical contraindication can be resected technically (Stage I, II or IIIA without mediastinal or subcarinal lymph node metastases). Whose existing pulmonary reserve can compensate (Karnofsky performance > 80; status FEV1>0.9 L) adequately for the loss of pulmonary parenchyma required by resection. There are many different procedures such as segmental resection, lobectomy, pneumonectomy.

B. Radiofrequency Ablation

It is a new technique to destroy tumour by radiofrequency energy, local temperature in the targeted tumour is increased beyond 50 degree Celsius. In this temperature all the proteins of the neoplastic cells become coagulated and tumour dies.

C. Radiation Therapy

Radiotherapy can be delivered as external beam, brachytherapy, intraluminal even intraoperatively. Radiation therapy is indicated in non small cell lung carcinoma with curative intent in patients with stage I or II disease who refuse or medically unfit for surgery and in patients with stage IIIa (N2) or IIIb (unresectable disease). In the postoperative setting, it is used as an adjuvant treatment to improve local control. Total doses of 5500-6000 cGY through small ports but encompassing the entire tumour with 2cm margins.

Radiation therapy is indicated with palliative intent in patients with advance disease for symptomatic relief for hemoptysis, cough, dyspnea and bone / brain metastases.

D. Chemotherapy

Chemotherapy can be used as an induction, concurrent or sequential with radiotherapy.

1. Non- Small Cell Lung Cancer:

- ☐ Neo-adjuvant chemotherapy

Recent report demonstrate that preoperative chemotherapy

showed a high number of responses, increased respectability rate and possible survival advantages in Stage I, II and III disease.

- ☐ Adjuvant chemotherapy

Postoperative chemotherapy had significantly longer median survival.

Combination of chemotherapy with cisplatin or carboplatin based chemotherapy is usually considered as an option. Paclitaxel, Vinorelbine, Irinotecan, Topotecan, Gemcitabine, Docetaxel have shown higher response rate with above mentioned settings.

2. Small Cell Lung Cancer:

Choice of treatment is chemotherapy: There are various combinations of drugs are used; such as Cisplatin and Etoposide (CE), Adriamycin, Cyclophosphamide and Etoposide (ACE), Ifosfamide, Carboplatin and Etoposide (ICE), Cisplatin and Irinotecan (CI).

PROGNOSIS

The 5 year survival rate of patients with non small cell lung cancer 43-54% for stage I disease, 27%-31% for stage II, 15-25% for stage IIIA, 5-7% for stage IIIB, and less than 2% for stage IV.

Small cell carcinoma survival depends on extends of disease. Patients with small cell lung cancer with limited disease have a median survival of 12-16 months and 2 year survival of 5-25% those with extensive disease achieve a median survival of 7-11 months and 2 year survival of 1-3%.

PREVENTION OF LUNG CANCER

Primary

With the solid base of scientific information linking cigarette smoking habits to the development of lung cancer, many countries have launched programs to decrease tobacco use and educate the population.

Included in these programs are legislative activity (e.g., increased taxes, smoke-free areas, banning tobacco advertisements), educational activities through mass media and schools, and interventional approaches (e.g., smoking-cessation clinics) targeted to groups at the highest risk for developing tobacco-related cancer.

The greatest impact on decreased smoking habits appears to be the social stigma directed at smokers. These activities have reduced the percentage of the U.S. population who smoke from a high of approximately 40% to approximately 30%.

Secondary The following key warning sign can help in early diagnosis of lung cancer.

KEY WARNING SIGNS

- Persistent cough not responding to antibiotic.
- Hemoptysis with fixed chest pain.
- Patient with pulmonary tuberculosis and chronic bronchitis, has a sudden change in the pattern of primary cough.
- Pneumonia has been diagnosed through the examination of X-ray, etc., the disease can not be controlled thoroughly by the treatment and symptoms appears repeatedly.
- Workers who have a long history of smoking, who often come in contact with asbestos, chromium.

REFERENCE

1. Cancer facts and figures, 2000. Atlanta: American Cancer Society, 2000.
2. Parkin DM. Trends in lung cancer worldwide. Chest 1989;96:55.
3. Cullen JW. The National Cancer Institute's smoking, tobacco and cancer program. Chest 1989;96:9S.
4. Loeb LA, Ernster VL, Warner KE, et al. Smoking and lung cancer: an overview. Cancer Res 1984;44:5940.
5. Linnoila I. Pathology of non-small cell lung cancer: new diagnostic approaches. Hematol Oncol Clin North Am 1990;4(6):1027.
7. Principles and Practice of Oncology; 8th edition.

Dysmenorrhoea and Pelvic Pain-A Common Adolescent Reproductive Health Problem.

Kohinoor Begum¹, Begum Maksuda Farida Akhtar².

INTRODUCTION

Today, at the beginning of twenty first century the world is facing the largest generation of adolescent. The World Health Organization (WHO) has defined the term 'Adolescents' as the population segment aged 10-19 years with three specific characteristics. These are-

1. Biological development from the onset of puberty to full sexual and reproductive maturity.
2. Psychological development from the cognitive and emotional patterns of childhood to those of adulthood.
3. Along with these changes comes on emergence from the childhood state to total socioeconomic dependence to one of the relative independence.

Currently, one in every five persons on the earth is an adolescent and 85% of these live in developing countries. In Bangladesh, about 23% of the total population are adolescent. They are the present and the future of the world, of the nations and of the countries.

The adolescent will develop emotionally and sexually active. So the care of this patient is extremely difficult. The care can be given as an office service. The entire office staff and the adolescent patients need to be aware of the available gynaecologic services.

HEALTH PROBLEMS IN ADOLESCENTS

In developing countries, very little is known about the health needs by the adolescent. They do not have a clear idea about the process of reproduction. Most girls do not have any idea about menstruation before they have experienced it. Those who know about the menstruation, do not know about the fertile period. They do not know that a woman could get pregnant after having sex only once.

The ideal median age of the marriage for girls is 18 years. In Bangladesh they get married at an early age. The reason of early marriage is some social problems. The average age of mothers at first birth is 16 years. Over one fifth of all first births are to teen-age mother. So, the teen-age fertility is still very high. The contraceptive prevalence rate among married adolescents is 31% in Bangladesh, whereas the international figure is 51%. The risks of early childbearing include maternal mortality, low birth weight and undernourishment.

The knowledge about the reproductive organs and their diseases are low among adolescents especially in rural areas. Diseases transmitted by sexual contact, adolescent hears of such diseases, mainly about the gonorrhea, syphilis and AIDS. But they do not have any clear idea about symptoms, mode of transmission and prevention of these diseases.

The major gynaecological problems of adolescent girls are-

- a) Menstrual disorders- such as dysmenorrhoea, DUB, pelvic pain, amenorrhoea, excess androgen and the PCOS.
- b) Adnexal masses.
- c) Breast diseases.
- d) Pubertal development problems.
- e) Others- nutritional deficiencies, early and unwanted pregnancy, maternal morbidity related to complications of unsafe abortion due to unprotected and unwanted sexual activity, STD, addiction to alcohol and certain narcotics, violence and sexual abuse.

DYSMENORRHOEA IN ADOLESCENTS

Dysmenorrhoea or painful menstruation or difficult menstrual flow is one of the most frequent gynaecological complaints. The incidence of dysmenorrhoea has been reported to be 92% of adolescents. Although dysmenorrhoea should not be regarded as serious conditions, its treatment is of great importance to the practicing physician. For assessment of dysmenorrhoea- a study was held in Sweden in 1982 and graded it by scoring system.

Scoring system for assessment of dysmenorrhoea

Grade	Working ability	Systemic symptoms	Analgesic
Grade 0 Menstruation is not painful and daily activity is unaffected.	Unaffected	None	Not required
Grade 1 Menstruation is painful (mild) but seldom inhibits normal activity.	Rarely affected	None	Rarely required
Grade 2 Daily activity affected, analgesic required and give sufficient relief so that absence from school or work is unusual; moderate pain.	Moderately affected	Few	Required
Grade 3 Activity clearly inhibited, poor affect of analgesic, vegetative symptoms (headache, nausea, fatigue, vomiting and diarrhoea), severe pain.	Clearly inhibited	Apparent	Poor effect

The prevalence and severity of dysmenorrhoea are

Grade	Percentage	Grade	Percentage
Grade 0	27.6%	Grade 2	22.7%
Grade 1	34.3%	Grade 3	15.4%

Around 15% are in grade 3 i.e. they are clearly inhibit some of daily activity and they sought help for the problems. But it was found that 30% of parents were not aware of their daughter's painful menses.

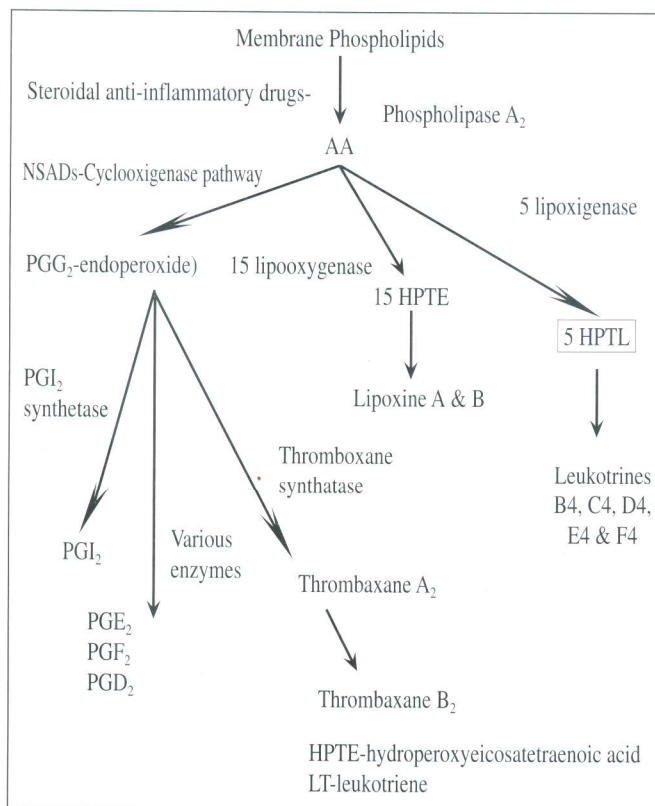
PATHOGENESIS OF DYSMENORRHOEA

Clinicians determine that sexual abuse during adolescence is associated with chronic pelvic pain and

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dysmenorrhoea. Prostaglandins (PG) are integrally related to menstrual pain. The PG is a series of 20-carbon unsaturated fatty acids containing a cyclopentane ring. The precursor for the synthesis is Arachidonic acid (AA). AA is an essential fatty acid, primarily stored in cell plasma membranes. PG are formed via two different enzymatic pathways- one is the cyclooxygenase and the other is the lipoxygenase pathway.

BIOLOGICALLY ACTIVE SUBSTANCES PRODUCED FROM ARACHIDONIC ACID



The LT, Thromboxanes, Lipoxins and prostaglandin have been called local hormones. They have short half-lives and are inactivated in different tissues. They act mainly in the tissues and at sites in which they are produced.

A major increase in PG release generally occurs within the first 36-48 hours of the onset of menses. Endometrium is the source of PG and can catalyze both PGE₂ and PGF₂α.

- ▲ The products of cyclo-oxygenase pathway have potent and significant physiologic activities (vasoconstriction versus vasodilatation and muscle contraction versus muscle relaxation).
- ▲ NSAID- compromise the cyclo-oxygenase pathway.
- ▲ Products of Lipoxygenase pathway are extremely potent smooth muscle stimulating substance. In 30-40% of patients with dysmenorrhoea who do not respond to cyclooxygenase inhibitors, the lipo-oxygenase pathway is believed to contribute significantly to the dysmenorrhoea.

CLASSIFICATION OF DYSMENORRHOEA

1. Primary or spasmodic dysmenorrhoea - absence of specific pathologic condition.
2. Secondary or congestive dysmenorrhoea- presence of pathologic conditions of the pelvic organs i.e. endometriosis, salpingitis, congenital anomalies.

Primary or Spasmodic Dysmenorrhoea

The condition does not become established until two or three years after the menarche when ovulatory cycles are established though there may be a degree of discomfort associated with earlier periods.

The majority of cases of dysmenorrhoea fall into this group and about 50% of the adult female population suffer from this symptom.

The patient's history is very characteristic. The pain develops on the first day of the menstrual period, which last for several hours or continue throughout the first and second day. This severe pain is intermittent, spasmodic, crampy, labour like and localized over the lower abdomen and suprapubic region or it may be described as a dull ache or stabbing feeling.

It may cause nausea, vomiting, diarrhoea, headache, fatigue, dizziness and syncope.

This condition is usually cured by pregnancy. Some degree of menstrual irregularity is common-like-irregular menstrual cycle, scanty menstruation.

Patient may give a history that the severe pain is relieved by the passage of a clot.

ETIOLOGY

The exact etiology is not known. The following factors have been implicated in its causation:

1. **Cervical obstruction** Pin point OS and narrow cervical canal may cause delay in the passage of menstrual blood and clot.
2. **Endocrine factors** In ovulatory cycles progesterone (a) stimulates myometrial contraction of the smooth muscle of the cervix and causes narrowing of cervical canal. (b) Stimulates the production of PGF₂α which causes necrosis of endometrium and spasm of myometrium.
3. **Psychogenic causes.**
4. **Nerve pathology** Imbalance of the autonomic nerve supply of the uterus.

INVESTIGATIONS

Depend upon the severity of the symptoms, incapacitation and pelvic pathology. Therapeutic trial with drugs may be given before going to investigatory procedures- like ultrasonography, hysterosalpingography, laparoscopy, hysteroscopy and others.

TREATMENT OF PRIMARY DYSMENORRHOEA

1. Explanation of menstrual process, sex education and reassurance to the patient are very important parts of management.
2. Nourishing diet, physical exercise.
3. Simple analgesics like aspirin, paracetamol, and codeine are useful drugs to be given during the pain. Antispasmodics containing atropine derivatives like hyoscine bromide are in common practice but they are usually ineffective.
4. Endocrine therapy- contraceptive pills. 80% cure is reported. Hormonal treatment is unsuitable for a patient who wishes to become pregnant.
5. Prostaglandin synthetase inhibitors:
 - It has important role on the treatment of the patient with primary dysmenorrhoea. NSAIDs has high rate of success. So, it is the first line of treatment for primary dysmenorrhoea. All NSAIDs inhibits PG synthesis. But they have various side effects.
 - Aspirin is rarely used because it lacks effective anti-inflammatory action and may cause increase menstrual flow.

- **Indomethacin** Though it has good analgesic effect, is not commonly prescribed because of its severe side effects.
 - **Ibuprofen** and **naproxen** are widely used in clinical practice. Mefenamic acids are also useful.
- NSAIDs have definite advantages over oral contraceptive pill because they are administered for only 2-3 days a month.
6. **Danazol** suppressing the hypothalamic-pituitary-ovarian axis. Used occasionally even in absence of endometriosis.
 7. **Presacral sympathectomy** done in cases where other means have failed

Secondary Dysmenorrhoea

It usually starts one or two days before the onset of menses. The pain is dull ache, felt equally on both sides of the lower abdomen and back, some times extending down the thighs. Symptoms may appear after some years of painless menstruation, and there may be symptoms of pelvic disease-like menorrhagia, dyspareunia or infertility. Pelvic examination may be abnormal. The causes of secondary dysmenorrhoea and pelvic pain include both gynaecologic and nongynaecologic causes and to be treated according to the cause.

SUMMARY

Dysmenorrhoea and pelvic pain are common complaints in the adolescent population. Although most cases are primary dysmenorrhoea and easily treated with NSAIDs or oral contraceptives, pathologic causes should be considered, especially in cases not responding to standard medical management. Endometriosis is the most common finding in teenagers who do not respond to this regimen; müllerian anomalies and musculoskeletal causes must also be considered.

REFERENCES

1. *The Paediatric clinics of North America: Adolescent Gynaecology* - part I, volume 46, Number-3, June 1999.
2. *Review of Medical Physiology*, 17th edition, editor-William Ganong
3. *Reproductive health needs of adolescents in Bangladesh-A study report of ICDDR'B.*
4. *Proceedings of the first stocktaking workshop on adolescent health activities in Bangladesh, ICDDR'27th October 1998.*
5. *Gynaecology by Ten Teacher's*, 16th edition, by Geoffrey Chamberlain.
6. *Shaws Textbook of Gynaecology*, 12th edition, editors-Howkins and Bourul.

You must remember this

The body's amazing feats of memory could lead to cheaper vaccines

THE realisation that hepatitis B vaccines protect people for longer than previously thought may help slash the million-a-year death toll caused by the liver virus.

Researchers have found that the immune system's ability to "remember" hepatitis B vaccination has been seriously underestimated. This means that fewer doses of the relatively expensive vaccine might be needed to protect susceptible people from infection — a major step forward for developing countries, who should be able to afford to vaccinate more people as a result.

Hepatitis B vaccine is usually given as three shots over six months. Some countries also give booster shots to maintain immunity in vulnerable groups such as healthcare workers. But leading hepatitis B expert Jangu Banatvala of the John Radcliffe Hospital in Oxford and his colleagues say that boosters are unnecessary for people who have healthy immune systems. Their review of the evidence also suggests that the number of initial shots could be cut from three to two.

A person's immunity to a disease is usually gauged by measuring the level of protective antibodies in their blood. However, this doesn't tell the whole story, says Banatvala. A person's T and B cells remember that they have encountered a particular infection. Researchers have recently found that even if no antibodies to hepatitis B can be detected, these "memory" cells lurk around the body for years and protect against the disease.

Generating a strong initial immune response is key to generating this long-lasting memory, says Banatvala. "What you want is a potent vaccine, then you don't have to worry about booster doses," he says. Further research is needed to see whether two

doses will generate enough immune memory to give lifetime protection, he adds.

More than 2 billion people living throughout the world have caught hepatitis B, which is transmitted through contact with body fluids. Most people infected as adults shake off the virus. But some, around 5 percent, become chronically infected, and usually develop cirrhosis or fatal liver cancer. The virus is a leading cause of death in developing countries, killing about a million people each year. Babies are particularly vulnerable — up to 90 per cent of those who catch the virus from their mothers during birth become carriers.

But the price of the vaccine is a huge difficulty for these countries. "A major barrier of new vaccines is the cost," says Jay

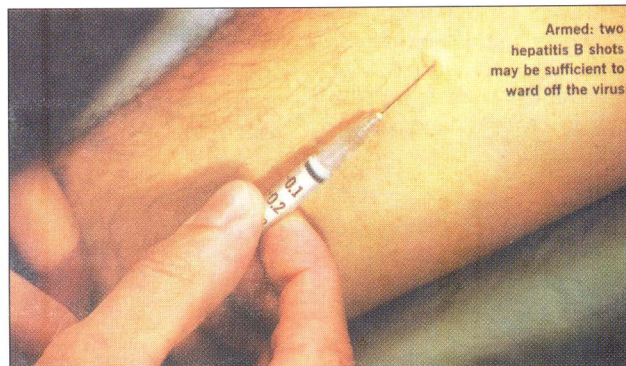
Wenger, a hepatitis B expert at the WHO in Geneva. The WHO is trying to implement a universal infant vaccination program.

Hepatitis B vaccine doubles the cost of each child's set of shot. The price is a significant obstacle to efforts by the WHO to introduce it globally. If Banatvala is right, the price of a set of shots would fall significantly.

But Felicity Cutts, a vaccine expert at the London School of Hygiene and Tropical Medicine is more cautious. "Some people believe there is a need for further study," she says. And Banatvala notes that for people with weakened immune system, booster doses might still be needed.

But for the millions at risk from deadly hepatitis B, it's an important step in the right direction.

Source : NewScientist, www.newscientist.com.



Armed: two hepatitis B shots may be sufficient to ward off the virus

Role of Radiology and Imaging in the Diagnosis of Acute Abdominal Conditions

Md. Abu Yusuf Miah

(This article is continued from the previous volume).

Hepatobiliary System

Common causes of acute abdomen are-

- Acute cholecystitis
- Gall stone disease

Acute Cholecystitis

Acute Cholecystitis is usually accompanied by obstruction of the cystic duct either by a gall stone or by oedema or by other causes. Only 20% of gall stones can be visualised by plain radiograph. Constituents are- calcium, cholesterol, protein and pigment. Calcium determines the radio-opacity.



Fig no. 15
Plain X-ray shows
lamellated gallstone in the
rt. upper abdomen



Fig. no. 16
Plain X-ray shows the mixed
stones with lamination and
facets.

Ultrasonogram is widely and confidentially used for the diagnosis of acute cholecystitis both in calculus type and in acalculas type. Gall stones can be readily identified which usually cast acoustic shadows.

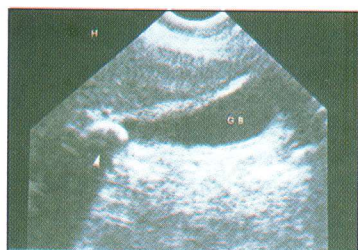


Fig. no. 17
Ultrasonography shows bright
ecogenic structure with
corresponding acoustic
shadows with the G.B. near
the cystic duct region. The gall
bladder wall is also thick. So, its
a case of calculas cholecystis.

Dr. Md. Abu Yusuf Miah,
MBBS, DMRD,
Associate Professor of Radiology and Imaging,
NICVD, Dhaka.

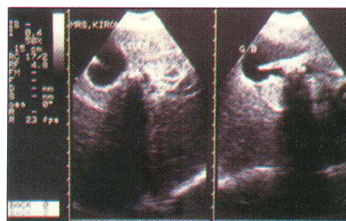


Fig. no. 18
Another case of calculas
cholecystitis in
ultrasonography.

Sometimes pt. come with sever acute abdominal pain. Many cases of obstructive jaundice in our country is due to **round worm**.



Fig. no. 19
Ultrasonography shows the
presence of thick walled G.B.
with a round worm in the
cystic duct.

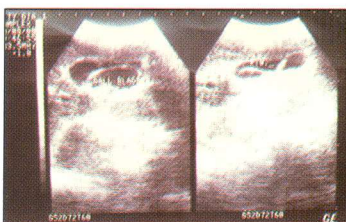


Fig no. 20
Ultrasonography shows
presence of round worm
within the gall bladder. It is
twisting.

Sometimes a thick echogenic gallbladder wall with a hypoechoic margin can be identified in case of acute cholecystitis.



Fig. no. 21.
Ultrasonography shows the
presence of round worm in the CBD
which is dilated.



Fig. no. 22
Ultrasonography
shows a stone
within the dilated
CBD.

Pain in the right upper abdomen which increased in the inspiratory phase and may be due to **subdiaphragmatic collection**.



Fig. no. 23
Ultrasonography shows
subdiaphragmatic
collection

Liver abscess- Sometimes abscess in the liver may give rise to the symptoms of acute abdomen.



Fig. no. 24.
Ultrasonography shows the
presence of abscess in the
anteroinferior aspect of the
rt. lobe of liver.

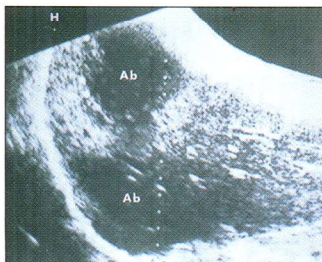


Fig. no. 25
Ultrasonography shows two
large sonoluscent areas with
numerous soft internal echoes.
These are the abscesses within
the rt. lobe of liver.

Hydatid disease of the liver may cause pain abdomen particularly when it bursts and it may be a fatal condition due to shock.

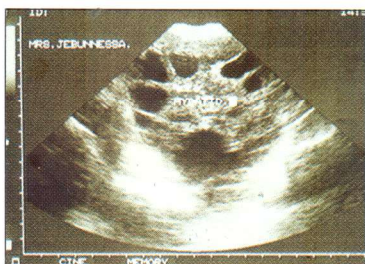


Fig. no. 26.
Ultrasonography shows
Hydatid disease of the liver

RENAL SYSTEM

A larger number of patients of renal calculi and acute ureteric obstruction due to stone present as an acute abdomen. Plain film of abdomen can diagnose about 80% of renal calculi.

Renal stones



Fig. no. 27.
Shows staghorn calculi in
plain film.

Uric acid and xanthene stones are radiolucent. U.S. study which is important in a case of acute abdomen irrespective of the clinical composition stones appear echogenic and cast an acoustic shadow. But small stones <5 mm in diameter may not be visualised and can be lost within the normally echogenic sinus. CT is very important at this circumstance.



Fig. no. 28
Plain film shows numerous
small stones within the
urinary bladder diverticula.



Fig. no. 29.
Ultrasonography shows a
calculus in the rt. kidney



Fig. no. 30
Ultrasonography shows a calculus in the
ureterovesical junction with dilatation of
the lower end of the ureter.



Fig. no. 31
Ultrasonography shows calyceal
dilatation due to ureteric stone

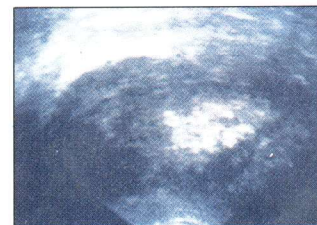


Fig. no. 32
Ultrasonography shows ruptured lower
pole of the kidney due to trauma.

Trauma may cause injury of the kidney and causing acute abdominal condition.

GYNAECOLOGICAL DISORDER

Acute Gynaecological disorder causing acute abdomen :

1. Acute salpingitis
2. Torsion of ovarian cyst
3. Ruptured ectopic pregnancy

Ultrasonography is very helpful for the diagnosis of many acute gynaecological conditions-

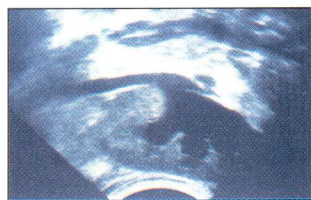


Fig. no. 33
Ultrasonography shows the
presence of ectopic pregnancies.

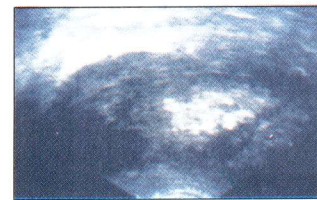


Fig. no. 34
Ultrasonography shows the presence
of ruptured ectopic pregnancy.

CONCLUSION

For proper diagnosis and management of a case of acute abdomen detail history of the patient and examination findings and other supportive findings are very essential. Update knowledge about the traditional plain abdomen radiograph and modern modalities play a key role in the diagnosis and management of Acute Abdominal Conditions.

Medi News

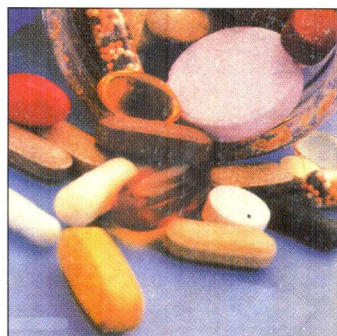
News from Internet/Journals

MEDICINE

The Newest Age Eraser

For years, experts have known about an antioxidant-like substance called DMAE, or dimethyl-aminoethanol. But they're only beginning to understand its potential as a natural age eraser.

In the past, DMAE (a nutrient commonly found in fish) was associated only with improving mental function. But new cosmetic research has shown that it can be a powerful skin toner when used topically. How does it work?



As we age, the chemicals that enable muscle to hold tone decrease due to damage caused by free radicals.

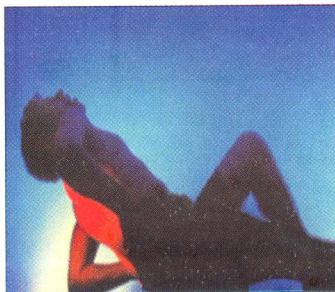
DMAE being what's known as an "antioxidant membrane stabilizer" stimulates increased production of the chemicals needed by muscle, and even becomes part of the cell membrane, making it stronger.

When combined with other nutrients and amino acids, DMAE has been shown to dramatically improve the appearance of sagging skin. Although few studies have been done on DMAE's anti-aging effects, research suggests that DMAE-based products may be a healthy and natural alternative to minor cosmetic surgery.

Botulinum Toxin Treats Lower Back Pain

Scientists may have found a source of relief for patients with chronic lower back pain in bacteria that cause food poisoning. The promising finding were published in May 22, 2001, issue of Neurology.

The researchers worked with a group of 31 patients suffering from lower back pain. They injected 15 with the drug Botulinum toxin A, derived from the bacterium. The others received saline solution. When surveyed three weeks later, 73 percent of the patients who had received the drug said they experienced less pain, where as only 25 percent of the control group did. Eight weeks after the injection, 67 percent and 19 percent respectively still reported less pain. A follow-up survey of six of the patients who had taken the drug revealed that the good effects wore off after three or four



months, and there were no negative side effects.

The researchers are unsure of how exactly botulinum toxin manages to relieve the pain but think that it may act on pain receptors, reducing the input from sensory fibers. The drug also alleviates muscle spasms. It remains unclear whether repeated injections will be effective. "That has been the case for patients who receive botulinum toxin injections for other disorders such as the muscle disorders dystonia and apasticity," says Bahman Jabbari of Water Reed Army Medical Center, one of the study's authors, "so hopefully that will be true for people with lower back pain as well." But, he concedes, "more studies need to be done because we looked at only a small number of patients, but these results are promising for people with this problem."

Scientists Discover Structure of Molecule That Metabolizes Most Drugs

Scientists have discovered the structure of a molecule responsible for metabolizing more than half of all drugs, according to the results of a new study. The findings, published online by the Journal Science, will help drug manufacturers to better understand how drugs are broken down and disposed of, and should aid in preventing dangerous cross-reactions between drugs.

This key molecule, dubbed PXR, controls a protein known as cytochrome P450-3A (abbreviated to CYP3A) that breaks down medications. It does this by binding to the compounds, thereby tagging them for degradation. But in contrast to most biological interactions, in which a molecule or receptor binds to a single chemical. Chemist Matthew R. Redinbo of University of North Carolina notes, PXR is "highly promiscuous," binding to compounds ranging from the anti-cancer drug Taxol to the abortion pill RU-486. If someone is taking more than one drug, this can lead to problems. "Imagine you are taking oral contraceptives and at the same time the herb St. John's wort," Redinbo says. "It's known that a constituent of St. John's wort, hyperforin, binds to PXR and turns on CYP3A4, which then breaks down lots of compounds in the liver, including contraceptives." Other negative interactions mediated by PXR, he adds, can lead to breakdown of the immunosuppressant cyclosporin and the anti-HIV drug Indinavir. The new work provides welcome insight into the mediating molecule. "Using the crystal structure of PXR," Redinbo remarks, "we may be able to predict these effects and prevent such drug interactions."

Study Finds Placebo Effect Is Fake

The placebo effect may have no scientific basis, according to a study published in May 25, 2001, issue of *New England*

Journal of Medicine. Doctors have long known that about 35 percent of all patients given a placebo will get better, and they had assumed it was because the patients believed the dummy medication would help them. Many people have taken the idea a step further, believing that we can "think ourselves well" to some extent.

To find out, researchers from the University of Copenhagen and the Nordic Cochrane center, in Denmark looked at the statistical results of 727 trials, focusing on 114 that tested pharmacological, physical and psychological placebos involving 7,500 patients. They reviewed a broad range of different studies, excluding any that had not tested the effectiveness of both a placebo and no treatment at all. Then they examined how test subjects receiving placebos fared in comparison to groups that had received no treatment.

It turned out that the results were similar. "We found little evidence in general that placebos had powerful clinical effects," the authors write, suggesting that "outside the setting of clinical trials, there is no justification for the use of placebos with subjective outcomes and the treatment of pain."

Turning veins into Arteries - No Surgery Required

Without touching the knife, doctors have managed to turn a coronary vein into a coronary artery in 53-years-old patient, bypassing a blockage. "This milestone marks the first coronary artery bypass performed with a catheter," says Stephen Oesterle of Massachusetts General Hospital and Harvard Medical School. Oesterle was the lead author of a study that documents the procedure in *Circulation: Journal of the American Heart Association*.

Traditional bypass surgery involves opening the chest and using a blood vessel there or from the calf to bypass whichever coronary artery is clogged. In the case described by Oesterle, the patient's artery was completely blocked, causing severe chest pain. The international team used a catheter to enter his body through an artery in his leg. They ran the catheter up the artery through the aorta and into the clogged heart artery where, guided by ultrasound, they pushed a needle through the artery wall into the adjacent vein. They then ran a wire through the needle and pulled out the needle and catheter. Using the wire as a guide, they ran an angioplasty balloon to the spot and widened the opening in the artery/vein wall. Next they threaded a device similar to a stent onto the wire and inserted it into the opening to keep the blood flowing. Finally they blocked the vein and reversed the flow, thereby providing the heart muscle with oxygenated blood.

"The technique described in this report is ingenious," Timothy Gardner, a national spokesperson for the American Heart Association, says. "However, it can be used only for an unusual type of coronary blockage—that is, in an artery that is open in its first portion, closed in the middle and still supplying good heart muscle." David Faxon, also of the American Heart Association, adds: "The reality is that veins are not always located that close to an artery, so it wouldn't work under certain circumstances." Still, Oesterle is optimistic: "Our ultimate goal is to replace traditional coronary artery bypass with a procedure that does not require surgery." For this patient, at least, the procedure, performed in November 1999, was a success: he remains pain-free.

EPIDEMIOLOGY

Past and Present, Taller People Tend to Live Longer

Several studies have established that taller people today tend to live longer. Now a team of British researchers has found that the same holds true for past generations—during times when disease patterns and other life threats were quite different. Their findings appear in a recent issue of the *Journal of Epidemiology and Community Health*.

David Gunnell of the University of Bristol and his colleagues looked at 3,000 skeletons excavated at an archaeological site in the northeast of England. After they excluded the bones of children, adolescents and individuals whose gender or age at death was unclear, they were left with the remains of 490 people who had died some time between the ninth century and the mid-19th century. As average height varies with gender, the team then separated the 321 men from the 169 women and measured their so-called long bones. To determine an individual's age at death, they looked at changes in the pelvis and the amount of wear on their teeth.

According to the results, 55 percent of the men and 73 percent of the women died before age 45, whereas 39 and 56 percent, respectively, died before age 30. The authors also found that those with longer bones were more likely to live past the age of 30, supporting the theory that longer bones coincide with longer lives.

The researchers caution, however, that they don't know if their sample is representative of the general population at any given time. Also they point out that they were unable to determine either the cause of death or the socioeconomic status of the individuals studied. "Mechanisms for height-mortality associations in the past may differ from those of today," they write. "For example, short stature may have increased the risk of death in childbirth, and this may account for the higher risk of premature mortality in women. However, short bones, it would appear, have always been a marker of a short life."

GENETICS

Family of Genes May Explain Cases of male Infertility

Researchers at the University of California at San Francisco have discovered the patriarch of a family of genes closely tied to male infertility in many species. Humans share the new gene, named BOULE, with both mice and flies. And results published today in the *Proceedings of the National Academy of Sciences* suggest that BOULE is involved in the creation of sperm during meiosis—the phase of division in which a cell duplicates its DNA and then splits twice, giving each cell half the necessary chromosomes.

Scientists had previously linked two descendants of BOULE—genes known as DAZ and DAZL—to male infertility. Mutations of DAZ are implicated in 13 percent of all cases of human male infertility, even though the gene doesn't seem to be essential to sperm development. Although DAZL's exact role in humans is not known, in frogs it appears to be fundamental to the development of both male and female reproductive cells, or germ cells, before meiosis occurs.

The new study's results suggest that BOULE, unlike DAZ, may be required for mature sperm development. If defects in BOULE are found to be a cause of human male infertility, lead author Eugene Yujun Xu notes, attempts at gene therapy—in which a normal copy of the gene could be introduced into the testes and encouraged to replicate—might be possible. And because the testes are located outside the body, the treatment would be less likely to damage other body tissues, he says.

MSD News

MSD personnels of Orion Laboratories Limited, again spent a busy schedule in arranging Seminars in different venues as part of Continued Medical Education Programme.

SEMINARS

Seminar at Rajshahi

A seminar on "Role of Zinc in Child Health" was held on June 11, 2001, at the Medical Education Unit of Rajshahi Medical College. The seminar was chaired by Prof. A.B. Siddiqui, Principal, Rajshahi Medical College and Head of the Department of Paediatrics, RMCH. Dr. ATM Azizur Rahman, Manager, MSD, ORION Laboratories Ltd. was speaker of the seminar. All the doctors of Department of Paediatrics, RMCH attended the seminar.

Seminar at SMAMCH

MSD, ORION Laboratories Ltd. also arranged a seminar on "Role of Zinc in Human Health", on August 08, 2001, at the auditorium of Shahid Monsur Ali Medical College and Hospital. The seminar was chaired by Prof. Anwarul Islam, principal, Shahid Monsur Ali Medical College. Prof. N.I. Khan and Prof. Mobarak Ali were chief guest and special guest respectively. Prof. Sarifa Begum, Prof. and Head, Department of Obs. and Gynaecology, SMAMCH, Dr. Suraiya Begum, Assistant Prof., Department of Paediatrics, SMAMCH Dr. Ehsanul Kabir, Assistant Prof., Department of Skin and V.D., SMAMCH and Dr. ATM Azizur Rahman, Manager, MSD, ORION Laboratories Ltd. were speakers of the seminar. All doctors of SMAMCH attended the seminar.

COMPLETION CEREMONY OF THE TRIAL AT DMCH

ORION Laboratories Ltd. arranged the Completion Ceremony of the trial at DMCH on "Eradication of *Helicobacter Pylori* (in peptic ulcer patients) with a metronidazole containing regimen, in a metronidazole abusing population" at Hamidur Rahman Sinha Lounge, Dhaka Club on May 16, 2001.

Prof. AK Azad Khan, Secretary General, Diabetic Association of Bangladesh, was chief guest and Prof. Md. Fazlul Haque, Prof. of Medicine, Dhaka Medical College and Hospital was special guest on the ceremony. The occasion was chaired by Prof. Tofayel Ahmed, Professor of Medicine, Dhaka Medical College and Hospital. Prof. Ferdous Ara J. Janan, Professor and Head, Department of Medicine, Dhaka Medical College and Hospital and the Chief investigator of the trial, presented the paper. Professionals from different institutions attended ceremony.

Dr. ATM Azizur Rahman, Manager, MSD, ORION Laboratories Ltd. thanked the investigators of the trial and honourable participants.

LAUNCHING OF NEW PRODUCT

The antihistamine Riz syrup has been launched in August, 2001. It is a preparation of Cetirizine Dihydrochloride. Its pack size is 60 ml, each 5 ml of which contains 5 mg of Cetirizine Dihydrochloride BP. The syrup is lemon flavoured. It is indicated for the treatment of seasonal allergic rhinitis, perennial allergic rhinitis, conjunctivitis, pruritis and urticaria of allergic origin.

Informations of Authors

"The ORION" considers only original work that has not been published previously in print or electronic media. We especially welcome review articles that help our audience of busy primary care physicians solving common clinical problem. Because of our primary care focus, at least one of the authors must be a physician. The author (s) must have no financial interest in or connection with any product mentioned in the article or any competitive product. Material submitted must not be under consideration for publication elsewhere.

The text of clinical articles should not exceed 1,000 words (for double-spaced pages). Suggested order of presentation is cover page, text, summary reference list, tables, figure legends and author affiliation (s).

The Journal style is to use generic names for drugs. All elements of the article must be presented in the same type font, and manuscript should be printed in a letter-quality typeface. The right margin should not be justified. Number pages consecutively, starting with the cover page.

On the cover page, indicate the article title and designate a corresponding author, for each author, list full name, highest pertinent academic degree, title of current position, address, office phone and fax numbers. For the corresponding author, provide this information plus e-mail address and home phone number.

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REFERENCE

Key sources must be properly credited and referenced. References should be current (past 5 years) and must not exceed 20. They should be cited in the text in numerically consecutive order. With the first page of each article referenced. Formal reference as shown in this examples:

1. Prisant M. Houghton JL, Bottini PB, et al. Unstable angina : Pharmaceutical versus Invasive therapy, Post grad Med 1994;96 (1) : 88-95.

TABLES

Tables should not duplicate the information in the text. Each should have a title and should be numbered consecutively according to its citation in the text. If a table has been published previously, include the complete reference as well as a letter granting permission from the previous publisher.

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Illustrations and photos are welcome. All graphics must be numbered consecutively according to their citation in the text and must include short descriptive legends. For photos and x-ray films, submit glossy prints in duplicate. On the back, label the top and include the authors (s) name and the figure number. Include a reference and permission letter if the figure has been published before. A signed release from the patient is needed for photos that show identifying features. Original Illustrations are returned after publication if required.

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A photo of the author (s) in a clinical or office setting is welcome for publication with the article. Send a group shot for an article by more than one author.

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