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Practitioners Singapore
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January/March 1984**

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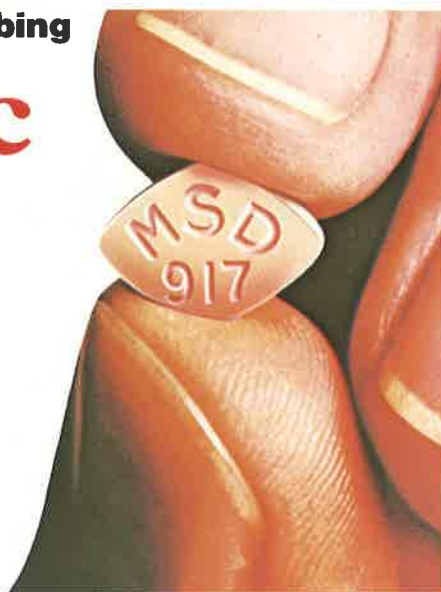
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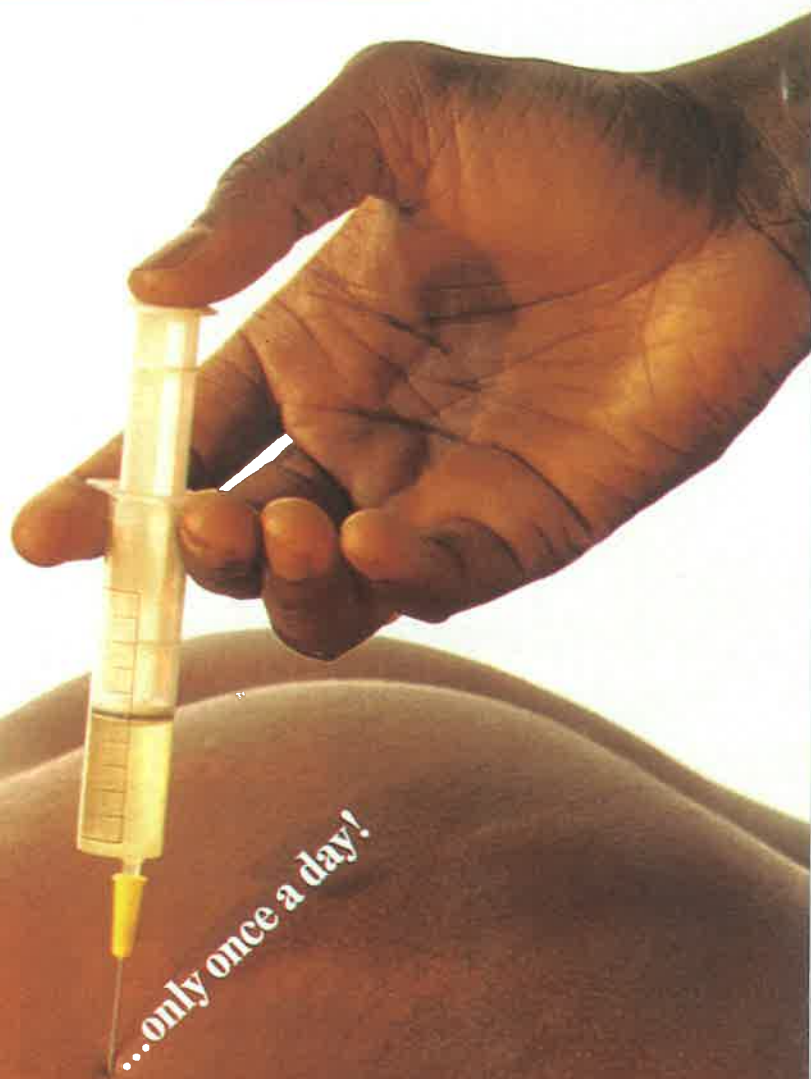
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decision and the importance for the health of the infant of using the formula correctly. Unnecessary introduction of supplements, including partial bottle feeding, should be avoided because of the potentially negative effect on breastfeeding.*

* WHO - International Code of Marketing of Breast Milk Substitutes, WHA 34.22, May 1981.

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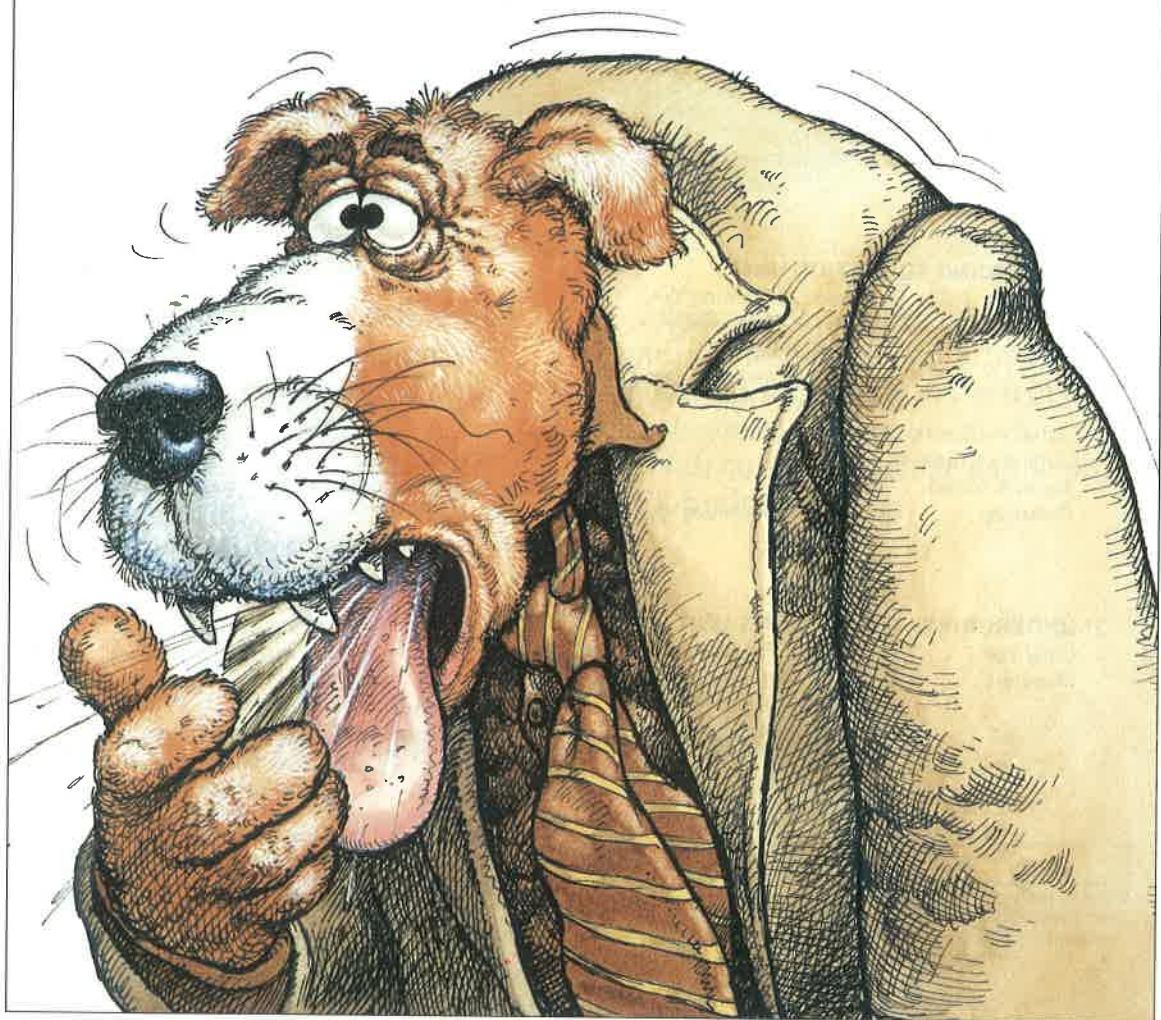
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Editorial

Our National Intelligence Will it decline?

Old Problem Restated

More than 30 years ago fear was expressed in the UK that their National Intelligence would suffer a decline or certainly worse that the decline had already taken place. In recent months similar concern has been expressed in Singapore. This fear (then and now) was generated by two observations.

The first was the inheritability of intelligence. The second was the trend in begetting. More intelligent people were having fewer children than less intelligent people. An additional observation in Singapore was that more and more women with tertiary education were eschewing marriage. It is inevitable from the trend of begetting and the preference for celibacy by women graduates that as time goes on, the genetic pool for intelligence will continue to decline. To reverse this it is necessary to effect a change in the observed procreative pattern. More intelligent people and this certainly includes more women graduates should be induced to beget more and less intelligent people to beget less.

What is Intelligence?

"Intelligence" defies exact definition. James Drever's dictionary of psychology defines it as:—

"the relating activity of mind; INSIGHT as understood by the GESTALT psychologists; in its lowest terms intelligence is present where the individual, animal or human being, is aware, however dimly, of the relevance of his behaviour to an objective; many definitions of what is really indefinable have been attempted by psychologists, of which the least satisfactory are: (1) the capacity to meet novel situations, or to learn to do so, by new adaptive responses, and (2) the ability to perform tests or tasks, involving the grasping of relationships, the degree of intelligence being proportional to the complexity, or the abstractness, or both of the relationships."

Because we have yet to understand the nature of intelligence we likewise have yet to come up with a clear measure of it. The standard tests of intelligence have been the IQ tests first pioneered by Binet but now modified and refined with

usage. New tests have been advocated e.g. the "split-brain" intelligence tests that involve two distinct tasks — one directed to the right hemisphere of the brain and the other to the left. These tests take into account that thinking is a composite of at least two different processes. One has to do with sequence and the other with integration and creativity. No doubt other tests of intelligence will be proposed when the research findings from neurophysiology, neurobiochemistry, neuroanatomy and psychology create better understanding of the nature of intelligence.

Intelligence-A Multi-factorial Inheritance

Intelligence is a multi-factorial inheritance. Many genes are involved at many loci. How much of a given trait is attributed to a given gene becomes extremely difficult to determine the greater the number of loci. Multi-factorial inheritance is made even more complicated by the presence of polygenes — genes whose alleles produce small effects of the same magnitude as those caused by usual environmental fluctuations. The task of assigning how much of a phenotype is determined by polygenes and how much by environment becomes an additional problem in the mathematics of inheritance of intelligence.

Heredity-Environmental Interplay

Different genes vary widely in their response to environmental influences. A "giant" gene in the fruit fly codes for size making it 75% larger than the normal fly but only in the presence of abundant food during the larval stage. In the absence of the right environment it does not code for increase in size. Other flies possess a gene for "abnormal abdomen" but will exhibit this only when the larvae are kept in a moist culture medium. In both instances the interplay of heredity and environment is critical in deciding the outcome. When the contribution of one is changed the contribution of the other will change. There is no meaningful final definition which can sum up the relative contribution and interaction of these two.

The importance of the environment has long been taught locally by Professor HB Wong who

has summarised its importance in 2 of his 6 Laws of Life. His 2nd Law states that "both genes and environment are necessary for development" and each cannot do without the other. His 3rd Law stresses that "Genes represent a potential and the environment is necessary to realize that potential".

Communist dogma in the USSR denies the influence of hereditary factors in shaping human possibilities and limitations. It insists that all men are created equal and infinitely modifiable. The presence of mental defectives in the country is not considered a contrary argument.

Absolute Standard of Intelligence

HJ Eyesenck viewed hereditary determination of intelligence as concerned with individual differences. The intellectual standards of a population called for the determination of an absolute standard. These two propositions were not identical. Hence before gauging whether the national intelligence has declined, it is necessary to establish the absolute standard of intelligence of the nation.

Repeated Surveys

G Thomson and RB Cattell have done repeated (15 year interval) surveys of intelligence on children from the same parts of UK. Similar studies were done in the US. Both the UK and the US studies have failed to reveal any decrease in intelligence. They have in fact shown a slight increase in intelligence ratings. These findings cannot be said to prove or disprove a decline in national intelligence.

Stable Equilibrium

LS Penrose postulated the possibility of a stable equilibrium with respect to the intellectual standards of a population. If this was true then the trend of begetting would not affect the national intelligence. Moreover this would help explain why brilliant parents beget children who are often less brilliant. The extension of the "less than the parents" observation holds true down the scale of intelligence to a certain point. At the lower end of the scale of intelligence the children of low IQ parents do not have a lower IQ than their parents. Their IQ ratings are better than their parents. Again the "better than the parents" observation is valid up to a point. Perhaps Nature dislikes extremes and generally favours the mean and hence the expression "regression to the mean".

Mullerian Eugenics

The American Nobel-prize winning geneticist

HJ Muller caused more than a stir during his time when he suggested that outstanding men should consider the possibility of using their semen for artificial insemination. Since outstanding gifts were hard to come by there was justification not only in using them as donors but also in storing their "liquid assets" in ampoules so that suitable recipients could "bank" on their "deposits" to ensure better genetic "dividends" for the future.

The trouble with this suggestion is that outstanding achievement may have been attained at the expense of the procreative urge or sexual energy. When recognition is accorded (and this may take decades) it may come at the most inopportune time when procreative ability has reached the point of no return. Alternatively, the "liquid assets" of outstanding men at the time of recognition may have undergone mutational changes (caused by age, radiation, drugs & diseases) making uncertain the quality of their genetic potential.

Procreative Pattern

Can the more intelligent be induced to beget more? And the less intelligent to beget less? Most probably not. If people are more intelligent they will not want more. If they are less intelligent they will not want less. This probably has been the trend and pattern of procreation since the dawn of civilization. Is this pattern of procreation intelligent? If this is not then why are the "more intelligent" less intelligent in their perception of the future than the "less intelligent"?

Why do Singapore women with tertiary education prefer celibacy to matrimony; an impersonal office to a cosy home? What factors are responsible for the "de-sexing" of our gifted women, subverting them from their traditional roles? Superficial and flippant answers are not lacking but they won't do. Are we serious enough about the problem to conduct a proper indepth psychological study to decant the truth?

Bonding & Intellectual Growth

Once outside the uterus the human child has a period of 12 to 15 years to reach full intellectual growth. Six of these important years are spent at home. How are we making use of this period to reap the full potential. Are we sufficiently aware of the importance of environmental factors in influencing intelligence? What are the effects of nutrition/malnutrition and health/disease on intelligence during the formative years of a child's

life? Are parents aware that they can stultify or stimulate their children's intellectual growth? What do we really know about the role and influence of good parenthood — the warmth and love of the parent-child relationship, care, concern and encouragement of parents? How much influence has the mother on the intellectual growth of the child?

HB Wong has stressed the importance of the first two years of a child's life in its relationship with its mother or its father. This period has been called the period of "bonding" during which physical, emotional and intellectual ties are established between child and parent. In his opinion "Disruption of this bond ... may break up the pattern, and cause psychological scars in the baby and disturb future psychological patterns of growth. Such disruptions can be so disturbing to the baby that physical, intellectual and psychological deterioration can occur". He urged potential parents to give this bonding phase their most serious attention before procreation. This crucially important advice has yet to be heard by the masses. GPs attending to mothers to be will do well to preach the gospel of "bonding" and its importance.

The Role of Education

In the primary schools where the child will spend the next 6 important years of his life, is the syllabus geared to stimulate or to stultify taking into consideration J Piaget's findings on children's intellectual growth? Are the classes too big for effective teaching? Will a more realistic syllabus and a smaller class help to maximise intellectual stimulation? Should "specialist" teachers be deployed here rather than the upper secondary schools? In an article entitled "See, Touch & Discover" published in Section 2 of The Straits Times (14.11.83) WC Ang, a former senior science teacher wrote, "as a teacher, I have always had a nagging fear that the way we teach science to primary school children may have contributed to the negative attitudes of some secondary

students towards the subject and even worse, the lowering of our children's IQ"

Although one swallow may not make a summer it may be its earliest harbinger. It does seem imprudent to ignore its presence and what it portends. The teaching of primary students during their intellectually formative years is without doubt the next most important period of their lives. More research along these lines is needed before we can talk about declining intelligence on a national scale. **We have yet to exploit the full potential of environmental influences on intelligence.**

Nescience & Inertia

The question, "Will our national intelligence decline, given the present trend of begetting and the eschewing of matrimony by female graduates?" cannot be answered in the affirmative or the negative. Wrestling the answer from Nature requires more knowledge, more research and more measurements than we have at the moment.

Was anything done in the UK after the question had been posed? Hardly enough! Will anything be done in Singapore now that the question has been posed? It remains to be seen!

Intelligence & Achievement

Why did Nature favour a concentration of genius in Athens in the 4th Century BC? Why was the average standard of intelligence grossly below that of their race in the inhabitants of an isolated Pacific atoll? Genetic drift? Perhaps! Environmental enrichment in one and environmental poverty in the other? Perhaps! Life remains exciting because of the element of uncertainty. Biological expressions of Nature's secrets defy exact prediction. This is great comfort to the majority who are not especially endowed by heredity. In every field of human activity, great achievement is not always related with great intelligence. Thank God it is not!

VC

Views expressed in the Editorial are not necessarily the official views of the College

Medical problems associated with school-children*

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The purpose of the school health programme is to promote, preserve and restore the health and functional capacity of the pupils. This purpose is achieved by:-

- (1) providing the optimal physical and social environment and educational conditions
- (2) promoting healthful behaviour through health education in its broadest sense and
- (3) providing school health services for the early detection of disease and impairment and for the comprehensive treatment of those health problems which can be dealt with only in close connection with the school situation. I shall be talking on this last factor:-

I. Visual Problems

- (1) First it is recognised that the earlier visual defects are diagnosed and treated the more favourable is the outlook for full acquisition or improvement of function.
- (2) Secondly, the relationship between visual perception and the special learning difficulties of young school children is better understood.
- (3) There is a frequent association between pathological eye conditions and neurological abnormalities.

Neurophysiology of Vision

The visual processes involve the reception of information by the retina and the transmission of this coded information along the optic nerve and radiation to the cerebral cortex.

Thus vision is a continuous process of receiving, sampling, analysing and coding information until the final decoding and read out mechanism occurs. In infancy this process is in a continuous state of development and it continues from birth in an orderly fashion parallel with the development of all other motor and sensory faculties.

Development of Vision

Animal experiments show that cortical cells in immature kittens have a normal receptive field arrangement before the eyes are opened showing that patterned light stimuli are necessary for the development of the functional architecture of the cerebral cortex. That is the brain is prewired and

experience is not necessary to see. Infants as young as 15 days can discriminate colours and Fantz has discovered that there is an innate preference for stimuli that are patterned and varied. By the age of one month the infant can see complex forms and can see the difference between the grey patch and a square composed of 1/8 inch stripes. At six months a baby's co-ordination has reached a stage where he will repeat responses such as swinging a toy which will give him interesting results. At 9 months, development is such that he can solve a simple problem.

He will knock down a pillow to find a toy and he is able visually to differentiate objects easily. As age increases a child builds up his memory store so that he will look for an object, even when it has been removed, at 18 to 24 months.

Thus with increasing age the percept breaks up and instead of seeing things as a whole, the child is able to differentiate the stimuli in his surroundings. Discrimination of symbols develops gradually so that by the age of 3 years the child can distinguish simple symbols and by the age of 5 or 6 years the child can distinguish letters.

Methods of testing vision

The methods described are vision tests devised by Dr Mary Sheridan of England which could be applied to very young children and to various types of handicapped children including partially sighted, cerebral palsied, mentally handicapped and multi-handicapped children.

(1) Rolling balls — method for children from 6 months to 2 years.

Dr Mary Sheridan has tested 650 handicapped children up to 8 years and 250 normal infants and young children between 6 months and 2½ years.

Normal babies at 6 months to 9 months may be expected to watch rolling balls down to ¼ inch diameter at 10 feet. From 10 months onwards, they can be expected to watch rolling balls down to 1/8 inch.

Binocular testing is always carried out first in order to determine the child's everyday competence. The mother sits on a chair with the child on a lap and the examiner at a distance of 10 feet rolls the balls horizontally across the line of vision at a distance of 8 to 10 feet. The examiner observes his

* Paper read at the Southeast Teacher Counsellor Conference 19-183 Singapore

orientating response. The child's usual reaction is to follow the ball with his eyes until it comes to rest. The balls are rolled from the largest to the smallest balls.

(2) Mounted balls for testing visual acuity

The same series of balls are mounted on knitting needles and a screen is made 28 inches by 24 inches which represents the doll's house. The examiner views through a slit 3 inches by $\frac{3}{4}$ inch. The mounted balls are presented in a circle to outline the area of visual acuity.

Standards

Normal infants over 12 months can usually be persuaded to fixate the whole range of mounted balls at 10 feet (3 metres). Under 3 months they are unable to fixate the 3 smallest mounted balls.

The results are recorded as follows:—

- (a) watches rolling balls to $\frac{1}{4}$ inch diameter at 10 feet.
- (b) fixates mounted balls of $\frac{1}{4}$ inch at 10 feet.

Testing Vision at Preschool age (3 to 5 years)

A child at 5 years will have followed the ladder pattern of progress of symbols i.e. at 3 years he is able to draw a circle, at 4 years a X, and at 5 years a square and at 7 years a diamond. The 7 letter complement is used as follows:—

6/60 = O	6/18 = A.T.
6/36 = X	6/12 = U.K.
6/24 = V	6/9 = H.T.
	6/6 = O.X.

The majority of 4 years old can watch the 7 letter testing including A & U at 10 feet. The majority of 3 years old are capable of watching 5 letters at 10 feet.

Method — the child is given the appropriate key card. The examiner says to him "I've got one like this and you've got one, show me yours — Good!" This procedure can be used with all normally intelligent children up to 4 years (7 letters) and with 80% of 3 years old using 5 letters.

In recording the results write down Stycer letter test vision R = 3/3

L = 3/6

(i.e. equivalent of R 6/6 L 6/12)

(3) Testing Vision from 5 to 7 years

By this age the child can distinguish letters and a Stycer chart is used, at a distance of 6 metres (20 feet). The child should be able to read the lowest letters at a distance of 6 metres (20 feet).

Chart R 6/6 normal vision,
L 6/6 normal vision.

(4) Stycer Near Vision

The testing of near vision is important for the following reasons:—

First to consider what might be considered normal near vision in young children and adults, in general; the child's near vision is approximately equal or even better than that of an adult.

Secondly to discover whether any individual child with poor distant vision was handicapped by nystagmus or myopia.

Thirdly to have some reason of recording the recovery of near vision, in an amblyopic eye under treatment.

Method

Stycer Near Vision Test

A card containing block letters was used containing standard sizes from N to N6. Normal 5 years old can see the smallest letter. Record as Stycer Near Vision — R = 6 L = 6.

(5) Ishihara Colour charts — colour blindness

The most commonly used test for colour blindness are the Ishihara tests which are charts on which are printed figures, made up of coloured spots on a background of similarly shaped colour spots. These figures are intentionally made up of colours that are liable to look the same as the background to an individual who is colour blind.

Abnormal colour vision is present in the human population in 8% of males and in 0.4% of females (Caucasian population). The abnormality is inherited as a recessive sex linked condition. In 1973 when I did a survey here I found that approximately 5% of male school children were colour blind. (Paul, 1973).

Concept of partially sighted

For the purpose of schooling a person usually of school going age is considered partially sighted if his visual acuity is 6/24 or less in the better corrected eye.

Causes of blindness in general population

1. Malformation e.g. refractive error.
2. Infection e.g. rubella infection.
3. Neoplasm e.g. retinoblastoma.
4. Trauma e.g. mechanical — battered child or corneal ulceration, chemical's e.g. acid, foreign bodies.
5. Vascular — uveitis and retrolental fibroplasia.
6. Degenerative and Nutrition — Zonular Cataract and Keratomalacia.

7. Genetic causes — Marfan's syndrome, albinism, ocular nystagmus.

Causes of Blindness in School — children

(1) Squint — due to muscle imbalance.

Blindness in the squinting eye results from failure to treat a squint. The child represses the vision in the squinting eye. In order to prevent double vision and if this not corrected by 3 or 4 years of age, the child will be permanently blind in that eye.

(2) Myopia

The commonest cause of partial sightedness in children is severe myopia. Myopia, short sightedness occurs when the refractive media of the eye is too great and the ray of light converges in front of the retina. It is corrected by a minus lens, which causes the rays of light to diverge so that they converge on the retina. A plus lens for long sightedness causes the rays to converge. Myopic children are apt to suffer serious injury to the eye than other children and boxing must be forbidden. Myopia is a genetic condition and is common.

(3) Astigmatism

In astigmatism the rays of light are not refracted equally in all directions, so that the rays do not focus on the retina. It is corrected by a cylindrical lens alone or with a plus or minus lens.

(4) Colour blindness

5% of school boys in Singapore and 0.3% of school-girls are colour blind. The commonest type is the red-green colour blindness. It is of little handicap to the child. Guidance with regard to traffic lights is necessary. The occupational hazard would lie with chemistry courses, colour television, colour photography, electronic colour codes, aviation signal lights, and blinking amber lights on a rainy day.

II. Defective Hearing

An understanding of the process of learning to hear is necessary if the tests of hearing in the infant are to be understood and correctly interpreted.

Development of hearing

In the newborn infant responses to sound are entirely reflex — the so called "startle response". Only loud sounds are elicited. One response is a twitch or blink of the upper eyelid — i.e. the cochleo-palpebral reflex which gets its name from the fact that the stimulus goes via the cochlea and the response is carried out by the muscle of the palpebra of the eyelids. With a very loud sound

there is no more than a blink of the eyelids. There is a general jerking of the baby called the general acoustic muscle reflex.

In the ladder of evolution, the cerebral cortex seems to control the response to auditory stimuli. The reflex centres in the brain stem show a progressive subordination as evolution proceeds from the lower animals to man. Some of the reflex pathways disappear. The reflex path connecting the eye muscles and the superior olive (a mass of nerve cells shaped like an olive and situated in the brain stem) remains as coordination between the eye and the ear. Long before he is able to lift his head and turn it towards the source of the sound, he will turn his eyes in the direction of the sound.

As the child grows older brain-stem activity is reduced as the higher centres of the brain take over.

Although hearing is a hidden process the development of hearing is influenced by the environment and by the central nervous system, which in turn depends on the myelination of the central nervous system. The child in a normal home is surrounded by sounds with meaning. Most adults have a reflex urge to talk to babies and such children learn to talk faster in such an environment, provided the central nervous system is normal. A similar reflex makes adults talk to cats and dogs but this does not lead to "talking cats and dogs". The development of speech depends on the interaction of the environment and of processes going on inside the human baby's brain.

Deprivation of sound occurs in a residential nursery when the staff do not have enough time to talk to such children. Children who do not receive any incentive associated with sound will have delayed speech.

Methods of testing hearing — Stycer Hearing Tests (Dr Mary Sheridan)

(a) Screening devices

Screening devices are done to sort out quickly and effectively as possible children whose hearing and speech are below normal for their age and those who require further investigation.

(b) Diagnostic procedure to define more accurately the nature and extent of hearing and disability of speech.

The screening procedures are described to provide information regarding the presence of everyday hearing. Pure tone audiogram provide information regarding the severity of hearing loss, the sound cycles involved in the auditory relay system

between meatus and cerebral cortex but it does not show the child's interpretation of what he hears. Some children with gross auditory discrimination and gross speech defects show normal audiogram.

The first essential is to discover the child's ability to possess the qualities of pitch, intensity and duration in everyday life.

Testing Babies 6 to 14 months

The test material consists of a soft pitched rattle, squares of tissue paper, small hand bell, wide brimmed pottery or china and a metal spoon. The examiner stands 3 feet away from the child outside his immediate field of vision. The child sits on his mother's lap but his visual attention is lightly engaged. At 6 months there is immediate localising response at ear level to a high pitched rattle and to the human voice. At 8 months the child is able to localise the rattle below ear level. The sounds given are a rattle, spoon against cup, tissue paper, hand bell and the spoken word (oo-oo, tit-tit, ps-ps).

With normal children at 8 months, the first application of a stimulus causes instant turning of the head with a delightful smile. Delayed response occurs in the older retarded child. If the child shows a clear-cut response to 3 of the 5 sounds there is good reason for assumption that he possesses enough hearing to learn to speak. If he cannot hear these sounds, he should be referred to an ear specialist to exclude high tone deafness with absolute certainty. Minor degrees of hearing deficit are quite common in school-children, particularly high tone frequency loss.

Testing babies 15 to 24 months — Voice, Noise making and 3 toys.

At 14 months many children have acquired 2 to 6 recognisable words but at this time babbling has progressed to more complicated jabbering which possess all the complex cadences of ordinary speech without its phonetic discipline. At this age the child's own spontaneous vocalisations may provide the most useful indication of his own ability to hear speech. The child between 14 and 18 months should first be addressed by name at conversational distance and invited to hand to the examiner the ball, the motor car and dolly.

Testing at 2 years

Testing of children at 2 years is much easier and the six toy test is used. The examiner gives instructions to put the objects in the cup. The examiner stands at a distance of 6 feet and instructs the child to do certain things "put the ball

in the cup", "put the brick in the cup". Then he retreats at 10 feet and says "take out the spoon, the brick, the cup and the doll".

To test for high tone deafness

In order to test for high tone deafness, use voiceless consonants e.g. The examiner says I want you to put the brick in the cup and when I say "in, in" keep on putting the brick. The examiner retreats at 10 feet and the voice gets softer "lift, lift, lift, ft ft". The sounds must be at irregular intervals to prevent automatic performance.

Children 3 to 4 years

The 7 toy test is used until the child is able to cope with picture vocabulary. The 7 objects are a spoon, fork, knife, doll, car, plane and ship.

Conclusion

Although at this age the normal child's phonetic usage state shows numerous infantile substitution, his speech is adequate for most domestic occasions. Echolation and self talk during play will exist. He is beginning to take in spontaneous vocal interchange with other children. Any child whose speech development remains arrested at this stage may be suffering from developmental dysphasia or he may be suffering from high-tone deafness. Because he cannot communicate he may express his frustration with violent temper tantrum.

These children may be wrongly labelled as psychiatric, maladjusted or mentally handicapped.

Testing Children 5 to 7 years

1. Picture vocabulary test.
2. Selected word tests.
3. Sentences.

1. Picture test — continue general, vowels and high frequency.
2. Selected word tests.
3. Sentences.
4. Michael Reed test.

Speech

The spoken language of the normal 5 year old child is fluent and correct. A number of children have difficulty with "th" "f" which are usually the last phonetic units to be differentiated but occasionally with the "a" "f" "t" "l" "m" "y" group. Normal minor immaturities clear up before 7 years. If they still persist full audiometric assessment and speech therapy are imperative.

Types of Deafness

(1) Perceptive

due to damage of the cochlea or its central connections.

(2) Conductive

due to lesion of the conducting apparatus.

III. Speech Problems

Speech problems are relatively common in school children. Children normally pass through an orderly sequence of development but all children are different and there are wide variations in the rate at which speech matures. The develop-

ment of speech is greatly affected by the child's intelligence.

1 Causes of speech disorders

a delayed speech and language development due to mental retardation.

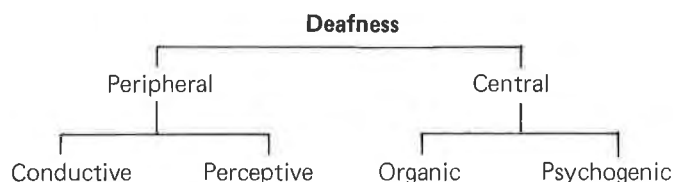
By far the commonest cause of delayed speech is mental subnormality. All mentally subnormal children are late in learning to speak. Language stimulation is given early with lots of repetition and with short teaching spells because of poor concentration.

b. Familiar or genetic causes

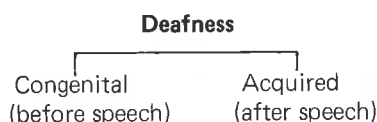
Delayed speech is commonly a familial feature, particularly in boys. There is often a family his-

Causes of Deafness

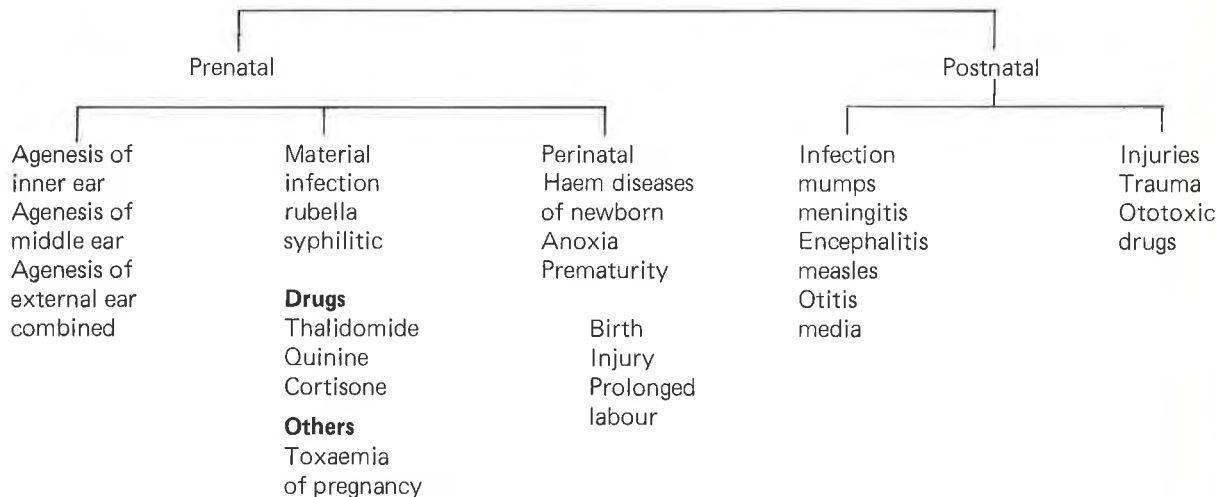
I



II



Congenital Deafness



tory of similar delay in a parent or other members of the family.

c. Environmental Factors

This is getting to be the commonest cause of speech delay in children here, because mothers are working and children are fostered out to foster mothers, who themselves have no time to talk to the children. The same applies if the child is put in an institution where the staff are too busy to talk to the child. A child learns to talk in a hearing environment and the mother is the key person who stimulates the child to talk.

Speech therapy in such cases consists of parental counselling, language stimulation and putting the child in a play group.

d. Hearing Impairment

Severe deafness will make speech impossible unless special methods are used by the expert to teach the child to speak. The older the child before special teaching begins, the more difficult will it be to teach him. Minor degrees of hearing impairment are quite common in school children. The child with high tone deafness may hear the door bang, aeroplanes overhead, and other sounds so that the parents do not expect him to be deaf but he is apt to miss high tone sounds like "s" and "f". An audiogram is essential to a child fitted with hearing aids because with speech therapy he will be able to manage in a normal school environment.

2. Articulation defects

(a) Cerebral palsy

Children with cerebral palsy are usually late in learning to speak, partly because of a lower than average I.Q. or because of associated deafness, or because of a defect in the cerebral cortex or because of spasticity and inco-ordination of the relevant muscles concerned with speech problems. It is important to understand that the understanding of speech precedes the ability to articulate e.g. a child of 10 to 18 months may understand the meaning of numerous sounds pointing to objects in books yet he cannot articulate them. Faults of articulation (dyslalia) are the commonest deviation e.g. sch, th, ch, st, ks, rs, and children may omit sounds which they cannot pronounce or substitute sounds. The commonest substitution is "th" for "s" the lisp due to protrusion of the tongue between the teeth when attempting to pronounce the "s". The cause of dyslalia is unknown. It is more common in children who learn

to speak late than in early speakers. It is largely a problem of delayed maturation, and can be corrected by speech therapy.

(b) Due to hearing loss

The commonest cause is middle ear infection. Here the speech therapist corrects the sounds one by one using visual, kinaesthetic and tactile feedback.

(c) Due to cleft palate

The mouth, the chin, the jaw, and the lips and palate are all necessary for proper speech. If there was a cleft palate, then it will be necessary to correct the cleft palate. After correction of the palate which should be done by 18 months, speech therapy consists of exercises in breath direction, placement of the tongue in the proper position, and correction of the other sounds one by one.

Delayed Speech

Delayed speech is a common problem in pre-school children. One ascribes this to delayed maturation, the child appearing deaf in the early months, only gradually learning to distinguish noises, localise them and understand them.

Ingram (1960) analysed delay in speech as follows:—

- (a) Mild** — only delayed acquisition of speech sounds and delay in articulating them. They know words but cannot articulate them. There may be some dyslalia.
- (b) Moderate** — delay in acquisition of articulation with normal comprehension. This is called developmental motor aphasia.
- (c) Severe** — impaired ability to comprehend speech with some difficulty in expression.
- (d) More severe** — true impaired auditory perception. There is not only a defect in comprehension but also a failure to perceive the significance of other sounds. Certain sounds e.g. "ball" "bill" may sound alike and children with auditory perceptual disabilities will have "word blindness" or developmental reception aphasia.

Progress

The majority of these children have intelligible speech by 6 or 7 years but if a child has no words at all by the age of 5 years, the outlook for the late development of speech is poor. Delayed speech is often followed by delayed reading.

Stuttering

Stuttering is common in boys than girls. It begins at the age of 3 to 5 years. The mother usually notices the stuttering and tries to correct this. The child becomes worried and self conscious and true stuttering begins. There is often a family history of the same complaint. This may be due to imitation partly due to an unstable family background. Stuttering is more common in children who were late in learning to speak. There is a high incidence of left handedness in families having a high incidence of stuttering. The family background of the stuttering is one of dominance excessive discipline, overprotection, oversupervision, perfectionism, and often disapproval by the parents.

Stuttering children usually have little difficulty in group speaking, singing, talking when alone, talking to animals, and talking to friends. Stuttering causes anxiety and self consciousness.

Treatment

The first essential is to persuade the parents to try and ignore the child's speech. They have to stop trying to get him to speak clearly and distinctly. Stress should be reduced. A successful method of speech therapy is "timed syllabic speech" in which the child is taught how to separate all the syllables equidistantly as he speaks.

IV. The Backward Child

The word "backward" is usually referred to children who are not keeping up with their age group in school-work, although it may refer to a lag of mental or general development. (Gulliford 1969).

Varieties of educational failure

Types of backwardness can be distinguished in several ways:—

- (1) **The severely subnormal** who has limited capabilities for academic work and will need an education which promotes their personal development and social competence. These need special education.
- (2) **The educationally subnormal (ESN)** who because of limited ability results in education retardation, again requiring specialised education. In UK 1% of the school population are of ESN level and need special schools.
- (3) **Slow learner** -- these require special consideration in terms of organisation, curriculum and methods of education. About 10 to 15% of children may be considered slow learners (U.K.).

- (4) **Retarded children** of average or good intelligence. There is a marked discrepancy between their educational achievement and their ability as judged by intelligence tests or their general performance. Remedial teaching of basic educational skills will enable them to achieve a level more commensurate with their manifest abilities.

Factors in Backward children

Work done by Burt and Schonel show that many factors are involved in backwardness:—

- (1) Pupils personality and emotional adjustment
- (2) Physical development and health
- (3) The effects of sensory, motor and neurological deficits
- (4) Environment — influence of home and neighbourhood
- (5) School factors — failure in the same class. Because of the multiplicity of factors involved in backwardness Gulliford suggests different ways of grouping children to provide special help.
 - (a) pupils with low intelligence
 - (b) social disadvantaged child
 - (c) emotionally disturbed child
 - (d) specific learning disabilities
 - (e) sensory and physical handicap

(a) Pupils with low intelligence

In such children a low level of mental functioning is related to neurological or organic defects e.g. encephalitis, meningitis or epilepsy.

(b) Culturally deprived and socially disadvantaged children

Various kinds of social disability, particularly unstable family circumstances and marked deviations from acceptable standards of child care affect the progress of more children than we realise. The children in this group need not only good teaching of basic educational skills but enriched opportunities for improving their abilities in language and thinking. Many of these children have only the school to look to for some sense of security and happiness to compensate for their environmental disadvantages. On behalf of these children education needs to include an element of social work, and schools need to work with social agencies.

(c) Personality factors and maladjustment

Emotional disturbances may be deep enough to inhibit mental and language development. Teachers should modify their approach to such children in their teaching methods.

(d) Children with specific learning disability

Some children have fairly specific difficulties in learning — marked difficulties in perception, and attention, in hand eye coordination, in movements in acquiring language, in integrating and association of what is being learnt. These specific difficulties are more obvious in children with normal abilities and emotional reactions but it should be recognised that these problems may be present in cases of low intelligence, maladjustment or where social disadvantages are the primary problem. These difficulties may be due to delay in the maturation of the central nervous system or damage eg. epilepsy or encephalitis affecting the central nervous system. Such children require remedial teaching.

(e) Children with handicaps

Children with severe physical and sensory handicaps will be educated in special schools.

Sources of Failure

1. Physical Factors
2. Perceptual difficulties
3. Intellectual development
4. Backwardness in language development
5. Emotional factors in educational failure
6. Motivation
7. The home environment
8. The school environment

(1) Physical Factors

Apart from physical defects like hearing, visual, poor co-ordination, nutrition plays an important part. Many children skip a breakfast or a main meal or do not eat the right type of food. While protein caloric malnutrition prevails in poor economic condition, obesity is getting equally common and can be a problem in school children. Obesity can lead to heart problem later on in life.

(2) Perceptual Difficulties

Perception is the process whereby impressions coming through the senses are organised and interpreted. Normally we can distinguish processes of discrimination eg. differences are perceived visually between shapes and pictures and words (eg. sail and said) or auditory between tones and rhythms (eg. bill and ball). A word has to be recognised in print and writing. This is a process of analysis where the pattern of word is recognised for its constituent parts and a process of closure when the parts are put together to form a whole. Children's difficulties in analysis and recombining spoken words in phonic work are familiar, and vary according to the sensory channel. Pro-

blems may arise when there is failure in the visual-motor and auditory motor link — eg. in encephalitis or epilepsy. Many of these children are intelligent but clumsy and awkward in large and small movements, slow in classwork and untidy and careless. The task of the teacher is to try and help the child over the weakness observed to be affecting his educational skills.

(3) Intellectual development

One of the aims of the education of backward children is to develop their intellectual abilities — i.e. to improve their thinking, problem solving, verbalization, to help them to learn, because educational failure can have a limiting effect on mental growth.

(4) Backwardness in language development

Language plays an important part not only in the communication of instructions but perhaps, in the child's inner use of language as a guide traction. Words play an important part in thinking, facilitating, reasoning, and children whose language is retarded are a source of educational failure.

(5) Emotional Factor

Emotional problems impede progress in school. Emotional disturbance, immaturity, withdrawal, rejection by the group, aggressive behaviour, usually mean that the child cannot participate fully in learning situations. The effects of emotional disturbance appears to show in the low achievements of maladjusted children. Over protection can be detrimental too.

(6) Motivation

Motivation is the desire to learn. Hewitt (1964) has outlined several levels of motivation in children.

- (a) primary task level where the child can be motivated by basic needs eg. sweets or food.
- (b) & (c) acceptance level — there is some response to the teacher and acceptance of simple task.
- (d) exploratory level — learning can be motivated through interests and activities.
- (e) relationship task level — the pupil can be motivated to please the teacher.
- (f) mastery-level. Here the child accepts learning as something he wants to master for himself i.e. self motivation.
- (g) achievement task level i.e. the child is con-

sistently self motivated, expects success, reaches out for new experiences and learning. Whether the child is able to accept the achievement, goals set by parents, teachers and the rest of the class depends on self concept i.e. the picture that he has of himself and his capabilities. Motivation does not arise from within the individual. It is socially conditioned.

(7) The Home Environment

Satisfactory school progress depends on the physical and psychological care of the child by the mother and also the father's interest in the child seems to provide an added spur to achievement.

(8) The School Environment

The method of teaching also affects the progress of a child at school eg. the child centred methods, the rigid orthodox method, the lax method and the streaming method.

V. Minimal Cerebral Dysfunction

The term "minimal brain dysfunction" as defined by Dr Borofsky of New York refers to children of near average, average or above general intelligence with certain learning or behavioural disabilities ranging from mild to severe which are

associated with deviations of function of the central nervous system. These deviations may manifest themselves by various combination of impairment in perception, conceptualisation, language, memory and control of attention, impulse or motor function.

These aberrations may arise from genetic variations perinatal brain insults, biochemical irregularities or other illnesses sustained during the years when the development or maturation of the central nervous system occurs. During the school years a variety of learning disabilities is the most prominent manifestation of the condition.

Differential Diagnosis

1. Space occupying diseases
2. Degenerative diseases
3. Metabolic diseases

Etiology

- (a) meningitis
- (b) encephalitis
- (c) head injury
- (d) neonatal anoxia, hyperbilirubinemia, prematurity
- (e) genetic variations — eg. phenylketonuria

Characteristics

1. Hyperactivity (hyperkinesis) inert
2. Short attention span

Classification of Minimal Brain Dysfunction (N.I.H. 1966)

- | | |
|--|---|
| 1. Impairment of fine movement or coordination. | 1. Cerebral Palsy |
| 2. EEG abnormalities without actual seizures which may be associated with fluctuation in behaviour or intellectual function. | 2. Epilepsies |
| 3. Deviations in attention, activity level, impulse control and effect | 3. Autism or other disorders of mentality and behaviour |
| 4. Specific and circumscribed perceptual intellectual and memory deficits. | 4. Mental subnormality |
| 5. Non-peripheral impairment of vision, hearing and speech. | 5. Blindness, deafness and severe aphasia. |

Classification of Minimal Brain Dysfunction, Denhoff (1971)

- | | |
|---|--|
| 1. Hyperkinesis | 5. Emotional liability |
| 2. Disorder of Perception | 6. Specific learning disability |
| 3. Inefficient body awareness and control (leading to clumsiness) | 7. Neurological abnormalities — soft signs and EEG changes |
| 4. Language dysfunction | |

3. Distractibility
4. Perseveration
5. Motor defects (a) gross (b) fine
6. Emotional lability
7. Specific learning disability

Diagnostic Evaluation

- A. Detailed history (Neonatal, sucking, feeding, scholastic achievement)
- B. Physical examination (pin worms can make a child hyperactive)
- C. Neurological examination

Signs

1. Focal neurological abnormality
 - (a) strabismus
 - (b) spasticity
 - (c) choreo-athetosis
2. Gross motor clumsiness or deficiencies
 - (a) lumbering gait
 - (b) heel-walking, hopping, skipping and running
 - (c) balancing test
 - (d) cerebellar test (Romberg's sign)
3. Fine-motor deficiencies
 - (a) alternating and repetitive movement
 - (b) tremors
 - (c) observation of grasp and handing of pencils
4. Right-left discrimination and dominance
5. Stereognosis

Specific Studies

1. Routine laboratory procedures
2. Skull X'ray
3. Ophthalmologist — eye tests
4. Psychological evaluation — battery of tests eg. Bender Gesalt, Frostig
5. Psychiatric problems which are the result of the child to his deficit and to his environment
6. Educational evaluation — observation in a learning situation.

Role of the Physician

1. Early diagnosis to avoid secondary problems.
 - (a) "outgrow" concept
 - (b) parental acceptability of behaviour deviations
 - (c) special investigation
2. Differential Diagnosis
3. Identify and treat all remedial conditions such as strabismus, hearing defects etc.
4. Supervise and interpret results to parents
 - (a) explain the term minimal brain dysfunction
 - (b) explain abnormal findings eg. EEG

5. Supervise choice of educational facilities
 - (a) Help the parents to choose the right school
 - (b) Some children will need special schooling
 - (a) behaviour problems with abnormal EEG
 - (b) some youngsters can do well with regime school plus special school tutoring
 - (c) help parents accept the stigma of special classes in school for the brain injured when necessary

6. Drugs

- (a) tranquilizers and sedatives
- (b) stimulants e.g. amphetamine but this is not readily available now.

Ritalin helps to increase concentration span.

7. Avoid financially draining programmes, and offer an alternative. The treatment of minimal brain dysfunction is a 24 hour procedure. The physician must bridge the gap between the school day and the activities at home.
 - (a) grasp motor activity mid coaching and special skills
 - (b) fine motor activity aid
 - (c) proper working area
 - (d) developing skills in increasing attention span
 - (e) perceptual training
 - (i) special training
 - (ii) home programmes in motor skills and space appreciation
 - (iii) interpretation of size of body
 - (iv) visual motor
 - (v) tactile skills
8. Specific training in areas of disability rich as in reading skills.

VI Reading Difficulties in children

Diagnosis can be carried out at all levels.

- (a) at first level this is based on teacher observation and should be continued throughout the teaching period. One of the quickest way of getting a lot of information is to use a spelling test, e.g. Burt, Schonell or Diack.
- (b) At the second level of diagnosis, Daniel and Diack's standard reading test is used.
- (c) third level — based on standardised tests used only by qualified psychologists.

Teaching

Remedial teaching is done but in many ways different from tests carried out in ordinary classes. The first task is to instill confidence in the child. Such children will almost certainly have a sense of

failure, together with anger endangering hostility towards adults, school and reading itself. Usually there are 4 types of children attending a remedial class.

- (a) the first type can make shapes, repeat words and numbers and has a good vocabulary. He has problems of an emotional nature, so counselling, play or psychotherapy is necessary.
- (b) The second type has a good ear but cannot make sense of visually perceived material.
- (c) The third type has auditory problems.
- (d) The fourth type has both visual and auditory problems.

Try to remedy weaknesses. If a child has a good ear than one should capitalise on this and follow a strictly phonic programme. With a lot of auditory work use a tape recorder and a language master.

Value of remedial work

Whatever methods are used in the organisation of remedial work, 3 main conclusions are needed.

- (a) There are fairly consistent short average gains of 1 to 5 years reading age in 6 months.
- (b) children who receive remedial help often call up after a couple of years or so.
- (c) Children who have received centre help often show an improved attitude in school in general.

VII Social Problems In School Children

Many children in both underdeveloped, developing and well developed countries have social problems, necessitating the need of a social worker to look into the physical home conditions of the child. A poor home, inadequate lighting, reading material, a noisy home etc all contribute towards poor learning. A child who poorly socialises in school also needs to be helped, particularly at teen-aged period, because at this age, there is a need to provide socially appropriate leisure activities.

The biological rhythm includes an active phase of increased energy consumption alternating with a relaxation phase of energy renewal. The relaxation phase should include mental and emotional relaxation such as cultural and aesthetic activities and entertainment, conversation, and physical relaxation e.g. sport. At teenage, more time is spent outside the home and school; optimal leisure activity is an increasingly important social need.

VIII Psychological Problems In School Children

1. **Enuresis** or bed wetting is a universal problem.
 - (a) primary enuresis may be due to delay in the maturation of the central nervous system.
 - (b) secondary enuresis is due to psychological causes e.g. jealousy, friction at home, excessive strictness, unkindness of a teacher, bullying at school.

Treatment

- i. star chart — motivation
- ii. drugs
- iii. electric alarm buzzer

2. **Constipation** (Obstinate & Soiling)

Always exclude organic disease e.g. spina bifida, meningocoele, and Hirschsprung's disease. Apart from faulty toilet training, constipation and soiling can result from pent up emotional factors, e.g. jealousy, anxiety, excessive punishment, attention seeking device on the part of the child. The cause must be discovered by the paediatrician and psychiatric help is often necessary at a child guidance clinic.

3. **Poor appetite**

A common problem in school children. Breakfast is often skipped. Poor appetite may originate in the weaning period and go on to the school age period. It may result from anxiety or from organic causes, particularly worm infestation. At teenage the increase of weight may make the child deliberately cut down his caloric intake leading to anorexia nervosa, a common problem in teenaged girls.

4. **Sleep Problems**

Almost all children at some stage or other have disturbances of sleep e.g. delay in going to bed, awakening and calling for the mother, early morning awakening, sleep-talking, sleep walking, night mares and restless in sleep.

5. **Nail biting**

Often associated with previous thumb sucking — insecurity and later nervousness, boredom.

6. **Masturbation**

Normally occurs at 6 to 9 years. Reassure parents that this is a normal phenomenon.

7. **Rudeness, aggressiveness and bullying**

Excessive aggressiveness is the result of over-indulgence, over-protectiveness, excessive discipline or lack of discipline at home. It may be an

attention seeking device if the child discovers that he is attracting a lot of attention. A child who is bullied by another child or by the parent or by a teacher may bully others.

The worst thing one can do to an over aggressive child is to bully or punish him. The correct thing to do is to try and find out the cause of the behaviour.

8. Stealing

The child may steal as a subconscious way of revenging himself or someone who is unkind to him or someone of whom he is jealous. A child who steals from the mother only and nobody else suggests a disturbance of mother child relationship. The child needs love, not punishment.

9. Juvenile delinquency

Often isolate children are disliked by peers. The family background will reveal that the father is alcoholic, punitive, unable to give or receive affection. In juvenile delinquency, there is a greater frequency of over crowding, lower parental education, lower social demand and poor recreational facilities.

10. Smoking & Alcohol

Smoking predisposes to cancer and heart disease. Therefore prevent smoking through health education in schools. A bad example set by parents themselves who are smokers and alcoholics will be a bad effect for children.

11. Glue-sniffing - dangerous because of poisonous substances, e.g. benzene and carbon tetrachloride. The child feels exhilaration, but soon

becomes unsteady and drunk. This may lead to double vision, mental disorder, coma and death. Parents should be aware of the dangers of glue-sniffing.

12. Drugs

Health education into the danger of drugs is needed.

13. Adolescent pregnancy

Health education of sex in schools becomes important.

Conclusion

I hope the above discussion will give an idea of the problems one encounters in the life of a school child.

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Sports Medicine in Singapore (1972-1984)

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Introduction

Although Sports Medicine has been practised in some European countries since the early 1900's and the International Sports Medicine Federation (FIMS) was established in 1928, it was only formally introduced to Singapore in 1972. This was in conjunction with the establishment of a Sports Medicine Clinic in the National Sports Promotion Board (NSPB), a Statutory Board of the Singapore Government. Prior to 1972, Sports Medicine in Singapore consisted only of informal medical assistance given to various sports organisations and athletes by a handful of interested doctors. (The term athlete in this article refers to competitive or recreational sportsmen and sportswomen in all types of sports and games).

In 1973, this clinic was transferred to the newly-established Sports Medicine & Research Centre (SM & RC) of the Singapore Sports Council (SSC). The SSC is also a Statutory Board of the Singapore Government, and took over the functions of the NSPB. To date, the SM & RC remains the only formal Sports Medicine Centre in Singapore. The SM & RC is therefore also the focal point for all sports medical activities in Singapore presently. A Sports Medicine Association of Singapore and a Federation of Sports Medicine Associations of ASEAN have been proposed but for various reasons, not yet formed.

The Sports Medicine practised in the SM & RC is consistent with the 1973 Council of Europe's definition that "Sports Medicine is the application of the art and science of medicine from a preventive and therapeutic point of view to the practice of sports and physical activities in order to utilise the opportunities afforded by sport for maintaining or improving health and to avoid possible dangers". It is particularly relevant to note that nowhere in this definition is it stated or implied that Sports Medicine is only or mainly applicable to the competitive athlete. On the contrary, it implies that it is for all, including recreational athletes and sedentary individuals who are apparently normal or even physically or mentally handicapped. This is therefore consistent with the national "Sport for All" policy, which the SSC is responsible for implementing. As an in-

tegral unit of the SSC, the SM & RC assists by making available to the whole population its various sports medical services. This involves the three main areas of Sports Medicine, namely Sports Physiology, Sports Psychology and Sports Traumatology.

The Present Sports Medical Functions, Services & Facilities of the SM & RC

This 1,200 square metre centre situated in the National Stadium, is adequately equipped and presently has ten full-time staff, namely, two trained Sports Medicine doctors, one sports physiotherapist, two nurses, one laboratory technician, one clerical officer, two physical fitness instructors and one attendant.

The SM & RC presently has three main professional sports medical functions and services:

Prevention, Treatment and Rehabilitation Functions

Extended Medical & Physical Fitness Examinations & Assessments (EMPFEA) are conducted daily on those who wish to know their present state of health and fitness. This service is particularly useful for those who intend to take up an exercise programme and require medical clearance and an individualised exercise prescription. The EMPFEA consists of a detailed clinical examination, laboratory blood and urine investigations, and specific tests to determine the following:

- (i) body composition (eg. percent body fat, degree of obesity and ideal body weight.)
- (ii) musculo-skeletal and joint fitness (eg. muscular strength, endurance, power and joint flexibility).
- (iii) cardiorespiratory and circulatory fitness (eg. aerobic fitness) through graded exercise stress tests on the treadmill, bicycle or step ergometer and determination of the maximum oxygen uptake with an automated respiratory gas analyser.

From 1975 to 1983, more than 4,000 EMPFEAS were conducted and those patients found to have medical problems were treated accordingly. Those who require assistance to "get fit and stay fit" the medically-approved and effec-

tive way, are referred to the SSC Health & Fitness Club which is managed by and located in the SM & RC. Here, they are encouraged to participate in the prescribed activities of their thrice-weekly one-hour exercise classes conducted by trained instructors. From 1976 to 1983, more than 780 persons of both sexes with ages ranging from 12 to 65 years, have benefitted from participating in the activities of the exercise classes conducted by the Club. Most of these classes are conducted outside normal office hours to cater to the working person.

Sports injury clinics are conducted daily on an outpatient basis. Those requiring physiotherapy and exercise therapy are referred to the SM & RC's physiotherapy department which is comprehensively equipped. Strengthening and mobilising rehabilitation exercises, an integral aspect in the management of sports injuries, are carried out in the SM & RC's gymnasium, which has a wide range of modern and effective equipment. These include the multi-station Universal Gymnasium isotonic equipment and the Cybex/Orthotron isokinetic equipment for muscle and joint fitness assessment, training, injury treatment and rehabilitation.

In the first 11 years, from 1973 to 1983, the SM & RC recorded more than 80,000 attendances for medical consultations and physiotherapy treatments.

Medical cover and assistance for sporting events held in Singapore and overseas (when Singapore sends a sports contingent), are preventive and treatment services which the SM & RC is also actively involved in. Each year, the SM & RC assists in more than 140 such events. An example is the SM & RC's active involvement in all the medical aspects of the 12th SEA Games held in Singapore in 1983. The main aims are to minimise the occurrence of preventable medical problems and to provide the best possible treatment for those that do arise. When necessary, interested volunteer doctors and National Service doctors from the SAF and Police and first aiders from the SAF, St John's Ambulance Brigade (SJAB) and Red Cross Society (RCS) are recruited to assist. All 48 National Sports Associations are also encouraged to form their own medical committees, with technical and logistic assistance by the SM & RC, when required.

Instruction and Health Education Functions

Unless people are sufficiently aware of the benefits afforded by regular participation in sports and other physical activities, it is unlikely that they would indulge in such activities as recom-

mended. For this reason, talks, lectures, film shows, demonstrations, exhibitions and informative publications are regularly organised and provided. An average of more than 40 hours of such talks are given each year. To ensure a wider spread, an average of ten such contributions are also made each year through the mass media (ie. newspapers, magazines, radio and television). In 1983 and 1984, the Singapore Broadcasting Corporation started a weekly "Keep Fit" programme on television, with the technical assistance of the SM & RC. Articles by the SM & RC on various aspects of exercise, health and physical fitness were also published regularly in the Straits Times newspaper and Teenscope, a magazine for secondary school-children.

Ten hours of lectures on sports anatomy, physiology, psychology and common medical problems in sports are given to those undergoing the Basic Coaching Course introduced in 1976 and organised by the SSC in conjunction with the National Sports Associations. 26 - 28 hours of more detailed lectures and practicals are given to those undergoing the Advanced Coaching Course introduced in 1981. The aims of these lectures and practicals are to ensure that such coaches have reasonable knowledge of the scientific and medical aspects of training and coaching in sports. Similar lectures are also given to teachers undergoing the Physical Education Course in the Institute of Education. In 1976, a SM & RC medical officer was invited by the School of Postgraduate Medical Studies of the National University of Singapore to give lectures related to Sports Medicine. By 1983, regular lectures on exercise physiology were given to medical, science, dental and pharmacy students and occupational physiology to doctors undergoing the postgraduate Master of Science (Occupational Medicine) degree course. Talks, lectures and demonstrations on exercise physiology and sports injury management have also been given to private medical practitioners, doctors in the SAF and Accident & Emergency Departments of the Ministry of Health as well as first aiders in SJAB and RCS. In 1983, the SM & RC conducted a comprehensive one-week upgrading and updating course in Sports Medicine and related fields for more than 40 doctors, physiotherapists and nurses who were directly involved in providing medical and first aid assistance at the 12th SEA Games.

The SM & RC assisted the SAF and the Republic of Singapore Air Force's Aeromedical Centre to set up their Physical Performance Laboratories in 1979 and 1983 respectively. Training for their staff on fitness testing and the use of equipment for such testing was also provided. From 1979 to

1983, 34 local and overseas doctors, exercise physiologists, physical educationists, physiotherapists, nurses, laboratory technicians and medical orderlies have received some training in the various aspects of Sports Medicine and fitness training and assessment in the SM & RC. Among the physiotherapists attached to the SM & RC are those on World Health Organisation training scholarships or programmes. In 1982, the SM & RC was accepted as a recognised centre for the Colombo Plan Senior Fellowship in Sports Medicine Training Award programme. A doctor from Thailand and another from Nepal were the first two recipients of this fellowship to receive training in the SM & RC.

In 1982 and 1983, the SM & RC provided technical assistance to more than 30 organisations in the public and private sectors to start employee or staff physical fitness programmes. These programmes, designed by the SM & RC, are to help sedentary office workers participate in low level callisthenic and aerobic activities to help improve their level of overall health and fitness. The programmes are designed so that they can be conducted within the office premises and either just before, during or after normal office hours. The time required for each exercise class is about 30 minutes. The SM & RC also provides free training to staff from these organisations to enable them to instruct and conduct these exercise classes.

The SM & RC provides technical assistance and produces publications and display boards to educate and inform the public on exercise, health, physical fitness and the prevention and first aid treatment of sports injuries. Examples of such publications are the pamphlets on "Jogging for Health & Fitness", "Swimming for Health & Fitness", "How Different Sports Rate in Promoting Physical Fitness", "How to Get Fit and Stay Fit" and "Guidelines on the Prevention & Treatment of Sports Injuries". The SM & RC was instrumental in the organisation of the first "Sport for All" exhibition held in 1977 in conjunction with the first Pan Pacific Congress in Sports Medicine which was held in Singapore. The second "Sport for All" exhibition was held in 1983 in conjunction with the first International Sports Science Conference which was also held in Singapore. In 1982, the SM & RC was actively involved with the "Sports Science and Fitness" exhibition which was jointly organised by the SSC and the Singapore Science Centre. All these exhibitions were open to the public.

The SM & RC also liaises with the Training & Health Education Department of the Ministry of Health to help them in their efforts to promote

exercise as one of the ways to reduce the frequency and severity of diseases associated with physical inactivity, such as coronary heart disease, high blood pressure and obesity. In 1978, the SM & RC assisted the Ministry of Health start the first Cardiac Rehabilitation Programme in Singapore at the Singapore General Hospital. This programme utilises judicious exercise as one of the ways to help patients with, or at high risk of developing, coronary heart disease to recover faster and better, thereby enabling them to resume normal daily activities sooner and hopefully with less risk of a recurrence of heart attacks. Since 1980, those patients who have "graduated" from this Cardiac Rehabilitation Programme have joined the Singapore Coronary Club's Exercise Prescription Programme which is conducted in the SM & RC. In 1979, the SM & RC provided assistance to the Ministry of Health's National Health Campaign, which included the recommendation for people to "Exercise Regularly" as one of its objectives.

The SM & RC continues to be actively involved with local scientific meetings on Sports Medicine, Physical Fitness, Physical Education and Sports Science. Such meetings provide the SM & RC staff and other local delegates with the opportunity of upgrading, updating and sharing their knowledge in these fields.

Basic and Applied Sports Medical Research Functions

Relevant sports medical research studies are continually being carried out in the SM & RC. The main aim presently is to provide scientific and medical support to the national "Sport for All" policy. The development of local nomograms for the various parameters of fitness is one of the main objectives, as such nomograms would enable people in Singapore to compare their levels of fitness and thereafter take the necessary remedial action. The establishment in 1979 of the SM & RC Physical Fitness Nomograms Subcommittee, which includes representatives from interested organisations such as the Ministries of Defence, Education and Health, Police Force and National University of Singapore, helped facilitate this objective. The development of the six test items and standards of the National Physical Fitness Award (NAPFA) Scheme, which was launched in 1982, was one of the main applied research projects of the SM & RC and this Subcommittee.

Specific research studies on competitive athletes are carried out to assist these athletes achieve higher levels of fitness and better performances.

Research studies on other relevant topics are also carried out in collaboration with doctors and other scientists from the National University of Singapore and the Ministries of Health, Defence and Education. From 1976 to 1983, the SM & RC was involved in more than 30 research projects, the results of which provided data for more than 60 scientific papers which the SM & RC staff have presented or published.

Summary and Conclusion

Sports Medicine in Singapore has progressed satisfactorily since its formal introduction in 1972. Its main role is to assist and support the national "Sport for All" policy and thereby to assist as many people in Singapore as possible to "get fit and stay fit" safely and effectively, so that they may "add life to their years while hoping also to add years to their lives". It must

however be emphasised that competitive athletes are not totally neglected and are given whatever assistance are available in the SM & RC. Although this assistance is not as extensive compared with those available in the larger, more affluent and advanced countries, it is much more than was ever available prior to Sports Medicine making its formal appearance in Singapore. This need to divide the present limited sports medical resources between the larger number of sedentary and non-competitive recreational members of the public and the relatively smaller number of competitive athletes, is a practical and pragmatic approach to a difficult problem. This is particularly so for a relatively new field of medicine in a small developing country with limited financial and manpower resources and which has no intentions of utilising success in the international sporting arena for political or other purposes.

Management of the rape victim

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According to legal statistics, rape is one of the fastest growing crimes in the United States and even in Singapore there is an increasing trend though not as dramatic as in the United States. Most experts believe that only a small proportion of rape cases are reported. Many victims are just too ashamed or too frightened to take the case to court. Information about the rapists in Singapore is very scanty. However, many studies in the United States have shown that the object of the rapist is not so much sexual gratification but rather humiliation of the female in order to prove his virility. (Hicks and Good) Often the female is regarded more as an object than as a person and many rapists cannot even remember the appearance of the victim a short time after the attack. Also with each succeeding attack, the violence tends to increase. Where the victim is concerned, it must be remembered that the psychological damage in most instances far outweighs the physical trauma. In fact, in numerous studies, physical trauma occurred only in a small proportion of cases.

It is not often that a general practitioner is called upon to see a rape victim but when this happens, he should proceed with care and caution — care for the patient's wellbeing as she is often hysterical or very upset emotionally and caution in that he must take a detailed history and make an accurate and thorough examination because of the likelihood of legal proceedings in the course of which his findings and his expertise may be called into question.

Where possible, it is usually best to send the patient to a centre where rape cases are routinely handled e.g. Kandang Kerbau Hospital. The experienced general practitioner will, of course, proceed to manage the case. It must be emphasized that there is no place for the novice here whether he is a general practitioner or specialist, as vital evidence may be missed, thus allowing the assailant to go scotfree in an otherwise simple case; the doctor may also not go unscathed in that he may be held up to ridicule in court or worse still, be reprimanded for improper collection of evidence. Once the acute phase is over, the general practitioner, in the Singapore context, has an important role to play in managing the psychological aftermaths or problems that the patients will encounter.

It is useful to bear in mind 4 objectives in the management of these cases:

- 1) Repair of the physical injury.
- 2) Prevention of venereal disease.
- 3) Prevention of pregnancy.
- 4) Healing the psychological trauma.

When first seen, the rape victim is often extremely distraught; she may be crying, sometimes angry and occasionally hysterical. Patience and a sympathetic ear are essential. A detailed history is taken or where this is not possible e.g. from an incoherent or comatose patient, from the relatives or any eyewitnesses who may have brought her. In particular the following facts must be elicited as accurately as possible:

- i) what actually happened.
- ii) whether any physical assault took place and if so, whether any objects e.g. knives, sticks, etc were used or was the patient so frightened that she submitted to every command.
- iii) was more than 1 person involved.

Besides this, a routine general history (e.g. past medical and surgical history, family history, etc) should also be taken and in particular the past obstetric and gynecological history e.g. how many children, whether normal deliveries, any gynecological operations, whether the patient was a virgin, etc.

Before proceeding, written consent for examination must be signed and witnessed.

The physical examination must be thorough. Firstly, the time, date and place of examination must be recorded. Secondly, a female chaperon or nurse must always be present at all stages of the history taking and examination which may be divided into 3 sections:

- i) a general examination
- ii) examination of the pelvic and genital area
- iii) examination of the clothes

The general examination would, of course, include taking the pulse, blood pressure, temperature, listening to heart sounds, etc. Specifically the following findings must be recorded.

- a) The mental state of the patient whether excited or calm, rational or confused, tearful or happy.
- b) The skin and general musculature of the patient both front and back. All too often, the inexperienced doctor may forget to look at the back of the patient who is lying on the couch with any injury to the groin. Bruises, bitemarks, cuts, lacerations, scratches must be documented, in particular the size and site.

Examination of the genital and pelvic area would, of course, include inspection of the introitus, vulva and abdomen for any cuts, bruises or other injury; in particular the hymen should be inspected for any fresh tears; a vaginal and rectal examination must then be performed; the size and direction (whether anteverted or retroverted) of the uterus, any adnexal swellings, any vaginal ulcers must be noted.

In the process of the examination, samples of the vaginal secretions or discharge must be taken for microscopy (for sperms, gonococci, etc) and culture (for GC, herpes and other pathogens). Blood must also be taken for serological tests for venereal disease in particular syphilis and gonorrhoea.

The clothes are then inspected for any blood, semen, hairs, etc and samples are taken where appropriate, and sent to the laboratory. Since space here is limited, those interested for more details should refer to the references at the back for a full and comprehensive description.

Since a sizeable proportion of rape victims are prepubertal, it is important for the physician to win over the cooperation and trust of the child in order to obtain an accurate history and to perform a proper examination. The introitus and vaginal orifice are inspected and in cases of penetrating injuries, examination under anaesthesia will be necessary. Where injuries are severe, it must be emphasized that treatment of the injury takes precedence over collection of medico-legal evidence.

Treatment

1) Repair of the injury

Cuts should be sutured and likewise bleeding or large vaginal tears; small mucosal tears which are not bleeding may be left alone to heal. Fractures should, of course be reset and stab wounds explored. Examination and repair under anaesthesia may be necessary by an experienced gynecologist.

As a precaution, tetanus toxoid should be given in those cases with skin trauma.

2) Prevention of pregnancy.

This is obviously important as pregnancy as a result of forcible intercourse is like adding insult to injury. Fortunately, pregnancy following rape is rare. Patients already on contraception e.g. pill or intrauterine contraceptive device need only be observed. Those unprotected, may be given a course of Diethyl Stilboestrol 25mg twice a day for 5 days within 72 hours of sexual intercourse. This is very effective in preventing pregnancy (Kuchera et. al reported no pregnancy in 1217 patients on this regime). Since nausea and vomiting often occur after such large doses of oestrogen, these patients may be given an antiemetic e.g. Stemetil while on this medication. Alternatively, the contraceptive pill may be given 3 to 4 times a day for 2 to 3 days.

Abortion should be offered to those patients who are pregnant. In these cases, the rape victim is often too frightened or too ignorant (e.g. mentally subnormal cases) to report the first rape incident and indeed may have been repeatedly raped over a period of time. Vacuum aspiration may be performed to terminate first trimester pregnancies and intra-amniotic or intra-muscular Prostaglandins injections may be used to effect mid-trimester abortion.

3) Prevention of venereal disease.

In the Singapore context, transmission of venereal disease following rape is rare. Nevertheless, the victim should be offered preventive measures. There are various regimes e.g. 4.8 mega units of Procaine Penicillin in 2 IM injections of 2.4 megaunits each together with 1G Probenecid orally. Alternatively, 2G Spectinomycin im or Tetracycline 1.5G oral stat and 500mg 6 hourly x 15 days may be given. These measures would prevent gonorrhoea in most cases. Penicillin would also prevent the incubation of syphilis as well. Nevertheless, repeat high vaginal swab, cervical smears for culture and microscopy and serological tests for syphilis and gonorrhoea should be repeated 3 to 6 weeks later. A pregnancy test should also be done if the period is missed at this time.

4) Healing the psychological trauma.

Rape creates a psychological crisis and a sense of loss. The crisis appears in that there is a threat of bodily harm and how the patient copes with this depends on her previous life experiences in coping with failure or loss. The rape victim may suffer a loss of virginity, a loss of esteem or

respect for herself or from her colleagues, and a loss of cleanliness. Often the rape victim fears the loss of a close personal relationship in that her fiancé or husband may reject her.

Many studies have been done on the psychological sequelae and these are protean. The sequelae can broadly be divided into:

a) an acute disorganised phase occurring for the first few hours following the assault (Burgess and Holmstrom) during which the patient may exhibit a wide variety of emotions ranging from "shock", fear and anger, desire for revenge to disbelief and an air of exaggerated calm.

b) a long term reorganisation phase which usually persists for weeks and sometimes years after the rape during which the patient may complain of vaginal soreness and itchiness, dysuria, insomnia, headaches and abdominal pains.

Most patients recover well from the assault and are able to carry on with their normal lives. Some, unfortunately, are unable to cope and are unable to relate emotionally with their male partners. The pain and fear from the rape incident may be so great that the patient avoids all attempts at sexual intercourse.

The role of the physician during all this time is supportive and it is important that relatives and close friends are brought in as well to give the patient the support so necessary to increase her self esteem. The patient is encouraged to talk about her problems, her fears and her attitude towards her assailant, men and society. The patient should be allowed to talk freely. The physician should show care, and be available on a long-term basis so that the patient knows that there is someone who cares and also shows confidence that the patient will adapt and recover fully.

Rape crises centres with trained counsellors and physicians have been set up in many parts of the United States where rape is common. Those victims who have adapted successfully may be brought in to help the new victims. It would be time to set up such a centre in Singapore should the incidence of rape increase further.

Appearing in court

The majority of rape cases are not brought to trial, either because the assailant cannot be

found or there is insufficient evidence or the assailant pleads guilty.

In any court case, the physician is well advised to be

a) objective and impartial in his testimony

b) knowledgeable e.g. he should know what constitutes virginity, how long sperms stay alive in the vagina, etc and be able to give brief and precise answers using layman's language. Where he is ignorant or when he cannot understand a question, he should say so unhesitatingly and never prevaricate.

Although this is not a pleasant task, the time is well spent in the interests of the patient and of society in that further rapes may be prevented.

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Recent advances in the treatment of Gonorrhoea

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Introduction

The search for new antimicrobial agents effective against the gonococcus continues unrelentingly. Indeed the numbers involved are now so great that it is difficult sometimes to keep abreast of developments in this area. Innumerable drugs have been evaluated with variable results both by the pharmaceutical industry and by independent clinicians. The results of drug trials are often enticingly open to erroneous extrapolations. Due to variations in the antimicrobial susceptibility of strains between regions, any agent shown to be effective in clinical studies conducted in a region needs still to be evaluated in the population for which it is intended before its use can be recommended. Many studies have shown that the success of antibiotic therapy of gonorrhoea is dependent on the in-vitro sensitivity of the infecting strains. Decreasing in-vitro sensitivities to penicillin have caused a shift in the recommended therapy for uncomplicated gonorrhoea over the years. Singapore, like many countries in the Far East has witnessed an increase in the prevalence of relatively penicillin resistant strains. Indeed, 80% or 71 of 89 isolates recovered during a recent study were relatively or highly resistant against penicillin (MICs to penicillin ≥ 0.125 ug/ml). As strains with decreased sensitivity to penicillin became more prevalent, it was necessary to increase the dose of penicillin to a new regimen of 4.5 mega units of procaine penicillin plus 1g of probenecid. The emergence of high penicillin resistant strains of *N. gonorrhoeae* that contain plasmids encoding production of a B-lactamase in 1976 have outmoded even this therapy in Singapore. The proportion of PPNG infections have increased from 0.07% in 1976 to 19.2% in 1979 and 32.4% in 1983. Kanamycin had been shown to be effective treatment for gonorrhoea by previous investigators^{1,2} and a retrospective study of PPNG cases seen in Middle Road Hospital between Nov 1976 and Aug 1978 confirmed its efficacy in the treatment of such cases. Kanamycin in a single intramuscular dose of 2g cured 98% of PPNG cases.³ Henceforth, kanamycin was frequently used as treatment for gonorrhoea and became the first line drug in 1981.

However a significant increase in the incidence of early syphilis between 1979 and 1981 prompted a review of recommended therapy. In the past

high dose penicillins had been used as first line treatment and it is believed that this regimen also eradicated incubating syphilis. The change of therapy in favour of kanamycin, a non-treponemocidal drug was considered to be a possible cause for the increase. A combination therapy comprising of kanamycin 2g, ampicillin 3.5g and probenecid 1g was therefore introduced as first line treatment in June 1982 to circumvent this problem and to eradicate non-PPNG strains which were beginning to develop chromosomal resistance to kanamycin. Such a modification has however failed to produce the desired effect: the incidence of early syphilis continues to increase.

Several antimicrobial agents have been evaluated in Middle Road Hospital over the years.⁴ Tetracyclines and co-trimoxazole produced poor therapeutic results⁴ whilst spectinomycin produced a favourable cure rate of 98% in Singapore.⁵

Recent Developments

An orally effective agent is obviously desirable and a variety of such drugs have been evaluated for efficacy against the gonococcus. These include drugs like rosoxacin, Augmentin, thiamphenicol and rifampicin, all of which the stable to B-lactamase.

The most promising drugs with enhanced activity against B-lactamase strains however appear to be the 2nd and 3rd generation cephalosporins (see Table 1).

In vitro studies have confirmed that the 2nd and 3rd generation cephalosporins possess potent activity against both B-lactamase and non B-lactamase producing *N. gonorrhoeae* (see Table 2). Of these, ceftriaxone and ceftizoxime appear to be the most active.

The clinical efficacy of two of these promising new cephalosporins have recently been assessed in Middle Road Hospital. The results of two studies conducted in Middle Road Hospital are reported below. The other 3rd generation cephalosporins have not been fully evaluated yet.

Cefotaxime⁶:-

Cefotaxime (Claforan) was used in a single intramuscular dose of 500 mg plus probenecid 1g orally in the treatment of PPNG and non-PPNG infections with excellent results. Cure rates were

98.18% and 95.74% respectively. The authors concluded that cefotaxime is an effective and safe alternative in the treatment of gonorrhoea caused by both PPNG and non-PPNG strains.

Ceftriaxone⁹:-

Ceftriaxone (Rocephin) was used in a single intramuscular dose with oral probenecid to treat uncomplicated gonococcal infections. Three different doses were used 125 mg, 62.5 mg and 32.25 mg. The cure rates for PPNG infections with all three doses was 100%. For non-PPNG infections the respective cure rate were 100%, 96.2% and 97.3%. The authors recommended that in the light of increasing partial resistance of South East Asian gonococcal strains to several antibiotics the optimum dose should not be less than 125 mg IM although smaller doses also produced acceptable cure rates. It has subsequently been shown that probenecid has no effect on the pharmacokinetics of ceftriaxone (data on file, Hoffman La Roche Inc). The dose recommended by the manufacturers is 250 mg IM.

Our experience and the experience of others with the more promising orally active agents are reported below:-

Rosoxacin¹¹:-

Rosoxacin (Eradacil) in a single oral dose of 300 mg resulted in an overall cure rate of 94% while that of PPNG and non-PPNG infections were 96.7% and 90% respectively. A correlation between treatment failure and MICs for rosoxacin was noted in non-PPNG infections: 43% of non-PPNG strains with MICs of 0.125 ug/ml persisted inspite of treatment compared with only 3% of similar strains with MICs of 0.008 - 0.06 ug/ml. A substantial increase in the MICs of post-treatment isolates from 2 patients whose treatment with rosoxacin failed was also worrying. Rosoxacin may however, still have a place in the treatment of PPNG infections. The rather disappointing cure rate (90%) with non-PPNG infections coupled with the observation of increased in vitro resistance of persisting strains indicate that it cannot be recommended for the treatment of all cases of gonorrhoea in our population.

Augmentin (Amoxycillin + Clavulanic acid)¹²:-

Preliminary studies (unpublished) on the use of single dose Augmentin in the treatment of gonorrhoea showed unacceptably high failure rates. A subsequent study using two oral doses of Augmentin (Amoxycillin 3g + Clavulanic acid 250 mg) separated by a 4 hour interval resulted in an

overall cure rate of 95.9%. The regimen was equally effective for the treatment of both PPNG and non-PPNG infections. The cure rates were 96.6% and 95.6% respectively. The authors concluded that the 2-dose Augmentin regimen has good efficacy against all strains of *N. gonorrhoeae* and that its use can be considered in PPNG prevalent areas.

Thiamphenicol:-

Heinke¹³ reported an overall cure rate of 98.1% with thiamphenicol 2.5g orally. More recently, Tupasi et al¹⁴ reported a cure rate of 98.3% and 92.5% for PPNG and non-PPNG infections respectively. The overall cure rate was 94.2%. These results suggest that thiamphenicol may have a limited role in the treatment of PPNG infections. The haematological side effects, however, are somewhat worrying.

Rifampicin:-

Pannikabutra¹⁵ reported a cure rate of 90.8% with rifampicin in a single oral dose of 1200 mg. A similar cure rate of 91.3% was obtained by Belli et al¹⁶ in a more recent study. Its use in PPNG infections has not been fully evaluated. There is also one serious pharmacological drawback to the use of rifampicin for the treatment of gonorrhoea: organisms undergo an apparent one-step mutation to high level resistance. Furthermore, there is the theoretical possibility that its widespread use may originate resistance in either *M. leprae* or *M. tuberculosis*.

The Ideal Antimicrobial Agent?

Efficacy is only one of several considerations when there are more than one effective antimicrobial agent. Choosing a first line regimen must be done within the context of considerations of cost, toxicity and overall effect on the control of disease.

The ideal antibiotic should be:-

1. 100% effective.
2. Given as a single standardized dose.
3. Available at reasonable cost.
4. Free of toxic, allergic and microbiological side effects eg. development of resistance.
5. Capable of completely aborting simultaneously acquired or co-existing treponemal infection.

From an epidemiological stand-point effective treatment should be one which gives at least 95% cure rates.

As PPNG strains are prevalent in Singapore a first line drug should be one effective against these strains. Unpublished data shows that the present first line therapy comprising of kanamycin,

ampicillin and probenecid results in a high cure rate of about 97%. However, the failure of this regimen to halt or reverse the increasing incidence of early syphilis indicates that alternative therapy needs to be considered.

Spectinomycin 2g gives a good cure rate of 98%⁵. However, spectinomycin will also not abort incubating syphilis. A recent study (awaiting publication) carried out in Middle Road Hospital also showed that *C. trachomatis* could be recovered from 19.2% of male patients with gonococcal urethritis. In view of the significant recovery rate of *C. trachomatis* the ideal antibiotic should preferably also be effective against *C. trachomatis*. Obviously the ideal antibiotic may not exist but initial reports on the efficacy of ceftriaxone in experimental syphilis in rabbits are promising. Ceftriaxone also has moderate in-vitro activity against *C. trachomatis*. Clinical trials are being organised in Middle Road Hospital to evaluate its efficacy in primary and secondary syphilis.

Cost Considerations

The ability of the gonococcus to evolve into more resistant strains emphasize the need for vigilance. Current antibiotic regimens need to be evaluated periodically, if not continuously for any change in efficacy. The effect that therapy may have on the incidence of other sexually transmitted diseases eg. syphilis must also be taken into account. New antimicrobial agents must be evaluated and the use of slightly more expensive regimens should be considered if there are added advantages. The costs of different treatment regimens for uncomplicated gonococcal infections are given in Table 3.

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Table 1 — Cephalosporins

First generation

cephalexin)	
cephradine)	
cephalothin)	Not B-lactamase stable
cephazolin)	
cefaclor)	

Second generation

cefamandole)	
cefuroxime)	B-lactamase stable
cefoxitin)	

Third generation

cefotaxime)	
ceftizoxime)	
cefoperazone)	
ceftriaxone)	B-lactamase stable
cefonicid)	
cefotiam)	

Table 3 — Costs of anti-gonococcal regimens

Regimen	DIMS Price
Kanamycin 2g) Ampicillin 3.5g) Probenecid 1g)	\$4.51
Spectinomycin 2g	\$17.29
Cefotaxime 0.5g) Probenecid 1g)	\$20.36
Gentamicin 280mg	\$23.25
Ceftriaxone 250mg	\$9.64
Rifampicin 1200mg	\$7.92 — \$15.00
Thiamphenicol 2.5g	\$3.00
Rosoxacin 300mg	\$12.00
Amoxycillin 2.5g) Augmentin* 2) x 2 capsules) doses	\$26.30

*1 capsule Augmentin contains amoxycillin 250mg and clavulanic acid 125mg.

Table 2 — MICs for some 3rd generation cephalosporins (in µg per ml)

Cephalosporin	PPNG	Non-PPNG	Reference
Cefotaxime	≤ 0.0005 — 0.06	≤ 0.0005 — 0.06	6, 7, 8
Ceftizoxime	≤ 0.0005 — 0.008	≤ 0.0005 — 0.008	8
Cefoperazone	0.0018 — 0.25	0.0037 — 0.125	6
Ceftriaxone	0.000063 — 0.015	0.000063 — 0.125	6, 9, 10
Cefonicid	≤ 0.06 — 0.05	≤ 0.015 — 1	10
Cefotiam	≤ 0.015 — 0.125	≤ 0.015 — 1	10

Counselling Parents of handicapped children

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It takes tact and understanding to explain to the parents the presence of a chronic illness in their child. It takes a double measure of these qualities on the part of the physician to inform parents that their child is mentally retarded and will remain so for the rest of his life. The tragedy of a mentally subnormal child is greater for the parents than for the child.

Most parents suffer a guilt complex. The physician can ease their conscience by assuming that they are not to be blamed for their child's condition. Most parents develop a persecution complex. They feel that everybody looks down on them or pities them. A parents' group make parents feel that they are not alone in their misfortune. There are hundreds of parents in every walk of life who are in the same situation as they are.

Development:—

Whatever the etiology the development of the child will be slow and co-operation between the parents is important in the bringing up of the child. The developmental milestones of the child will be retarded in relation to the child's neurological development and will be slow in all areas of development. The parents should be given a definite programme to follow which includes nutritional care, medical treatment and educational planning.

Nutritional Care:—

Parents need special instructions on the nutritional care and feeding of the retarded child. Most of the children in the early years of their development are slow in feeding and much patience is needed in feeding such a child. The severely retarded are thin and anaemic.

Some need spoon-feeding, others need tube feeding. Many of the children have poor teeth and cannot masticate well. They need a specially prescribed diet. All children need vitamins in addition to their regular food intake.

Medical Treatment:—

Every retarded child is entitled to good medical care and periodic check-up. This is particularly true for convulsions which can be controlled by proper anti-convulsive drugs. Cretinism or hypothyroidism need thyroxin therapy for life.

On the whole there is no wonder drug for the cure of mental subnormality but the retarded

child should receive good medical care just like a normal child.

Many mothers now have to work. It is better for parents to look after the child themselves as no outsider can give the child the attention and devotion they can.

Relation to other children:—

The effect of the retarded child on the other normal children is a question that often comes up. The normal children, on the whole, do not show any animosity or shame toward their handicapped brother or sister if they are told that the development of the sibling is slow and consequently different from other children of that age. In fact they go out of their way to show their love for the "baby" of the family and to protect the child at all times.

Parents often ask if future children will be affected. A lot depends on the etiology. If the retardation is environmental at the time or after birth, the chance of having future normal children is good. If genetic, risk figures can be worked out. If no cause is found, then one has to accept whatever comes.

Education:—

These children need special education and, therefore, need special schools. Trained staff are needed, and often a team is necessary, consisting of paediatricians, psychologists, therapists, and teachers of the mentally subnormal children. The following 10 commandments from the mentally retarded child have provided a useful guide for parents.

Ten Commandments for Parents:—

1. Get medical advice early and follow the program outlined.
2. Don't adopt a defeatist attitude.
3. Don't develop a complex of guilt or shame.
4. Don't neglect your normal children because of your retarded child.
5. Don't pauperise yourself to give your child expensive schooling you cannot afford.
6. Don't try to push your child beyond his capabilities.
7. Try to meet your child's emotional problems.
8. Don't be afraid to have other children.
9. Do not covet the child of your neighbour.
10. Help further the cause of the mentally retarded.

Prevention is better

Until recently, it has been customary to pay inadequate attention to research into the primary prevention of chronic non-communicable diseases. But today, emphasis on prevention has become one of the key strategic approaches to public health care in the Soviet Union.

E I CHAZOV

On the economically developed society of today, it is the chronic non-specific diseases of various organs and bodily systems that are responsible for the greatest increase in morbidity and mortality, and for an appreciable loss of productivity. This drain of human resources, which also takes its toll in spiritual and material terms, stems mainly from cardiovascular diseases, malignant neoplasms, and diseases of the respiratory organs. Cardiovascular diseases alone each year claim some 1,400,000 lives in the Soviet Union.

Medical research and the efforts of the health services were for a long time directed towards the search for better methods to diagnose and treat chronic non-communicable diseases. This led to new diagnostic equipment, many new drugs and surgical techniques, better ways of treating sufferers from myocardial infarction, localised malignant neoplasms and chronic non-specific lung diseases.

But inadequate attention was paid to research into the primary prevention of chronic non-communicable diseases. Today this has become one of the key strategic approaches to health care.

It would be unfair to say that nothing has been done in preventive medicine. Its importance for the development of the Soviet Union's health care system has long been stressed, and has resulted in revolutionary improvements in the control of infectious diseases for which the primary sources and the mechanism of their action were clear. There has been great progress, for instance, in the prevention and control of rheumatic fever. As yet, however, that is the sum total of our success in preventing chronic non-communicable diseases. Until recently, morbidity from cardiovascular diseases, malignant neoplasms and diseases of the respiratory organs has steadily risen.

There are four main limiting factors which stand in the way of practical prevention. The first is the lack of clear, scientifically based concepts of the precise causes and mechanisms of most of these diseases, whether it be atherosclerosis, stomach cancer, pulmonary emphysema

or cirrhosis of the liver. Secondly, in most instances we lack precise information about the damaging effect of various environmental factors and their connection with the genetic conditioning of the pathological process.

Thirdly, we have paid inadequate attention to the moral and psychological factors which contribute to a healthy mode of life. Indeed, scientists have still not produced a generally accepted concept of good health. Because scientific data is lacking on the possible health consequences of various aspects of life, traditions and habits, which may differ appreciably in members from different age groups, occupations and countries, we have no precise knowledge about their positive or negative effect on the inception or cause of a pathological process, and no criteria for assessing this influence.

The fourth and final limiting factor is that our health service institutions are only just beginning to work out and implement their strategic approaches to the primary prevention of chronic non-communicable diseases. Who actually defines the prevention of these diseases, and who then actually carries it out — the specialist (whether cardiologist, oncologist, pulmonologist or gastroenterologist) or the physician in general practice (the district physician, the factory doctor or the school doctor)? And is that person the only one responsible for seeing that preventive work is effective?

Preventive medicine is a great social task, and not merely a set of problems in medical science and health care. This is why we intend to set up an Inter-departmental Council for questions of preventive medicine, and to involve governmental, trade union, voluntary organizations and the mass media in this work.

There can be no doubt that creating general integrated programmes will be possible only on the basis of specialised research and methodological approaches. Only the specialists can give a sufficiently precise account of the significance of any given factor in the development of a particular pathological process, and only they can define the best ways of excluding the harmful effect of any given risk factor. For example,

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cardiologists have demonstrated the significance of five main risk factors for the genesis of the most widely occurring cardiovascular diseases. These are arterial hypertension, smoking, hypercholesterolaemia, excess weight and reduced physical activity: and they are present in between 75 and 83 per cent of males between the age of 40 and 59. Mortality from ischaemic heart disease among those affected by three risk factors (overweight, arterial hypertension and smoking, for instance) was 6 to 10 times the mortality among persons of the same age but without risk factors.

Both Soviet and American cardiologists have shown that controlling these risk factors reduces morbidity and mortality from ischaemic heart disease, myocardial infarction and atherosclerotic cardiosclerosis. The Institute of Neurology, Academy of Medical Sciences of the USSR, and a number of American, British and Japanese clinics have also demonstrated that the frequency of strokes can be reduced by taking action against these risk factors. If we add the observations of endocrinologists on the part played by incorrect diet, smoking and arterial hypertension in the development of diabetes mellitus, we can understand the importance of preventing chronic non-communicable diseases through integrated and specialised preventive programmes.

One prime target is the control of smoking, the main risk factor both for ischaemic heart disease and for lung cancer, as well as for peptic ulcer and chronic diseases of the lungs and other organs. Other targets are adequate physical activity as a means for preventing not only heart disease but also diseases of the lungs, and rational diet to control excess weight and help to prevent atherosclerosis, diabetes mellitus, peptic ulcer and colitis.

If we summarise the range of measures for preventing chronic non-communicable diseases, they constitute a definitive code of rules of behaviour, habits and life styles that is essential if health is to be maintained. They amount to a set of conditions defining a healthy way of life and indicating how to keep fit and become fitter. It is important to stress that carrying them out may also appreciably affect the genetic conditioning of various diseases. Research has shown that the likelihood of cardiovascular diseases occurring in particular ethnic groups may be increased or decreased when living conditions, diet and the nervous and mental stress pattern are altered. Thus, myocardial infarction is less common among Muscovites living in Chukotka (in the Soviet Far East) than among those who remain in Moscow. This question of the relationship between the genetic and environmental factors in the occurrence of a whole number of chronic non-communicable diseases undoubtedly deserves

further study.

It has also been shown that the roots of most diseases extend right back to childhood and adolescence, and this must be our starting point when we seek to establish the harmful action of risk factors and to devise effective counter-measures. So when the basis for prevention is the creation of conditions for a healthy mode of life, it is essential to begin in childhood and adolescence. This is why the school doctor, youth groups like the Pioneer and Komsomol organizations, the staff of schools and institutes of higher education, and the organizers of sports have a growing role to play in the prevention of chronic non-communicable diseases.

In such programmes, we have to make allowances for the fact that they are intended for young people who consider themselves to be completely fit, are extremely sceptical about preventive measures, may be hostile to having to meet the medical staff, and regard their health as a deeply personal matter. It is far more difficult to work among such a population than, for example, among individuals between the ages of 40 and 50 who are aware of possible diseases, may notice early symptoms, and perhaps are already sick.

The preventive measures that have been most closely investigated are those concerned with the control of arterial hypertension. A programme put forward by the All-Union Cardiological Research Centre of the Academy of Medical Sciences of the USSR, which takes certain social factors into consideration as well as medical ones, does show that the course of arterial hypertension can be actively influenced and normal levels of blood pressure can be restored in the population. Research involving more than 55,000 sufferers from arterial hypertension between the ages of 30 and 54, and carried out by cardiologists in 20 cities in the USSR, indicated that the proportion of individuals aware of their raised blood pressure and receiving adequate treatment increased from 21 to 62 per cent within a year, and that the effectiveness of treatment was trebled.

The creation of integrated programmes for the prevention, monitoring and treatment of non-communicable diseases is clearly of prime importance. The Institute of Preventive Cardiology, which forms part of the All-Union Cardiological Research Centre, has put forward one such integrated programme for a Moscow district, and this is being actively supported by WHO. The programme recognises that the first task of all workers in the health service and in medical science is to organize extensive and effective preventive measures with a view of reducing the morbidity, mortality and temporary loss of working capacity which arise from chronic non-communicable diseases. ■

HOME STUDY SECTION

Nasopharyngeal cancer — an update

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In considering an update on nasopharyngeal cancer (NPC) I have chosen firstly to reiterate the salient and practical points in the diagnosis of the condition and secondly to put forward the recent advances in the management of the disease. Some, like the Immunology and Immuno-genetics of the disease, will play a more significant role, in this respect, in the near future.

Incidence

The disease continues to be common among the Chinese population. Age-standardised incidence rates among the Chinese males is 18.5 per 100,000 and 7.0 per 100,000 among the Chinese females. There appears to be a tendency for the incidence to be commoner in the 3rd and 4th decades in second generation Chinese in Singapore.

Aetiology

Both a genetic and environmental factor appear to be important. The Epstein-Barr Viral Theory is currently in vogue, although we are still unsure if this virus is oncogenic in NPC.

Symptomatology

The presenting symptoms of the disease are common knowledge among our doctors and I therefore do not propose to elaborate all of them, but only to highlight some practical points. The symptoms can be listed, in order of frequency, into the neck lump, nasal, aural and neurological. Most patients present with multiple symptoms. About 60% of them present with a neck lump. Two important points for doctors to note, about this is, firstly, its site and secondly, the difficulty with its detection. The first node to be enlarged is almost always high up in the deep cervical chain. This is usually deep to the upper third of the Sternomastoid muscle or just posterior to it in the posterior triangle of the neck. One must note that it is not always easy to palpate this node. My experience is, that it has to reach a diameter of 2 c.m., before it can be readily felt. One must diligently palpate this area, applying deep pressure and grasping the upper part of the Sternomastoid muscle between thumb and index fingers. Most neck lumps, besides obvious Thyroid and Parotid masses, must be thought of to arise from lymph

nodes. As a high percentage of these are metastatic nodes in adults, a diligent search for a primary site of the malignancy must be carried out. This will include relevant X-rays and endoscopy of the aerodigestive tract. It is wrong practice to indiscriminately excise neck lumps, as it can adversely affect the treatment plan and the prognosis for the patient.

Not many patients present with frank epistaxis. It is most often a bloodstained nasal or postnasal discharge. When a patient presents with epistaxis there are two things a doctor can do quite easily. First, with a good source of light, Little's area can be inspected by just cephalward pressure on the nasal tip, or better with a nasal speculum. Gentle massage of this area with a cotton bud will sometimes start a bleed, if Little's area is the offending site. If this site looks healthy, the next thing is to check the blood pressure, as Hypertension, is still a common cause. All, who do not fall into these two groups, are suspect and a good postnasal examination is mandatory.

All patients with unilateral ear symptoms of tinnitus or blocked ears are suspect. All patients with unilateral serous otitis media are subjected to a postnasal biopsy in my hands.

All patients with unilateral 6th or 5th cranial nerve palsy should be suspected of having NPC, until proven otherwise. The last four cranial nerves are usually involved in the base of the skull by the enlarging neck mass. The 7th nerve is the least commonly involved.

Diagnosis

Standard postnasal examination with the mirrors, have been difficult even in experienced hands. Postnasal biopsy by partial blind techniques always leave a certain amount of doubt. About 15% of cases of NPC were diagnosed on a second or third biopsy, in the past.

In recent years the flexible nasopharyngolaryngoscope has been available. I have employed this almost exclusively for postnasal biopsies in the last year. I find this a far superior method. It gives a very satisfactory view of the nasopharynx and allows the suspected area to be subjected to a biopsy very accurately. It is almost painless and done

under a local anaesthesia. The only drawback is that a certain amount of training is required.

Immunology and Immunogenetics

It is thought that the NPC patient has an impaired T-lymphocyte system.

Also an association between the Epstein-Barr Virus (EBV) with NPC is now firmly established. But whether it is oncogenic or only a passenger virus is still not established.

Precipitating antibodies to EBV-related antigens like viral capsid antigen (VCA), early antigen (EA), nuclear antigen (EBNA), and membrane antigen (ADLC) show significantly raised geometric mean titres in NPC patients, compared to controls. The study of these titres have important implications in not only, diagnosis but as an indicator of prognosis. For instance, VCA, EA, and EBNA antibody titres have an inverse relationship with survival. The response to treatment can be monitored, as the levels should fall back to normal. Also a secondary rise of titres could indicate recurrence.

A third point to be mentioned here is one of Immunogenetics. Some important observations have been made on the HL-A (Human Leucocyte Antigen System) pattern among NPC patients. Certain loci and the presence of certain antigens on this system appear to make one more prone to the disease. The studies on this subject are far from complete but fascinating in suggesting a genetic susceptibility.

Staging

Up till recently no single staging system had been universally accepted. W.H.O. has recently suggested a classification which we now follow in our department. It is based on the T.N.M. System:

- (T1 Tumour confined to the nasopharyngeal mucosa.
- (T2 Tumour has extended to the nasal fossa, oropharynx or adjacent muscles.
- T (T3 Tumour has extended beyond T2 limits and there is involvement of the base of the skull, cranial nerves orbit, infratemporal fossa or laryngopharynx.

- (N1 Nodes wholly in the upper cervical level, bounded below by a line joining the upper margin of the sternal end of the clavicle, on the opposite, to the apex of an angle between the lateral surface of the neck and the superior margin of the Trapezius on the same side.
- N (
- (N2 Nodes below this level.

M M Distant metastases.

Stage grouping

This is designated as A, B, C and D, to distinguish it from other head and neck cancers.

- A: T1N0.
- B: T1N1, T2N0, T2N1, T3N0, T3N1.
- C: N2 irrespective of T.
- D: M present.

Treatment

The mainstay of treatment remains to be radiotherapy. The introduction of the Linear Accelerator has improved the overall five year survival, and reduced the side effects to acceptable levels. The overall five year survival at the last study, is about 30% in Singapore.

Surgery is employed in certain situations, for instance, in the excision of remnant and persistent nodes following radiotherapy, especially when one is sure that there is no disease in the primary site. Radical neck dissection is only carried out on rare occasions, as compared to other head and neck malignancies, because the retropharyngeal nodes are often involved early in the course of this disease. It is not technically possible to remove these glands in a radical neck dissection.

Conclusion

Our main defence against this disease still remains to be early diagnosis. Here a knowledge of the early warning signs and a high index of suspicion is important. It is hoped that immunological tests will soon be available to make early diagnosis easier.

I wish to take this opportunity to thank those concerned for inviting me to contribute this article.

Lymphadenopathy — A clinical approach

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Lymph nodes comprise the major part of the lymphatic system. They serve the important function of mounting an immune response. Lymphadenopathy refers to the presence of enlarged lymph nodes. Normally superficial lymph nodes are not palpable except for occasional "shotty" inguinal-femoral nodes, submandibular and submental nodes. The clinical approach to lymphadenopathy should be systematic and thorough.

(1) Pertinent History:

Patients are frequently unaware that they have palpable enlarged lymph nodes. Determine the duration of the enlarged nodes since causes of chronic adenopathy usually differ from causes of acute adenopathy. Ask the patient whether the nodes are tender and if they have recently changed in size. Carefully note any systemic signs or symptoms such as fever, weight loss, night sweats and pruritus; and any localised signs or symptoms such as sore throat, infections of the hands or feet or a genital ulcer.

(2) Techniques of Examination:

When examining for the presence of enlarged lymph nodes, proceed cautiously. **Nodes in the neck** are best examined by approaching the patient from behind, examining one side at a time. Carefully examine the following areas in the neck: occipital, postauricular, preauricular; superior, superficial and deep cervical; submandibular and submental; posterior and anterior cervical; and the scalene and supraclavicular nodes. **Axilla** is best examined in the sitting or recumbent position with the arm adducted and relaxed. The examiner's right hand is used to examine the patient's left axilla, and the left hand for the patient's right axilla. **Epitroclear nodes** are best sought with patient's elbow flexed. **Inguinal nodes** are found along the inguinal ligament in a horizontal plane. Femoral nodes are arranged vertically along the femoral canal below the inguinal ligament. One

should palpate by rolling the balls of the fingers and record the location, size, tenderness, fluctuation and character (matted, or fixed). "Shotty" nodes (< 1 cm diameter) usually have less significance than nodes greater than 1 cm in diameter. Occasionally nodes in the iliac and paraaortic nodes may be palpated. The spleen is part of the lymphatic system; palpable splenomegaly can be of considerable significance.

(3) Clinical Significance:

The differential diagnosis of lymphadenopathy depends on the age of the patient, the size, shape and feel of lymph nodes as well as the location. Palpable lymphadenopathy does not necessarily imply neoplastic or life threatening disease. Children under 12 have more lymphoid tissue than in adults. They respond promptly with impressive swelling and hyperplasia. This response is less dramatic in adults.

Generalised lymphadenopathy usually suggests a systemic disorder acting on lymphoid tissue. When generalised lymphadenopathy is present, consider the following conditions commonly seen in Singapore:

(a) Infectious Disease

- (i) Infectious mononucleosis syndrome (IMS)
- (ii) Secondary syphilis
- (iii) Tuberculosis
- (iv) Diffuse inflammatory skin disorders
- (v) Toxoplasmosis

(b) Neoplastic Diseases

- (i) Non-Hodgkin's lymphoma
- (ii) Hodgkin's disease
- (iii) Acute leukaemia (esp Acute lymphocytic leukaemia)
- (iv) Blastic phase of chronic myeloid leukaemia
- (v) Chronic lymphocytic leukaemia

(c) **Hypersensitivity States**

- (i) Systemic lupus erythematosus
- (ii) Rheumatoid arthritis
- (iii) Hypersensitivity to drugs eg diphenylhydantoin
- (iv) Still's disease

Regional lymphadenopathy usually suggests a localised disorder but may occur early in the course of those diseases which produce generalised lymphadenopathy. A meticulous search for the areas that these nodes drain should always be undertaken.

(a) **Cervical Nodes**

Classically infectious mononucleosis syndrome (IMS) usually causes enlargement of the posterior cervical and postauricular nodes. Rubella (German measles) frequently involves postauricular and suboccipital nodes. Lesions of the eyelids and conjunctiva are characteristically associated with preauricular adenopathy. Tuberculosis tends to involve nodes in the upper and mid cervical region. Nasopharyngeal carcinoma (NPC), the fourth commonest cancer in Singapore frequently metastasize to the upper cervical nodes before involving the lower cervical chain. Carcinoma of the oral pharynx, larynx, Waldeyer's ring and base of tongue behave similarly. Cancers of the anterior two third of tongue, floor of mouth and gums usually involve submandibular nodes. Enlargement of the supraclavicular or scalene nodes usually signifies a neoplastic process. These nodes drain the head and neck, arms, mediastinum and abdomen. In general right lower cervical nodes drain the mediastinum, right lung and oesophagus. The left lower cervical nodes (Virchow's) drain the left lung, oesophagus and abdomen. "Virchow's node" can be enlarged with a variety of neoplasms such as stomach, pancreas, kidneys, ovaries, testes, gallbladder or lymphatic tissue. Likewise it could be enlarged in malignancies of the lung and the oesophagus.

(b) **Axillary Nodes**

Enlargement of axillary nodes is usually secondary to either infections or neoplasms which drain this area. Infections to consider are streptococcal or staphylococcal infections of the hand or forearm, tularaemia, and cat scratch disease. Malignancies that commonly involve axillary nodes are metastatic breast carcinoma and malignant melanoma

that have lymphatic drainage to this area.

(c) **Epitroclear Nodes**

These are usually enlarged by infections that drain the hand and forearm and occasionally in secondary syphilis. Rarely do neoplastic disease present with isolated epitroclear adenopathy.

(d) **Inguinal-femoral Nodes**

These nodes drain the skin of the lower anterior abdominal wall, the genitalia, perineum, gluteal region, lower anal canal and most of the lower extremity. Shotty lymphadenopathy in this region is fairly common and usually secondary to localised chronic inflammation. Infections which commonly produce significant inguinal-femoral lymphadenopathy include most of the venereal diseases, tinea and pediculosis. Lymphogranuloma venereum may cause large tender and fluctuant nodes. Isolated lymphadenopathy due to malignant processes include carcinoma of the genitalia, rectum as well as malignant melanoma draining to this area.

(4) **Management:**

Although it is impossible to be sure what is contained in an enlarged node without biopsy, this urge should not be pursued immediately. Lymphadenopathy must be considered in the total clinical picture in making the decision concerning antibiotics or biopsy. An area of cellulitis believed secondary to a streptococcal infection in the leg with associated tender inguinal lymphadenopathy would obviously require antibiotic treatment. A young lady with signs and symptoms of systemic lupus erythematosus would require neither antibiotics nor biopsy. An unexplained low, painless cervical lymphadenopathy should prompt a thorough examination of the posterior nasal space and thyroid gland, a chest roentgenogram to assess the mediastinum and an early biopsy if a primary tumour is not discovered. A patient presenting with acute tender cervical lymphadenopathy following sore throat and fever would require an examination of the peripheral blood looking for the atypical lymphocytes (Downey cells). Most lymph node enlargement due to infections show signs of regression within 4 to 6 weeks. However temporary regression of lymphadenopathy is no assurance that the con-

dition is benign. Frequently a period of observation might be warranted to collect more information and observe the behaviour of a node, especially in a patient who does not appear ill.

In general the indications for biopsy include (i) persistent lymphadenopathy larger than 1 cm in size for longer than 6 weeks (ii) hard

discrete nodes that are fixed or matted (iii) recurrent adenopathy in the same area. When biopsy is elected, it is frequently stated that a cervical node is preferable to axillary and that an axillary node is preferable to an inguinal node. Inguinal and axillary nodes may be enlarged due to past trivial infections of the extremities.

SECOND ANNOUNCEMENT



18TH SINGAPORE-MALAYSIA CONGRESS OF MEDICINE

VENUE : SINGAPORE

DATES : 2ND - 5TH AUGUST 1984

Organised by Academy of Medicine, Singapore

SCIENTIFIC PROGRAMME

PLENARY LECTURE Recent Advances in Neonatal Intensive Care

RUNME SHAW LECTURE Microsurgery: State of the Art

GORDON ARTHUR RANSOME ORATION

SYMPOSIA

- * Sexually Transmitted Diseases
- * Reconstructive Surgery
- * Perinatal Medicine
- * Nutrition in Hospitalised Patients
- * Endoscopic Surgery in Urology

Book Reviews

ICHPPC-2-Defined

(International Classification of Health Problems in Primary Care)

3rd Edition (1983)

Oxford University Press

Prepared by the Classification Committee of WONCA

Some way of classifying medical encounters is necessary if doctors are intending to study the incidence and prevalence of medical problems, symptoms, and complaints that individuals and their surrogates bring to them. Such a system must be comprehensive in order to cater for the depth and breadth of conditions that will be encountered, must be easy to use and criteria of separation of items of one class from another must be well-defined. In order that one doctor can compare his findings with another such a classification system must also be widely accepted and widely used.

The ICHPPC-2-Defined, which is the Third Edition of the International Classification of Health Problems in Primary Care appears to have acquired all these desired features. It has become accepted internationally. Furthermore, because the ICHPPC-2-Defined corresponds closely to the ICD-9, it means that together with the ICD-9, a comprehensive, international classification system for medical problems from primary care to institutional care is now available.

The present edition of the ICHPPC-2-Defined contains developments upon its previous edition; most of its rubrics are now defined, by the members of the Classification Committee of WONCA, thereby reducing incomparability of collected data that may arise from imprecise knowledge of inclusion and exclusion criteria of classified items. It represents a remarkable feat, notwithstanding the large cultural differences and the equally impressive language barriers characterising an international organisation like WONCA, that not only consensus has been gained by the members of the Classification Committee but in addition the book provides a homogeneous professional frame of reference, worthy of any mature scientific organisation.

Historically, the previous versions of the present Classification have evolved over the past quarter century, beginning with the pioneering efforts of the (now Royal) College of General Practitioners of United Kingdom. Since then, their efforts have been reinforced by the Classi-

fication Committees of the World Organisation of National Colleges (WONCA) and the North American Primary Care Research Group (NAPCRG). The first edition, the ICHPPC-1 was derived from the International Classification of Diseases, Eighth Revision (ICD-8). This was subsequently revised as ICHPPC-2, in order to make it compatible with the then new revision of ICD-9. This new publication, as its predecessor, represents an adaption for general practice and in addition to diagnosis, consists mainly of rubrics related to other problems encountered in primary health care. The new major feature is the fact that an attempt has been made to define by selection criteria the majority of terms used in the Classification and therefore ICHPPC-2 becomes ICHPPC-2-Defined. It is expected that this modification will remarkably increase its usefulness by introducing the standardized inclusion criteria and terms in addition to the Classification.

Spectrum of ICHPPC

The spectrum of ICHPPC includes the content of primary care: the health problems in people who feel ill, as well as those who consider themselves to be healthy but seek expert primary medical care evaluations and advice. ICHPPC is so devised that valid and reliable statistical comparisons may be made between morbidity or workload reports from front-line medical practices anywhere in the world.

The System of Definitions Used

As this edition of ICHPPC is concerned with definitions, the system of definition will be described. The construction of definitions can present profound difficulties and many types of definitions are possible. Attempts were made to provide THE BRIEFEST POSSIBLE DEFINITIONS WHICH WOULD REDUCE VARIABILITY IN CODING. In some cases the criteria are too few to exclude all other possible conditions which might be coded mistakenly to that rubric; the aim was to exclude most of the conditions which might commonly be misclassified.

For the sake of brevity, only those criteria with sufficient discriminatory value to distinguish a condition from others with which it might be confused, have been included. This is the opposite approach to textbooks, which usually list all the signs and symptoms found in a condition, regardless of how often each symptom or

sign is found in that condition, how often it is found in other conditions or even in normal people.

Sometimes the rubric itself adequately defines the condition. In these cases, the phrase 'As defined in the diagnostic title' is used. Even in the absence of this phrase, portions of the definition may be self-defining. To avoid errors, each rubric, its title with inclusion and exclusion criteria should be read in its entirety.

Some rubrics include more than one problem. In these cases, all or most parts of the rubric are defined separately. Parts are indicated as A, B, C, etc., with either definition or statement of lack of definition given for each part.

Attempts were not made to define every rubric, particularly residual rubrics, which contain too many disparate diagnosis for useful definition. These are labelled: 'Inclusion criteria for this rubric are not listed'. In these cases, the reader should consult the list of diagnosis included in the rubric title, or refer to the more complete list given for the relevant rubrics in ICD-9.

Some Possible Misconceptions

It is important that readers clearly understand several things which these definitions are NOT intended to do.

1. They do not serve as a guide to diagnosis
2. They do not set standards for care
3. They do not act as a guide for therapy

Guidelines for the User

Users should begin by reading the table of contents, the explanatory background, the guidelines for the user, and the tabular classification to appreciate the overall arrangement of ICHPPC and the pattern of individual rubrics before use.

The bulk of the book is occupied by the tabular classification of health problems. In this section is detailed the ICHPPC code, criteria of classification, and the corresponding ICD-9 code for each problem. Cross-reference can be made to these pages through the alphabetical index. There is also a list of condensed diagnostic titles designed for standardising machine processing and computer printouts; each title contains a maximum of 35 letters and spaces. Finally, there is also a useful international glossary for primary care where definitions of provider descriptors, practice descriptors, practice sites, mechanisms for reimbursement, patient descriptors, population descriptors, morbidity descriptors, encounter descriptors, service descriptors, and the various rates for standard reporting. If you want to know the defini-

tion of a specialist, a consultant, or a primary care physician, they can be found in this section of the book.

Principal Uses

Among the several purposes of recording and coding health problems three principal uses emerge. They are:

- (1) to calculate the incidence and prevalence of morbid conditions within a defined population.
- (2) to calculate work load in terms of health problems encountered by the health care provider.
- (3) to establish a diagnostic index for retrieval of medical records of patients by separate diagnoses.

This book should have a place in the bookshelf of every health care provider who is interested in research or in analysis of various indices of health care.

An error

There is a proof reading error which the editors may wish to take note of when they next bring out a reprint. On page 18 under the section "OVERALL ARRANGEMENT OF ICHPPC", "IX Genitourinary system (including breast)" should read "X Genitourinary system (including breast)" and the line "IX Digestive system" which appears to have been left out, inserted.

LG

A HISTORY OF THE ROYAL COLLEGE OF GENERAL PRACTITIONERS

The First 25 Years

Edited by John Fry, Lord Hunt of Fawley, R J F H Pinsent
MTP Press Ltd.

You wouldn't expect the history of a college to make interesting reading but the editors of the History of the Royal College of General Practitioners have succeeded in telling the story of the early days of the College in a most fascinating way.

Founding a College is not an easy thing to do, with the general practitioners in the United Kingdom it took nearly a century to achieve the task. As early as 1830 William Gaitskill wrote to the editor of the Lancet:

"Various branches of the medical profession have colleges, charters and corporations, from which the general practitioner is either altogether excluded, or attached as an appendage only ... as a general practitioner, he belongs exclusively to no one branch, and is, therefore, virtually excluded from all."

The same feeling was expressed in 1951 when

Fraser Rose and John Hunt wrote to the Lancet and the British Medical Journal:

"There is a College of Physicians, a College of Surgeons, a College of Obstetricians and Gynaecologists, a College of Nursing, a College of Midwives, and a College of Veterinary Surgeons, all of them Royal Colleges; there is a College of Speech Therapists and a College of Physical Education; but there is no college or academic body to represent primarily the interests of the largest group of medical personnel in this country — the 20,000 general practitioners."

The attempt to form a College of General Practitioners in the United Kingdom in 1854 failed after much acrimonious debate over the pros and cons in the medical press. Various medical parliamentary bills were debated, amended, praised, abused, committed and re-committed. The last in 1854 was opposed both by the Royal College of Physicians and by the Royal College of Surgeons.

The physicians and surgeons then felt that there was nothing new to general practice that could not be taught by their own Colleges. The attempt to found a college in 1951 ran into similar opposition and difficulties. John Hunt relates his experiences: "Some people laughed at us, others shunned us and some were downright rude, like the Fellow of Royal College of Surgeons who met John Hunt in Wimpole Street and said, 'It's absolute nonsense, you might just as well found a college of ingrowing toe-nails.'"

It is difficult to believe that all the opposition to the formation of the English college of general practitioners occurred only thirty years ago. This time however the general practitioners were not to be put off and despite the misgivings of many of their own fellow practitioners, and the opposition of a few die-hard specialists the College of General Practitioners in England was formed on the 19th November 1952.

The story of a college must be linked to the personal stories of men of vision and men of determination and it was fortunate for the English College that during this period these men were not in short supply. There is also the story of lobbying for support and having the cause heard in the right quarters. Here the English College was fortunate to have Sir Henry Willink chair the steering committee.

Sir Henry had been the Minister of Health from 1943 to 1945. In the steering committee too the College had five consultants as members including Prof Ian Aird who some of us will remember as the external examiner in surgery to our university.

The College had also staunch allies in Sir Heneage Ogilvie and William A R Thomson of the Practitioner and it was through this publication that many of the thoughts of the College were made known to the profession at large.

One of the pleasant surprises of the formation of the College was the help and co-operation it received from those who had initially opposed its formation. Sir Cecil Wakely, President of the Royal College of Surgeons wrote, "Best wishes for the happy start of the new College. I will always give all the support I can."

Shortly before he died Lord Horder invited one of the Council members to visit him. He said he wanted the College to know that although he had opposed its formation to start with, he now agreed with all that it was doing. Sir Russell Brain also gave his co-operation, and "this was surely a sign that these were great and good men with the welfare of our whole profession at heart. Their antagonism soon changed to friendship when they realized that we had achieved something that had been worth doing."

In November 1972 the English College of General Practitioners became a Royal College and took its rightful place beside its sister Royal Colleges. It had been a long and uphill road but the pioneers who made it to the top must have felt not so much a sense of elation but a profound sense of relief.

In Singapore the battle for recognition of our own College has its parallels in the history of the English College. We too had to win over our local medical "giants". John Hunt was here to help us. He saw Dr Toh Chin Chye then Vice-Chancellor of the University, met Prof Ransome, a fellow Barts man, when he was here in 1969. We too had our share of stout-hearted men with vision who formed the steering committee. But the history of our College is not the subject of this review. Perhaps when our own College reaches the ripe age of 25 years, another book may be written and reviewed in these columns.

EK

News from the Council

1. Annual General Meeting

The 13th Annual General Meeting of the College will be held on Sunday, 27 May 1984, at 2.30 p.m. Members are asked to take note of this and keep the date free to attend the meeting.

2. The College Examination

The 11th College Examination leading to the Diplomate Membership will be held during October/November 1984. Applications are now open. Members interested in taking the examination are asked to submit their applications early. Application forms may be obtained from the College Secretariat.

3. New Members

The following have been accepted by Council into membership of the College during January/March 1982:

Dr Chng Puay Sian	—	Ordinary Membership
Dr Kutbuddin Dohadwala	—	—do—
Dr Hong Lee Tiong	—	Associate Membership
Dr Kwek Poh Lian	—	—do—
Dr Leow Yung Khee	—	—do—
Dr Lim Geok Leong	—	—do—
Dr Tan Chin Leong	—	—do—
Dr Wong Teck Cheung	—	—do—
Dr Yap Soo Kor, Jason	—	—do—

We welcome them to the College and hope they will participate fully in all activities of the College.

4) Internal Medicine Update

The Continuing Medical Education Unit of the College, has organised the above course, commencing 10 February 1984. The programme is as follows:

Theory Sessions on Friday evenings from 9.00 — 10.30 p.m.

Date	Topic	Lecturer
10.2.84	Patient with Jaundice Update on Hepatitis	Dr Goh Lee Gan MBBS, M Med (Int Med) Prof Oon Chong Jin MBBS, MD(Cantab), MD(Camb), MRCP(UK), DCH(Eng)
17.2.84	Patient with Proteinuria/Haematuria Update on Nephritides/Urinary tract infection	Dr Alfred Loh MBBS, MCGP(S) Prof Feng Pao Hsui MBBS, FRCP(G)
24.2.84	Patient with Glycosuria Update on Diabetes Mellitus	Dr James Chang MBBS, MCGP(S), FCGP(S) Dr John Tambyah MBBS, FRACP
2.3.84	Patient with Hypertension Update on Management of Hypertension	Dr Lim Kim Leong MBBS, MCGP(S), FCGP(S) Dr Charles Toh MBBS, FRCP, FRACP, FACC, Hon. FPCC
9.3.84	Health Screening in old age Update on Common Medical Problems of old age	Dr Henry Yeo MBBS, MCGP(S) Dr Gwee Ah Leng MBBS, MD, FRCP
16.3.84	Patient with Pallor Update on Anaemia	Dr Yeo Siam Yam MBBS, MCGP(S) Dr Loh York Siong MB, Ch B(B'ham), MCRP(Lond).
23.3.84	Patient with Dyspnoea Update on Dyspnoea	Dr Victor L Fernandez MBBS, FCGP(S) Dr Poh Soo Chuan MBBS, FRCP(E)
30.3.84	Patient with Gout and Dyslipidemia Update on Gout and Dyslipidemia	Dr Lee Suan Yew MB, B Ch(Camb), FRCP(G), FCGP(S) Dr Gwee Hak Meng MBBS, M Med(Int Med), FRACP

Clinical Sessions on Sunday afternoons from 2.30 to 4.30 p.m.

- | | | |
|---------|---|--|
| 12.2.84 | Rehabilitation facilities for patient with Cerebral Vascular Accident —
Department of Rehabilitation Medicine,
Mandalay Road, off Balestier Road | Dr Tan Eng Seng MBBS, DPRF, FACRF |
| 26.2.84 | Case Presentations — Department of
Medicine IV, Lecture Hall I (2nd Floor),
Tan Tock Seng Hospital | Prof Feng Pao Hsii MBBS, FRCP(G) |
| 11.3.84 | Management of Chronic Renal Failure —
2.30 p.m. — Academy of Medicine
Lecture Theatre
3.45 p.m. — Renal Medicine Unit,
Block 4 Level 2,
Singapore General Hospital (Ward 42) | Dr Pwee Hock Swee MBBS, M Med(Int Med),
FRACP |
| 25.3.84 | Case Presentations — Lecture Theatre,
Alexandra Hospital | Dr Tan Bock Yam MBBS, FRCP(E) |

Fifth Biennial General Scientific Meeting

The Association of Surgeons of South East Asia will be holding its Fifth Biennial General Scientific Meeting, at the Mandarin Hotel, Singapore, from February 24-28, 1985. The Scientific Programme will include wide ranging topics and recent advances in surgery such as:

- Renal Transplantation in SE Asia
- Current Status of Coronary Artery in the region
- Surgical Infections
- Staples in Surgery
- Free Papers are invited on all aspects of surgery.

For further detailed information please contact :

The Academy of Medicine
Alumni Medical Centre
4-A College Road
Singapore-0316

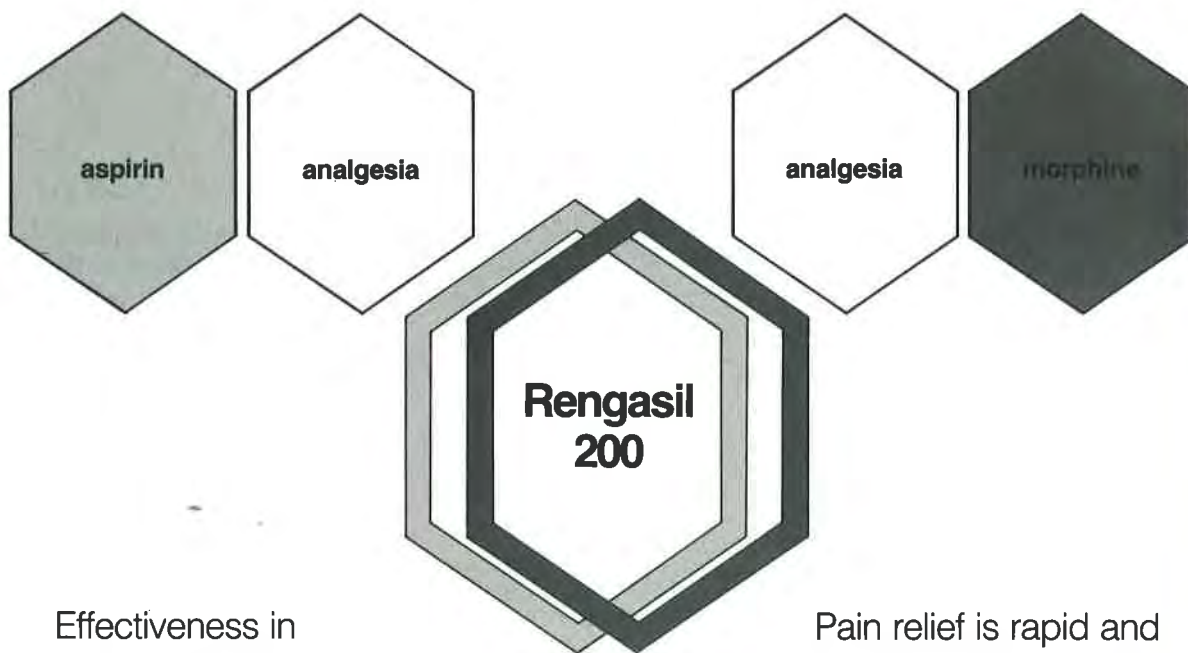
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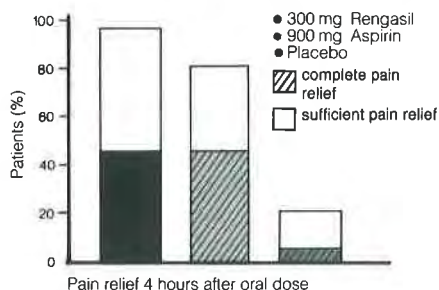
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Acute Pain – sprains, strains, trauma, postsurgical, musculoskeletal and dysmenorrhoeic pain

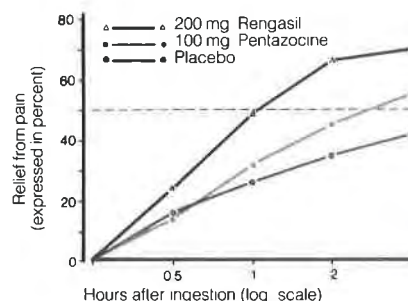
Chronic Pain – orthopaedic pain due to degenerative joint diseases



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CIBA

¹ M. Hultin; K-J Olander: Comparison of pirofen, acetylsalicylic acid, and placebo in post-operative pain after oral surgery

² Sperr W; In van der Korst, J K (Editor) A new antirheumatic-analgesic agent: pirofen Int. Symp. IXth Europ. Congr. Rheumatol; Wiesbaden 1979

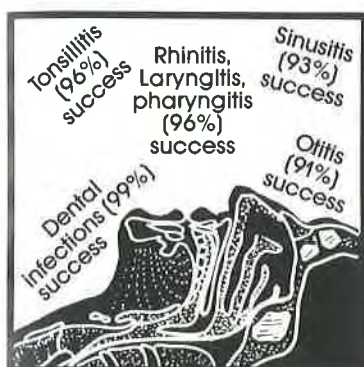
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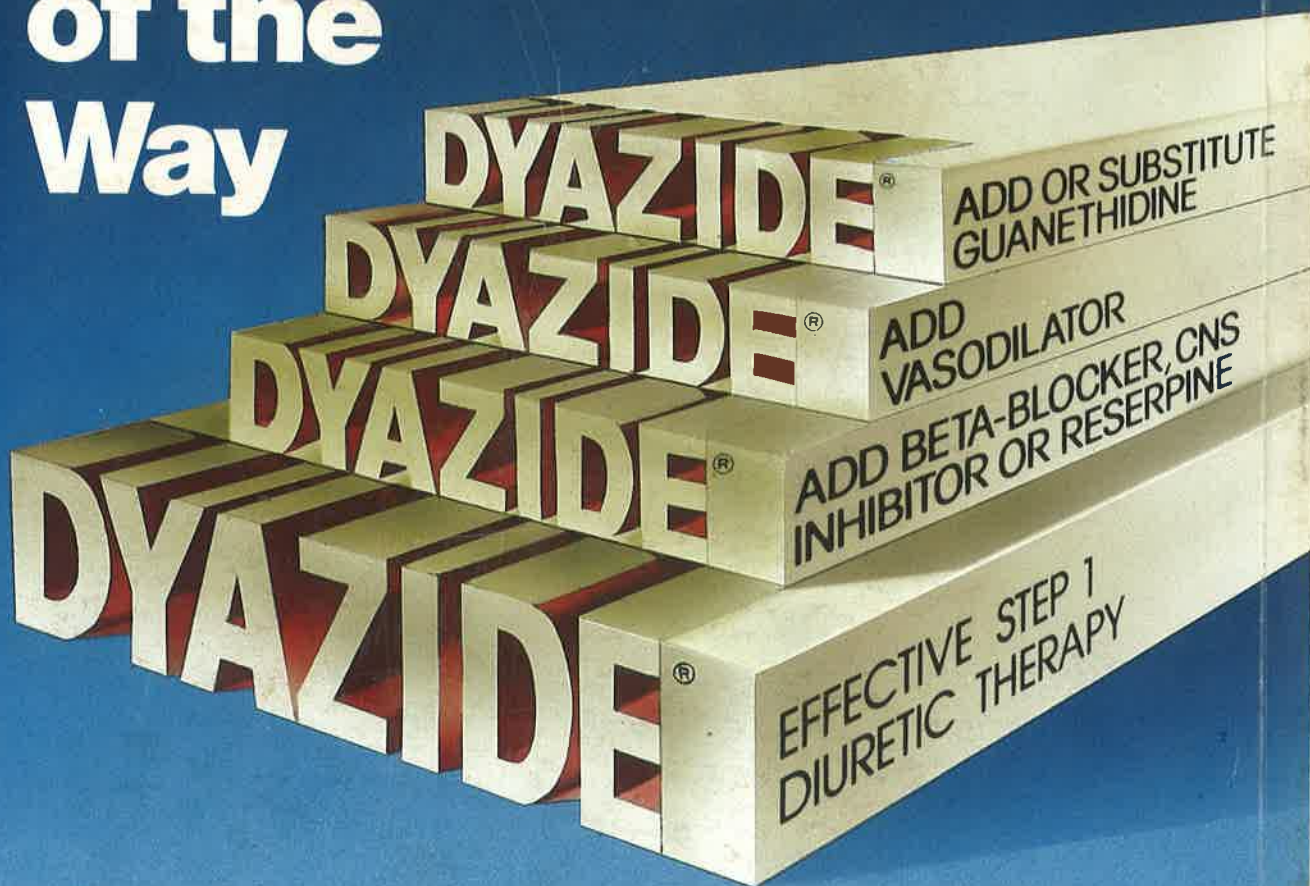
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