

JOURNAL OF THE NEPAL MEDICAL ASSOCIATION

[Bimonthly Scientific Publication] Vol 11 No. 1-2 April 1973

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JOURNAL OF THE NEPAL MEDICAL ASSOCIATION

EDITORIAL

SIXTH ALL NEPAL MEDICAL CONFERENCE

All Nepal Medical Conference is held once in every two years, and this years' conference completes a decade in this direction. These conferences have offered occasions for the gathering of the doctors working in Nepal to discuss and share their experiences with their colleagues from abroad. This year we are fortunate to have the participation of Prof. Fredrick B. Bang, professor of Pathobiology, John Hopkins University; CMRT; Prof B. Lohr, Kiel University; Prof. Manohar J. Joshi of India; Dr. Grant Williams, Consultant Urological Surgeon, Charing Cross and Royal Marsden Hospital, London and Prof. A. V. Mazurin of Soviet Union, and many other distinguished guests from abroad.

* * * *

This conference also offered a forum to discuss on some important aspects of future health planning in Nepal. Wide participation and Meaningful discussion in the symposia on the "Basic Integrated Health Service in Nepal" and the "Problem of Health Man Power in Nepal", I hope will have contributed to the realisation to the need of adaptation and development of our own particular type of health service based on the understanding of our politico-economic situation, geographical impositions and cultural background. The need of providing some sort of 'basic health care' to all the population as against the establishment of some very costly prestigious unit to serve a small section of people at the cost of the basic health care to the mass was underlined by many speakers. In a country like ours whose major health problems are communicable and nutritional diseases the importance of public health measures are self evident, but that is also important in a country like ours with very limited medical

saw the burying of the proverbial hatchets, and I only hope on it will grow the proverbial hundred flowers. The deep interest and the sense of responsibility shown by the young members of the association, I hope it will be well taken up by others. I hope and wish the new President will be able to ~~handle~~ *rekindle* the sense of purpose, and a sense of belonging to the association.

ENDEMIC GOITRE IN NEPAL

Endemic goitre may be defined as the simple goitre affecting people living in an area due to environmental factor. Goitre means enlargement of the thyroid of sufficient size to be visible as well as palpable, and by simple it means the thyroid function with regards to the clinical status of the patient is normal and that the condition is not neoplastic and is non-malignant. Simple goitre may be diffuse or nodular and there is evidence that the nodularity correlates with duration (Taylor, 1953). Simple goitre occurs most commonly between the age 10 and 50 years. The peak incidence is probably in the third decade. It occurs more frequently in females than in males; however the female to male ratio varies. It was found 2:1 in Sheffield to 14:1 in Ormiston (Kilpatrick, et al, 1963). Ward, J. P. (1970) in a thyroid survey in Dhankuta, in East Nepal found that 36.3% of female as compared to 27.1% of male and goitre.

Goitre is an ancient disease. It is known to exist in India since 2000 B. C.; and has been a health problem in America since before the European settlement (Stanbury, J. B; 1970). Marco Polo in 1275 mentioned goitre in Ferghena Valley and in 16th century Paracelsus spoke of the connection between goitre and criticism in Switzerland. It is known to be prevalent in Nepal since a long time. As far back 1833 Bramley records of the common occurrence of this disease in Nepal. But our awareness of the magnitude of this big health problem and an attempt at its scientific survey and study is very recent.

The first sample survey of this disease, as a part of the general health survey was carried out by the Health Department, HMG in 1965-1966 in nineteen villages spread over the country. Of the total 7,466 persons examined 51% was found to have the goitre. The prevalence in different areas varied from 10 to 100%. The goitre was prevalent not only in the mountainous parts of the country but contrary to the popular belief, in the low lying flat lands of Tarai regions as well. And there are pockets of high endemic areas, and areas of comparative low endemicity. No parts of Nepal is free from goitre. Ward, J. P. (1970) found an incidence of 32.2% in a survey in the Dhankuta bazar. Cunningham, J. S. (1970) noted an incidence of 36.8% in males and 57.4% in females in workers and their families on the British sector of East/West Highway. During my visit to Dolakha in April 1972, in the two thousand people we saw, the visible goitre rate (gr. 2 and 3) was 25.6% and the total incidence of goitre was estimated to be about 60%. As a prelude to the launching of a prophylactic programme against endemic goitre, HMG requested WHO's assistance in making a scientific appraisal of problem. A team consisting of Drs. V. Ramalingaswami, M. G. Deo and M. G. Karmakar visited Nepal in this connection from 24th March to

man power is the need for our doctors working in the districts to be a public health worker beside being a clinician.

Equally important is perhaps the concept of the 'management of the health service'. Even with the limited resources, if the health service is to be managed as efficiently as a business concern it can provide more and better service where it is needed. This will again call for understanding of the goal of the national health service i.e. to provide basic health care to the population; the input, the resources we have and how best to utilize it to achieve this goal. Some has regarded 'health' as the right of every citizens. If that is so the right is equally that of people living in Dolkha or Jumla as that of people in Kathmandu or Biratnagar. Here there is a place which has some sort of health facilities and there are many places in the hills which have never known any form of health care. Surely where the priorities lies must be clear.

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Coming back to the academic aspect of the conference, as the Chairman of the Scientific subcommittee of this conference, one thing that one felt most was that the participation by the Nepali doctors desired to be improved much more. Most often the papers were prepared hastily at the last moment for the conference and hence do not bear the mark of thought and scientific study. One reason for this is of course the lack of good medical library, the others being the absence of the tradition and the set-up of research in Nepal and the fact that the most doctors working in the best hospital in the capital are too busy in the private practice to have enough time to devote to such work. A good medical library whether under the aegis of the university, NMA or HMG is a long felt need. As far as the question of non-practicing doctors in the hospital and the provision of encouraging a system of general practitioners outside the hospital is something which government will have to think in the future. Whenever and in whatever form it is done, I hope it will be done to enhance the efficiency of the patient care in measurable standard and comparable term to justify the increase cost to the government in such change.

One other thing that I would like to suggest is the provision of research grant to encourage the research by deserving candidates on important health aspects of the country. The fund for which may be raised by grant from HMG, Royal Drug Ltd., Royal Academy, the University and other foreign agencies like Wellcome Research Trust and the Ford Foundation, etc. The selection of the type of research and the channeling of the fund for it should be governed by a board consisting of the HMG, NMA, the University and other bodies. I hope the NMA and the University will ponder about it and take necessary step towards this noble objective.

* * * *

The conference is also the one occasion when the NMA meets in general session. Last two years of the association has been a difficult period. This conference however

saw the burying of the proverbial hatchets, and I only hope on it will grow the proverbial hundred flowers. The deep interest and the sense of responsibility shown by the young members of the association, I hope it will be well taken up by others. I hope and wish the new President will be able to ~~handle~~ *rekindle* the sense of purpose, and a sense of belonging to the association.

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14th April 1969: The team chose to study two widely separated areas, Trishuli in central Nepal and Jumla in north-western part of the country. A rapid survey of goitre prevalence was made among the children attending the schools in these areas. They also visited the neighbouring villages for rapid goitre survey. Thyroid function study was done in some of them. They found goitre in 74% of the children between the age group of 15 to 20 years, and in 100% of the children of age group 8 to 14 years in Trishuli; and 97% in age group of 15 to 20 yrs and 88% in the age group of 8 to 14 yrs in Jumla. Nodule formation was noted in 15 out of 112 children examined in Jumla (13%). The incidence of nodule formation showed how severely endemic area is and also that the goitre producing factor has acted for long time in the members of the community. Judging from this Jumla appeared to be more severely endemic. Observations on the villagers of both sex and varying ages around Trishuli and a village in Jumla (Micha) confirmed and extended the above conclusion arrived at observation of the school children. It was found that 65% of the population in Trishuli suffered from goitre, with nodule formation in 7%, whereas 87% of the population in Jumla (Micha village) had goitre, 35% of them showed nodular transformation.

Large goitres can produce signs of tracheal compression. However, the most important aspect of endemic goitre is the endemic cretinism. Endemic cretinism occurs only in association with severe endemic goitre. Querido, A. (1969) has defined endemic cretinism as the collective term for a number of developmental abnormalities, which geographically coincides with severe endemic goitre and are caused by lesions acquired before or shortly after birth. More precisely, it may be defined as the excess of these abnormalities, which is found in a goitrous population, as compared with a similar population without goitre, and in due time, is abolished adequate goitre prophylaxis. Other defects commonly associated with severe endemic goitre includes endemic deaf-mutism, short stature, and mental retardation. There is some uncertainty whether endemic cretinism can be entirely explained on the basis of iodine deficiency alone. Indeed, it has been suggested that endemic cretinism only occurs in a large scale in those endemic areas where inbreeding has favoured a build-up of genes which affect the thyroid function adversely (Clements, 1958). These factors may be responsible for the high incidence of cretins, deaf-mutes and persons with various other gradations disturbances of mental and physical development encountered in Jumla. Ibbertson (1963) described even more frequent occurrence of developmental malformation in association with endemic goitre in the Khumbu regions in North-Eastern Nepal. He found that 98.0% of the population in this area had goitre, and that 5.7% were cretins, 12.1% were deaf-mutes and clinical hypothyroidism was present in one-third of the population. There is evidence that a similar situation exists in another area in the north, viz, Raswa and Lamtang valley.

The result of these various studies shows that the whole of Nepal is goitrous. Goitre occurs in both high mountain in the north and in the low lying Tarai in the south. In general the prevalence of goitre is greater in the northern mountain regions than in the Terai.

The simple goitre could be due to : (a) Iodine deficiency, (b) goitrogens, (c) heredity and (d) autoimmunity. The result of many investigations as to the cause of endemic goitre

have been consistent with the belief that a lack of iodine is the principle contributing etiological factor. This is based on the evidence that :

- (1) an inverse relationship exist between the goitre incidence and the iodine content, particularly of water, but also of soil, salt and locally produced food (Chatin, 1850; McClendon & Williams, 1923; von Fellenberg, 1933),
- (2) The demonstration, that the administration of iodine prophylactically dramatically reduces the incidence of endemic goitre (Marine & Kimball, 1917; Scrimshaw et. al, 1953),
- (3) The demonstration that the metabolism of iodine in patients with endemic goitre is consistent with their goitre being caused by iodine deficiency (Stanbury et. al, 1954; Roche et. al, 1957; de Visseher et. al, 1961).

For practical purpose, the mean daily excretion of iodine in urine can be taken as an index of iodine supply. The urinary iodine per gm of creatinine in non endemic area e. g. Delhi was found to be 76.4 ± 10.2 ug. whereas Degrossi et al (1969) found a mean daily excretion of iodine in the endemic area of West Argentina to be 20ug. Similarly, Ramalingaswami et al (1969) noted mean urinary excretion of iodine in Trisuli and Jumla to be 21.6 ug and 20.2 ug respectively.

The iodine concentration of water of non endemic regions ranges upward from 10 ug./l. (Stanburg, J. B., 1970). The iodine content of water in the non-endemic area in Ceylon is found to be 9.3 ug/l., and in Delhi 9.0 ug/l. The mean iodine content of water from various sources in Trisuli and Jumla contained only 0.111 ug/l.

The study of iodine metabolism and the thyroid function test done in Jumla and Trisuli by the team also confirmed with the picture of the goitre being due to iodine deficiency. The 24 hours neck uptake of ^{131}I was found to be 71.6% and 84.7% in Trisuli and Jumla respectively as compared to 42.4% in Delhi. The plasma PB^{131}I (% dose per litre) was found to be 1.87 and 1.53 in Trisuli and Jumla respectively as compared to 0.115 in Delhi. Plasma PB^{127}I was found to be 4.10 ug in Trisuli, and 4.43 ug in Jumla whereas it was 6.0 ug in Delhi. The plasma inorganic iodine (PII) in school children in these areas 0.088 ug%.

It is a matter of great satisfaction that HMG has decided to undertake goitre control programme in Nepal. As the whole country is goitrous region the control programme under a National Goitre Control Programme must cover the whole country. Experience in other countries have shown that the best means of ensuring mass consumption of necessary iodine is to add it in common table salt.

The annual salt consumption of Nepal is about 60 to 65 thousand tons, the great bulk of which (55 thousand tons) comes from India. The rest treckes down from Tibet. The fact that we have a Salt Trading Corporation which handles all salt imported to Nepal and affects its distribution inside the kingdom makes it easier to implement National Goitre Programme.

Experts have suggested the use of iodised salt containing 15 parts of iodine per million parts of salt (1 part of potassium iodine added to 40,000 parts of salt). At present it has been decided to import the iodised salt from India, and WHO has offered substantial help in this projects.

One must however be aware of the fact that the use of the iodised salt is not going to effect radical cure of the existing goitres, it is a prophylactic measure which will prevent our future generation from the scourage of this disease.

S. M. Shrestha.

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'DALF' (FENTHION) POISONING :

Need for HMG to control the sales of Dalf in Nepal.

The incidence of acute poisoning in Kathmandu is increasing every year. The record of the Bir Hospital shows that in last one and half month five patients were admitted with acute 'Dalf' poisoning. All were male in the prime of their life, between, the age group of 19 to 30 years. All of them died of poisoning. Two died on the third day of the ingestion of this insecticide, one on the four day and the rest on the sixth and eight day respectively. Most of them were admitted within six hours of taking the poison.

'Dalf' (Fenthion) is an organo-phosphorous compound used as an insecticide for the control of bed bugs and other household vermin. It is not used as an agricultural insecticide. Dalf is freely available in the markets of Nepal and is sold in the shops dealing with household goods and even in shops selling grains and food materials.

'Dalf' has now become the most common substance ingested for self poisoning in Kathmandu. The signs and symptoms of its poisoning and its management has now been well documented (1, 2, 3, 4, 5, 6 and 8). A report of 31 cases of acute dalf poisoning seen at Bir Hospital over twenty months was reported in this journal in 1962, vol. 10, No 1. (8). Most often the act of poisoning was precipitated by some social and personal trouble of temporary nature, the act undertaken in an impulse, and those who died have died repenting for their act. However, whatever may be the reason of these self poisoning, all these people at that time were 'beset with distress and despair, unhappiness and desperation'. And it is beyond the scope of this editorial to deal on that aspect and suggest preventive remedy. However this waste of productive life should not be taken lightly. One thing that clear from the study of these patients is that the act is most often undertaken in an impulse and it is the young people often engaged in good productive work that is involved in it. The easy availability of the poison in the market has no doubt helped to make dalf as the commonest substance used for self poisoning, and what is more the incidence is rising.

There should be no doubt that it is wrong to make this potentially fatal poison easily available at any street corner. Is dalf really an essential goods at all ? It is one of the many household insecticide available in the market. The harm it has done and its potentiality as a deadly poison outweighs and benefit it provide to the society. I think it is time now that the authorities especially, the Ministry of health, HMG take an effective step to stop this free and uncontrolled sales of this insecticide. It is even desirable to ban the import of Fenthion to Nepal altogether. It is then probable that incidence of poisoning with dalf will then be replaced by some other substance, and one hopes it is something that is less fatal.

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(S. M. Shrestha).

JOURNAL SUB-COMMITTEE

The new Executive of the Nepal Medical Association at the meeting held in Kathmandu on 24th March 1973 appointed Dr. S. M. Shrestha as the Editor of the Journal of the Nepal Medical Association.

As per the Article 6 (IX) A and By-Laws 7 (A) of the Constitution of the Nepal Medical Association the Editor nominated the following members to the Editorial committee. The names were submitted to the President, N.M.A for approval of the Executive committee.

1. Dr. Hemang Dixit.
2. Dr. Madan Man Malla.
3. Dr. Badri Raj Pandey.
4. Dr. B. R. Prasai.
5. Dr. Rudra Man Shrestha.
6. Dr. R. P. Sharma.

The first meeting of the Editorial Committee was held on 24th March, 1973. The following attended the meeting : S. M. Shrestha, Hemang Dixit, Madan Man Malla, Badri Raj Pande, Rudra Man Shrestha and R. P. Sharma.

1. Madan Man Malla was nominated to look after the financial aspect of the Journal.
2. R. P. Sharma was appointed as the Managing Editor.
3. The committee decided to bring out the Journal every two months. The Journal henceforth will appear at the end of February, April, June, August and December.
In view of the delay caused by the Conference, the first issue will be a combined issue for Feb-April.

Perhaps at this point, I may be permitted to digress in order to refer to the search of the skin surface for leprosy bacilli which I made several years ago. An account of this search was published in two papers which appeared in the British journal of leprosy called the *LEPROSY REVIEW*. For generations, leprosy workers had believed that leprosy was transmitted by skin to skin contact. By a method called the Composite Skin Contact smear method (described in the first of the two papers), one million consecutive microscopic fields of very infiltrated, and highly bacilliferous intact skin from 28 untreated lepromatous cases was searched for bacilli. The search took approximately 60 hours of microscope work, spread over a period of 14 months. Only 52 Acid Fast bacilli were found. Their presence was associated with heavily infected nasal secretion, and they were found on skin readily accessible to the fingers. The conclusion as to their origin seems quite obvious. By this investigation, I proved to my own satisfaction (and, I may add to the apparent satisfaction of a number of other leprosy workers) that leprosy bacilli do not appear to emerge from intact lepromatous skin.

Three years ago I began sending Dr. Rees (the director of the leprosy section of the National Institute of Medical Research in London) specimens of heavily infected noseblows. One of the specimens measured approximately $\frac{1}{2}$ ml, being part of a noseblow of a man with untreated advanced lepromatous leprosy, whom I watched expel from his nose in ONE noseblow approximately 2 ml. Dr. Rees did a quantitative estimate and found $1\frac{1}{2}$ million bacilli in the $\frac{1}{2}$ ml. of mucus I had sent him. I had previously estimated that the morphological index of the bacilli in this specimen was not less than 50%. Thus it can be worked out that in the 2 ml. of that ONE noseblow there were probably 12 million leprosy bacilli of which 6 million were viable - all that, expelled into the environment in ONE noseblow.

Dr. Rees proceeded to inoculate some of these infected noseblows into the footpads of specially prepared mice, but subsequently he did not succeed in obtaining multiplication. This, of course, was because the specimens took 10 days or so to reach London, by which time the bacilli were no longer viable. However, at that time Dr. Frank Davey returned to his leprosy work in Dichpally in Madhya Pradesh, and by special arrangement with the airlines, he was able to get specimens to London packed on ice in 24 hours. With these specimens Dr. Rees was able to obtain multiplication of bacilli in the footpads of mice, thus proving that they contained viable bacilli.

Another thing that Dr. Davey did was to collect all the noseblows and sputum from a lepromatous patient in one day, and sent that to London, packed on ice. Dr. Rees did a quantitative estimation of the number of bacilli and found that this 24 hours specimen contained no less than 380,000,000 bacilli of which 10% were viable. That is to say in 24 hours this particular case was shedding into the environment 38 million viable bacilli. Many a time in the smears, I have examined, the viability rate has not been 10%, but 60%, 70% or even 80%. Thus it will be realised that a person with active, advanced and untreated lepromatous leprosy can shed enormous numbers of live bacilli from his nose and sputum in the course of one day.