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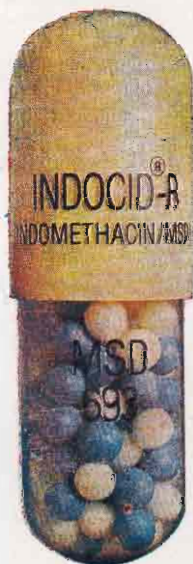
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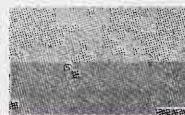
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| Urogenital Trichomoniasis | 500 mg. | Single dose of 4 tablets. | 1 |
| Giardiasis | 500 mg. | Single dose of 4 tablets. | 1 |

RECOMMENDED DOSAGE FOR CHILDREN

| DISEASE | FREQUENCY OF DOSAGE | DURATION (DAYS) |
|--|--|-----------------|
| Amebiasis (a) Amebic dysentery and all forms of Amebiasis. | 50-60 mg/kg bodyweight once daily. | 3 |
| Hepatic Amebiasis (b) Amebic Liver abscess and other forms of extra-intestinal amebiasis. | 50-60 mg/kg bodyweight once daily. | 5 |
| Urogenital Trichomoniasis | 50-75 mg/kg bodyweight as a single dose. | 1 |
| Giardiasis | 50-75 mg/kg bodyweight as a single dose. | 1 |

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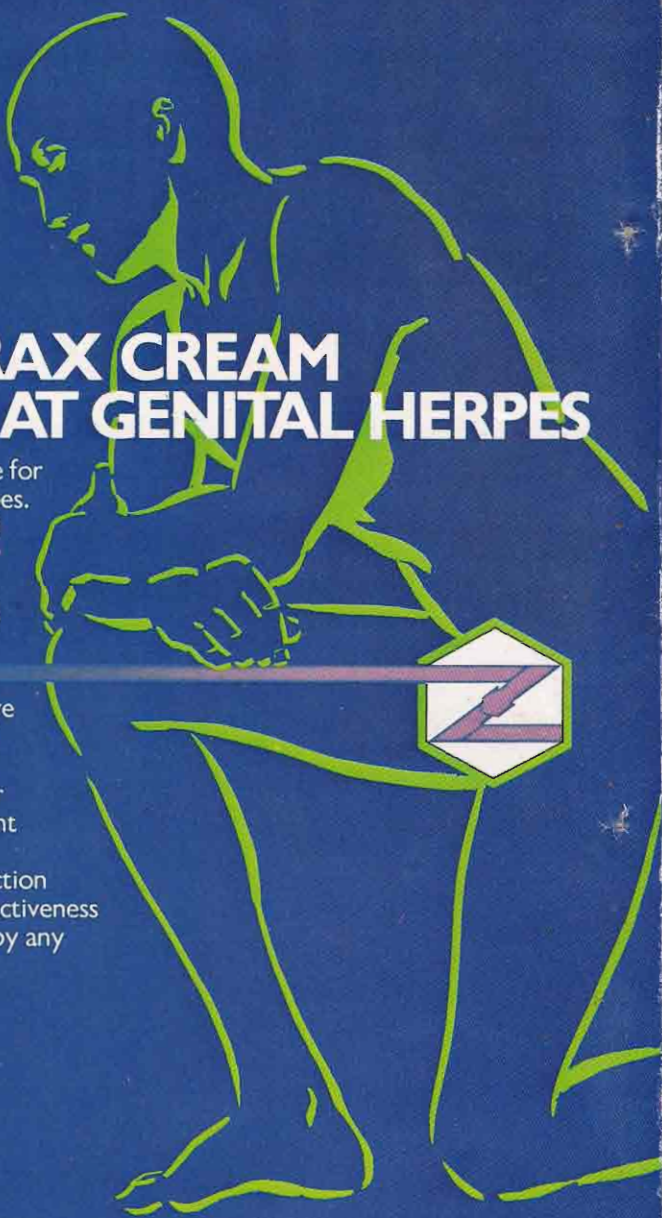
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Editorial

Our Health Statistics

Correct information about the health status of a nation is necessary, to identify the health problems, for the evaluation of health care services and for the future planning of health care programmes.

The main source of information in our country is the Annual Health Bulletin, published by the Ministry of Health. Other sources of information are, the reports of World Health Organization and small scale studies published in the local and foreign journals.

Once the information is made available, it has to be interpreted correctly. Interpretation of any data will be influenced by the accuracy of data collection, its presentation and by the bias of the interpreter.

Morbidity and mortality figures published in the Annual Health Bulletin are based on the figures obtained from state hospitals in the country. This is a major flaw in our data collection, because patients seeking treatment from non governmental institutions are excluded. Therefore, our data do not reflect the true incidence of a disease or problem, its morbidity and its mortality. What is revealed, is only the tip of an iceberg. Furthermore, state hospitals do not pay adequate attention to data collection and to the forwarding of data in time for computation. Most hospitals do not employ a medical statistician. Most

doctors do not attach importance to documentation and notification of diseases. The scant respect paid by the administrators, to the maintenance and storage of case notes (Bed Head Tickets), lend support to the above statement. The fault is in the medical education in our country. However, an attempt is made by the Faculty of Medicine in Jaffna, to stress the importance of documentation, collection, presentation and interpretation of data, in the minds of medical students, by insisting on them to submit project reports during their second, third and fifth years of study,

Underregistration of events is another flaw in our health statistics. This was clearly shown in a small scale study undertaken in Kopay Health Unit (in Jaffna), on Infant Mortality, which was published in the Ceylon Medical Journal 1984 vol 29, 177-184 and in the Journal of Tropical Medicine and Hygiene 1985 vol 88, 401-406. Authors of this study concluded, that most of the infant and childhood deaths were not registered. They had also worked out the true Infant Mortality Rate as 35.4 and not as 18 which is the official rate. Another study undertaken in the district of Anuradhapura, on neonatal tetanus, which was reported in the Annual Health Bulletin 1984, P51, revealed that the true incidence rate was 124.2; whereas the officially reported incidence was 25.2

per 100,000 live births. Another index, which does not reflect the true situation is the Crude Death Rate. Simple arithmetic shows, that for every additional 1500 deaths, this index will change by a small amount of 0.1. It is common knowledge, that several thousands have died during the last four years due to ethnic crisis, but this is not reflected in the Crude Death Rate for the years from 1983 to 1985. This is again due to non registration of deaths.

Our Honourable Minister of Teaching Hospitals, in her address to the Kandy Society of Medicine in October 1985, had lamented the lack of up to date data, to plan out an effective health service and had appealed to the doctors to conduct a complete survey of health status and health needs of the people. The Annual Health Bulletin 1985, on page 6, gives no figures of Maternal Mortality Rate for 1982 to 1985, Infant Mortality Rate for 1985 and Neonatal Mortality Rate for 1982 to 1985; but gives only provisional figures of Crude Death Rate for 1982 to 1985 and Infant Mortality Rate for 1982 to 1984. This is a glaring example of the lack of up to date data.

The classification of diseases in the morbidity tables is very confusing. The morbidity tables show that injury &

poisoning occupy the fourth place, just ahead of ill defined causes, in the order of frequency of occurrence. It will be more meaningful to separate injury from poisoning in our morbidity tables. The category of illdefined causes frustrates any serious student of medical statistics. The first article in this journal deals with this aspect in detail.

Collection of a comprehensive data on health, is a formidable task in our health care system. This can be rectified by adding one more to the already accepted seventeen areas of activity in the primary health care. A Primary Health Care Worker, who will be in charge of 500 to 600 families can be made to maintain a health card for each family. All diseases, births and deaths in a family can be entered in this card and transferred to a registry in the regional health unit regularly. This can be the start of a National Health Survey.

These comments are made not with malice, but with the vision of a true and comprehensive data on our health in the future. The Annual Health Bulletin published by our health ministry, has to be commended, as it is the major source of health statistics in our country.

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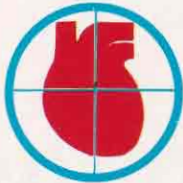
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Health Care - Need for Problem Identification

* C. Sivagnanasundram, DPH, Ph. D

Introduction

'Health is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity' (WHO definition)

A revision has been suggested by Terris¹ to this definition and it reads as follows: Health is a state of physical, mental and social well - being and ability to function, and not merely the absence of disease or infirmity. By omitting the impossible word 'complete', and introducing the phrase 'ability to function', the state of 'health' appears to be more realistic and achievable.

From this has been derived a holistic concept of health, and the term 'Optimum Level Of Function (OLOF)' has been suggested taking all factors into account². Each individual has a unique OLOF, and as such, everyone even the old and handicapped could achieve it and live a worthy life.

Hence, the social system of a country should strive to help everyone to function at his optimum level. This system comprises of socio - economic, environmental, cultural, political and health care components; and all of them contribute to the health status of the people. In identifying problems affecting health, one has to deal with all these components. This paper however dis-

cusses only one of these sectors, namely problem identification for health care delivery; and that too the Health Service of the Government.

Health problems

Health problems as perceived from morbidity and mortality patterns, have been identified from time to time, in order to plan health care. Table I shows the health care strategies of the past, based on overall problems in the different periods. These strategies sum the impact of various factors that determine health and health care - demographic happenings, social developments, epidemiological features and availability of drugs, vaccines and medical technology.

In the dawn of this century, this country was preoccupied with mass scale epidemics; first with small pox and classical cholera, and then with malaria. Following the control of the 'quarantine diseases', the emphasis moved to endemic diseases - ankylostomiasis, dysenteries, typhoid and tuberculosis - together with endemic malaria exploding as regular epidemics every 3 - 5 years. With such a load of diseases in the population, malnutrition was passed off as norm. In mid 1940s, with the well-known demographic revolution³, when death rates tumbled down, and the provision of equally well recognised social amenities,

* Dean, Faculty of Medicine, University of Jaffna.

TABLE I

Strategy for Health Care

| Period | Strategy |
|----------------------|---|
| End of 19th C — 1900 | Control of epidemics — Quarantine |
| 1901 — 1920 | Control of epidemics — Sanitation |
| 1921 — 1940 | Control of endemic diseases — Public Health |
| 1941 — 1960 | Personal Health Service — Preventive Medicine |
| 1961 — 1980 | Family Health & Social Medicine |
| 1980 — 2000 | Primary Health Care — Health For All |

the country turned to care for individual health especially that of mothers and children; and then to family health and social medicine. The advent of DDT on this improved and dignified social milieu controlled malaria morbidity and reduced its mortality to very low levels. Therapeutic explosion and introduction of vaccines humbled the common endemic diseases, and the positive aspect of health came to be recognised. Recently with the re-discovery of an age old concept and the academic distinction given to it in 1978 at Alma Ata⁴, the correct approach for good 'Health For All' is said to be Primary Health Care (PHC) strategy; and this to co-exist with expanding medical knowledge and ultra-modern technology. It is therefore left to us to define, clarify, modify and practise this ideology of PHC to suit the requirements and resources of this country.

First step in this process is to identify our health problems and arrange them in priority. In recent years, by various approaches, the intense health problems have been presented in several studies.^{5 6 7 & 8} Table II summarises the more important attempts. A scrutiny of the table brings out the fact that the diseases which form bulk of our problems, are those that could be substantially reduced by paying attention to nutrition, personal and environmental hygiene, prevention and better care of gastro-intestinal and respiratory diseases, and prevention of accidents.

However, any attempt to quantify mortality and morbidity from published data, for formulating care faces difficulties, due to the following deficiencies:

TABLE II

Health Priorities — Selected Studies

| Year | 1973 | 1978 | 1981 | 1985 |
|-------------------|---|--|--|---|
| Study | National Health Manpower Study⁵ | Country Health Planning⁶ | M.O.H Report to National Health Council⁷ | Annual Health Bulletin⁸ |
| Priorities | 1st Priority Group | Position in Priority | PHC Level Morbidity | Hospital Morbidity |
| | Family Health and Family Planning | 1. Malaria | Gastro-intestinal inf. | Complications of Pregnancy, Child birth & Puerperium* |
| | Nutrition | 2. Gastro-enteritis | Anaemia & Malnutrition | Diseases of the Respiratory System |
| | Cont.rol of Communicable diseases | 3. Accidents | Diseases of infancy | Infections & Parasitic diseases |
| | | 4. Bac. dysentery | | |
| | | 5. Anaemia | | |
| | | 6. Avitaminosis & other Nutritional Diseases | PHC Level Mortality | Injury & Poisoning Symptoms, Signs & Ill-defined Conditions |
| | 2nd Priority Group | 7. Tuberculosis (all forms) | Perinatal causes | |
| | Child Care | 8. Typhoid | Pneumonias | |
| | Dental Care | 9. Respiratory diseases | Myocardial infarction & Other heart diseases | Diseases of the Circ. System |
| | | 10. Venereal diseases | | |
| | | 11. Helminthiasis | Injury & Poisoning | Diseases of the Circ. System |
| | Malignancies | 12. Diseases of infancy | | Injury & Poisoning |
| | Heart disease | + | | Infections & Parasitic diseases |
| | Mental disease | 24 other diseases | | Conditions in perinatal period |
| | Problems of aged | | | Diseases of Respiratory System |
| | | | | Symptoms, Signs, & Ill-defined Conditions |

* Includes normal deliveries

Mortality data

1. Under - registration of deaths

Recently a study⁹ in the area of MOH, Kopya showed that deaths of infants and children 1-5 years were under - registered to the extent of 64% and 66% respectively. It is possible there is under-registration to varying degrees in other age groups, and in other MOH areas.

2. Error in reporting cause of death.

This deficiency is largely due to the Layman registrars who enter cause of death from information given by relatives of the dead. Analysis of death returns in November 1980, showed that only 10.2% of the deaths reported by the rural registrars (Laymen) had taken place in hospitals and therefore were medically certified¹⁰. In the absence of post-mortem examinations in most of the deaths, it is likely that in some instances even the causes given by medical men may be wrong. Further, the correct procedure for certification of cause of death may not be always adhered to. Special training is necessary to do this properly.

3. High percentage of deaths assigned under 'Symptoms and Signs and ill-defined conditions'

Over 30% of the total deaths is classified under this group. The percentage is high as 12% even for deaths reported by medical registrars¹⁰. About 7% of all deaths and 21% of deaths under the age of 5 years taking place in government hospitals come under this group⁸.

Morbidity data

Statistics on morbidity which is more important than mortality figures for monitoring health status suffers from even greater deficiencies, such as:

1. Inadequate data

Data are available only from hospitals. Information necessary for PHC are almost non-existent, as the load of diseases dealt with by general practitioners and ayurvedic physicians is not accounted for.

2. Poor notification of notifiable diseases

It is well-known that all these diseases are under - reported even by government hospitals.

3. Doubtful diagnosis of diseases.

A bulk of the diseases, even in hospitals is diagnosed on history and signs and symptoms, and thus the diagnosis may not be correct. About 9% of the diseases is dumped under 'symptoms and signs and ill-defined conditions'⁸.

4. Large grouping of diseases

The published information contains groups of diseases by broad categories, and are thus not amenable to usable interpretation.

Examples of these are classification by systems of the body, and groups like 'injury and poisoning', 'certain conditions originating in the perinatal period', and 'endocrine, nutritional and metabolic diseases'.

The inclusion of normal deliveries

in the group 'complications of pregnancy, child birth and puerperium' is another defect that disturbs the picture of morbidity.

5. Undiscovered morbidity

Mental disease is a classic example of diseases that are important but do not come up as priority in published tables. The National Manpower Study⁵ includes it in the third priority group (Table II). In the Country Health Programming Report⁶, mental disease (psychosis) is 29th among 36 priority diseases, coming next to scabies. Among the hospital patients, it ranks 14th, and hospital data is only a tip of the iceberg of this problem. Similarly, dental diseases do not get the prominence they deserve. Awareness of similar illnesses and then systematic research would unearth many more problem diseases.

Due to these drawbacks, the known epidemiology of diseases in Sri Lanka is vague, and therefore setting up priorities, planning and management are difficult tasks to the health planner and administrator.

The Needs

Correction of the deficiencies in data, summarised above is a priority need for any rational planning for health care at all levels of the health services system.

Together with this, the data collected should be with a purpose, and new forms and records must be designed, so that unnecessary or ambiguous information is left out. Pre-coded forms for computer use are preferred. The new system of recording should take into account

proper record linkage from one health care unit or institution to another, with an inbuilt provision to avoid duplication of data. Record linkage is a particular need for PHC, which depends on a good referral system for its success.

Information obtained should be collated and analysed in more detail, and published, so that it is readily available for use at all levels.

It is also realised that health problems vary from district to district, the infant mortality rate being a well-known example. It is a need, therefore, that data are published by districts. In fact, it is necessary to collect data that is suitable for the need of the district and analyse them specifically. This leads us to the need for Health Service Research, which should be done, again at all levels - Director General, Regional Director and MOH.

All this demands training of personnel on research methodology for health service. In this respect, it is worthwhile studying the experience of a country like Malaysia, where mid-level managers (Deputy Directors, Maternal and Child Health Medical Officers, Nutritionists, Health Education Officers etc.) are trained in Health Systems Research, so that they could help the decision makers,

In conclusion, it is necessary to stress the fact that every action concerning the health service is a continuing process. Our problems and priorities change with demographic events (Eg. migration), socio-economic developments (Industrial projects), political process (as we witness) and epidemiological happenings - new diseases may plague us, Eg. AIDS. We live in a world of uncertainties and events do happen rapidly. Even a well thought of Five Year Plan can be out of date in its infancy.

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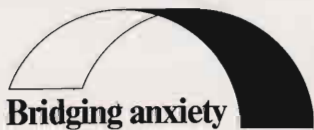
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ROCHE

Childhood Deaths in the Kopay Health Unit Area

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Summary

In the Kopay MOH area, during one year there were 44 deaths in children 1—4 years of age (under fives). Of these, only 34 % were registered by the national registry. The childhood death rate was 3.8. The chief causes of death were gastroenteritis and lower respiratory tract infection (LRTI): the under 3 year group was most affected. We suggest identification of this age group for special care in childhood. About 27 of the 44 deaths could have been avoided by improved primary health care (PHC) and better referral. We identify the following as some measures that could reduce mortality in childhood: Education of the Ayurvedhic Physicians and mothers on value and use of Oral Rehydration Salt (ORS), study of the management of childhood diarrhoeas by Ayurvedhic physicians, recognition of the socially deprived classes for prevention of LRTI fatality, better care during measles and its prevention, research into the effectiveness of hospital care, and careful study of the cause of death by postmortem examination. These measures need consideration in the implementation of PHC.

Introduction

Children in the pre-school period are at special risk of death. The infant mortality rate in Sri Lanka is 2.8 times that in UK, while the childhood mortality per 1000 childhood population is 6.3 times higher than that of U. K. The importance of infant mortality in monitoring the environmental conditions, socio-economic status and efficacy of health care services of a country, is well known. As pointed out by Jelliffe and Paget Stanfield (1978)¹, the over-emphasis on infant mortality may be

somewhat misleading, as more children succumb later, having already been maimed by cumulative disease episodes of infancy. Any attempt to reduce childhood mortality in a region requires research into local epidemiology of this problem, so that preventive services can be devised based on priority needs of the area.

In this paper we present an epidemiological study of 44 childhood deaths that took place in one year in the area covered by the Health Unit, Kopay.

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Material and Method

The childhood (1-4 years) deaths in the area of Health Unit, Kopay, during a one year period were analysed.

Kopay is one of the 7 Health Units in the Jaffna District which is in the Northern Province of Sri Lanka. The area covered by this unit is 136 sq. km. and it has a population of 111,649 (estimated for 1982). The area is divided into 20 Public Health Midwife (PHM) divisions. The Medical Institutions in this area comprise 2 Peripheral Units, 3 Central Dispensaries and one Central Dispensary with a Maternity Home. The other hospitals serving the people of this area are the Teaching Hospital, Jaffna, situated 5 kilometers from its (Kopay) southern boundary and Base Hospital, Point Pedro, 16 kilometers from the northern boundary. Thus, the provision of health care services is good.

The period of study was one year from 1st June 1982. The public Health midwives were requested to report all childhood deaths occurring in their areas. They obtained the information during their routine home visits and also by inquiring from the mothers at the clinics. The public health inspectors and the trained health volunteers assisted them. School children too were requested to report childhood deaths occurring in their families or in their neighbourhood.

All the deaths were investigated by one of us, within one month of death. In the case of hospital deaths, the diagnosis was obtained from hospital records and in the others it was made by us on the history and symptoms given by parents. No postmortem examination was done in any one of these deaths. A proforma was used in the

investigation and this included information on socio-economic factors and use of health services.

Results

Registration of deaths

Of the 44 deaths, only 15 (34.1%) were found to have been registered by the Registrar of births and deaths; and all these 15 were of the 28 deaths that took place in hospitals. Thus only 53.6% of the hospital deaths, and none of the deaths that occurred in the homes were included in the mortality statistics of the country.

TABLE I

Childhood deaths by age, Kopay

| Age | Sri Lanka * Population, 1981 (percentage) | Kopay Deaths | |
|------------|---|-----------------|-------|
| | | No. | % |
| 1 yr — | 2.4% | 24 | 54.6 |
| 2 yrs — | 2.5% | 15 | 34.1 |
| 3 yrs — | 2.8% | 01 | 2.3 |
| 4-5 year — | 2.7% | 04 | 9.1 |
| 1-5 yrs | 10.4% | 44 | 100.0 |

* Director of Census & Statistics
(pers. Com.)

Age and causes of death

The age distribution and the causes of death are given in Tables I and II. Thirty nine (88.7%) of the childhood deaths took place in the under 3 year age group. Gastroenteritis and lower respiratory tract infections were the chief causes of death, contributing to 63.7% of the deaths. The 6 deaths grouped

TABLE II
Causes of deaths by age

| Cause | 1 yr — | 2 yr — | 3 yr — | 4—5 yrs | 1—5 yrs | % |
|---------------------------|--------|--------|--------|---------|---------|-------|
| Gastroenteritis | 11 | 03 | — | 02 | 16 | 36.4 |
| LRTI | 10 | 01 | 01 | — | 12 | 27.3 |
| Encephalitis & Meningitis | 01 | 02 | — | — | 03 | 6.8 |
| Accidents | — | 03 | — | — | 03 | 6.8 |
| Malignancy | — | 01 | — | 01 | 02 | 4.6 |
| Others | 01 | 05 | — | — | 06 | 13.5 |
| Not known | 01 | — | — | 01 | 02 | 4.6 |
| All causes | 24 | 15 | 01 | 04 | 44 | 100.0 |

under 'other causes' were each due to encephalopathy, Reye's syndrome, amoebic colitis, toxæmia due to round worms, septicaemia and toxæmia following impetigo.

Gastroenteritis

The duration of illness ranged from 1 to 30 days (median - 5 days). Of the 16 deaths, 11 (68.8%) were children who had been in hospital; 5 of them staying under one day and 6 for periods between 5 and 18 days. All the children in hospital were found to be dehydrated. In 7 cases there was delay in coming to hospital: 3 due to difficulty in getting transport, 2 due to earlier Ayurvedic treatment,* 1 due to delayed referral by General Practitioner (GP) and 1 because the parents refused admission on first visit. Another patient died a day after his discharge

* Refers to Siddha-ayurveda throughout the paper, except the reference to the study in the Kandy District. These are indigenous systems of medicine.

from the hospital. It appears that all these 8 deaths could have been avoided. Of the 5 cases that were not hospitalised, 2 were treated by ayurvedic physicians, one by ayurvedic and later by a western physician and one at the Out Patients Department (OPD). One had home remedies with charms. (See Table 111).

ORS had been given to 6 (37.5%) of the 16 cases; of these 4 were subsequently admitted to hospital. Their mothers did not have sufficient knowledge of the use of ORS. Malnutrition was associated with 8 (50%) cases, and in one diarrhoea followed measles. Malnutrition was diagnosed from the growth charts of the children.

Lower respiratory tract infections (LRTI)

Of the 12 deaths due to LRTI, 10 (83.4%) occurred in the under 2 year group. Malnutrition was associated in 6 (50%) and measles in 3 (25%). The duration of illness ranged from 1-20 days (median 5 days). Eight children

TABLE III

Type of treatment in two major illnesses

| Treatment | Gastroenteritis | LRTI |
|---------------------|-----------------|------------|
| Home remedy | 01 (6.3%) | — |
| Ayurvedic only | 02 (12.5%) | 01 (8.3%) |
| Ayurvedic & Western | 04 (25%) | 03 (25%) |
| Western only | 09 (56%) | 08 (66.7%) |
| All | 16 (100%) | 12 (100%) |

were hospitalised, 6 of them for less than a day, and were brought to hospital in a moribund state.

Accidents

All the three accidental deaths were in the 2 — 3 year group. One death each was due to road accident, poisoning due to accidental ingestion of ephedrine tablets and burns.

SOCIO - ECONOMIC FACTORS**Family income and occupation**

Twelve (27.3%) of the families had an income less than Rs. 450 per month; 22 (50%) between Rs. 450 and 1000; and 10 (22.7%) over Rs. 1000. (Twenty eight rupees is equal to one US Dollar)

Twenty (45.5%) of the fathers were employed as unskilled workers, others were of comparable occupational status - clerks, teachers, electricians, shop keepers, small farm owners etc. Seven mothers were employed, four of them as unskilled workers.

Education

Sixteen (34.4%) of the fathers and 20 (45.5%) of the mothers had no education beyond grade IV. Seventeen (38.6%) fathers and 19 (43.2%) mothers had education between grades V and IX. Eleven (25%) fathers and 5 (11.1%) mothers had studied up to grade 10 and above.

Housing, latrines and wells

Twenty four (54.6%) of the families had unsatisfactory housing; 28 (63.6%) had no latrines and 31 (70.5%) had to share wells.

Social Disability

Seventeen (38.6%) families were socially disabled (see discussion). Eleven (64.7%) of them were families of unskilled workers. Nine (52.9%) of the fathers and 12 (70%) of the mothers in this group had no education beyond grade IV. In fact 3 of the 4 fathers and all 4 mothers who had no formal education it all were from the socially disabled families.

Use of Health Care Services

Attendance at child welfare clinics was satisfactory in 10 (62.5%) of the children dying of gastroenteritis and in 6 (50%) of those dying of LRTI. The type of treatment given to these children during their illness is shown in Table III.

Discussion

Under registration of childhood deaths was an incidental but important finding in this study. This could explain the low estimated childhood mortality rate of 2.5 (in 1980) for the Jaffna District, which includes Kopay, (Registrar General - personal communication).

The childhood mortality rate computed by us for Kopay is 3.8, taking the relevant population to be 10.4% of the total (Table 1). This figure of 3.8 compares realistically with the estimates of 3.5 and 3.8 given by the Registrar general for Colombo where registration is probably most complete, and Kandy respectively. The area of Kopay adjoins Jaffna Municipality, and is within the reach of two major hospitals. As such it probably has a lower rate than remote areas like Kilinochchi in the Jaffna District. The actual rate for the whole Jaffna District may therefore be well above 4, comparable to the estimated rates for Mannar (4.6), Amparai (4.9) and Batticaloa (6.3).

Correct registration of deaths is a pre-requisite for any epidemiological study based on mortality. Small studies like the present one could be more beneficial than analysis of figures routinely collected, which could be in-correct. (Sivarajah, Sivagnanasundram and Wijyaratnam, 1984².)

About 89% of the childhood deaths took place under 3 years of age; 55% in the 1 — 2 year group and 34% in the 2 — 3 year group. Further, 89% of the deaths due to gastroenteritis and LRTI (which together form 64% of the total deaths) occurred predominantly in the 1—3 year group; 75% being in the 1—2 year group. We therefore suggest that after infancy, the subsequent two years be identified separately in the implementation of Primary Health Care. This group, among the pre-school children needs a more co-ordinated and closely monitored field, clinic and hospital care, especially for the prevention and treatment of two diseases - gastroenteritis and LRTI. Care of nutrition of these children will also help in the prevention of deaths; 50% of the children were malnourished.

Although all deaths due to gastroenteritis and most of the LRTI deaths could be regarded as preventable; in the absence of pathological and post mortem findings, we have identified as preventable, — only those due to delay in getting proper treatment, neglect by parents and obvious deficiencies in health care delivery — a total of 24 deaths which were distributed as follows: Gastroenteritis (13), LRTI (8), Roundworms, Impetigo and Amoebic Colitis (one each). To this list probably the 3 accidental deaths should be added, bringing the preventable deaths to 27.

Three cases of measles and another suspected as measles were not treated in time for respiratory infection because of cultural fad. The contribution of measles to morbidity and mortality in pre-school children is well known.

Bhaskaram, Vinodini Reddy, Shyam Raj and Bhatnagar (1984)³ have shown that for about 6 months following measles, children fell ill ten times more often than those in the control group. We did not inquire for a history of measles as far back as 6 months prior to death, in which case measles may have been linked with more of these deaths. That measles as an illness should not be taken lightly, proper management of it and the necessity for treatment of complications, should be made known to the mothers. In this context we are happy to note that measles immunization has been introduced in Sri Lanka.

Five cases of gastroenteritis treated by traditional Ayurvedic physicians have been included as preventable deaths, as the treatment did not include correction of dehydration. Among the practising ayurvedic physicians (Ayurvedic, Siddha-Ayurvedic) the traditional group (as opposed to those trained in an approved Institution) form more than 75%. In the Kandy District it was found that about third of their patients consisted of children under 5 years (Sivagnanasundram & Nugegoda, 1979).⁴ We suggest that the ayurvedic physicians are given a training in the use of ORS.

Five causes of gastroenteritis have been in hospital for periods between 5 and 18 days before death. We feel that review studies are indicated on care of children in hospitals. Shortage of nursing staff in our hospitals is well known and this is bound to affect nursing care.

Families that belong to the 'socially disabled' group have a higher percentage of social and environmental handicaps, poor housing, low income jobs, lack of latrines and lack of wells, than the rest. The socially disabled group form 30—35% of all the families in our study area (Daniel—Personal Communication)⁵. Although in our study of Infant deaths (Sivagnanasundram, Sivarajah & Wijayarajam, 1985)⁶ we found 50.5% of deaths in this group, the childhood deaths in this group is only 38.6%. However, taking only the deaths due to LRTI, 58.3% are in this group showing that social disability has had an association with mortality due to LRTI. The finding that the children of the other groups, with better social amenities also succumb to gastroenteritis equally, make us postulate that factors like delay in commencing rehydration therapy (lack of knowledge or non availability of ORS) and delay due to prior ayurvedic intervention were more important than social conditions in causing deaths due to gastroenteritis.

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HFA 2000—Prospects for Northern Sri Lanka

N. Sivarajah,* DTPH, MD (Community Medicine)

Summary

The Public Health Midwife (PHM) is the backbone of the proposed Primary Health Care delivery system in Sri Lanka. The shortage of this category of health worker is a limiting factor in achieving the goal of HFA 2000. When the requirement of PHMs is estimated on the basis of one PHM for a population of 4000, there is a shortage of 18% in the country. This shortage is 47% in the Northern and Eastern Provinces. The worst affected is the Vavuniya health division with a shortage of 60%. The reasons for this shortage are inadequate intake of persons for training and under-utilization of facilities that are available in the Training Schools in the Northern and Eastern Provinces of Sri-Lanka.

Introduction

Sri Lanka was one of the signatories to the Alma Ata declaration in 1978, and it pledged to achieve Health for All (HFA) by 2000 AD, using Primary Health Care (PHC) as a strategy. At the 35th World Health Assembly, all member-states agreed to mobilize all human resources to the utmost extent possible, for the implementation of this strategy.

The health care delivery system in Sri Lanka is being restructured so that there is a Public Health Midwife (PHM), who is re-styled as "Family Health Worker" (FHW) for a population of 3000.¹

The PHM is to be the back-bone of this PHC delivery system.

It was only in 1897 that midwifery training was started. Until then, domiciliary midwifery was conducted by "Untrained" birth attendants in the villages. The trained midwives, performed their duties in the field, only from 1926 onwards.

Today the job functions of PHMs have changed considerably since the first batch of midwives passed out. With 76.7% of the deliveries occurring in government hospitals¹, and a considerable number occurring in private nursing homes, the PHM performs very few deliveries at homes and thus has the time for other functions, such as immunization, school health work and health education.

The present training programme of PHMs consists of a course of training in a Nurses Training School for one year, and a further six months of training in the field.

Availability of PHMs

At present, a PHM covers an area with a population between 3000 and 5000. In rural and agricultural areas the population covered is nearer to 3000 and in compact urban areas the population covered is nearer 5000.

If the requirement of PHMs is estimated on an average of one PHM for

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TABLE I
Availability of Public Health Midwives

| Area | Estimated Mid Year Population (1985) | * Number of PHMs needed | ** Number available | Shortage % |
|---------------------------------------|---|-------------------------------|---------------------------|---------------|
| Northern Province | 1,249,000 | 313 | 167 | 47 % |
| Eastern Province | 1,123,000 | 281 | 146 | 48 % |
| Northern & Eastern Provinces | 2,372,000 | 594 | 313 | 47 % |
| Sri Lanka | 16,043,000 | 4011 | 3255 | 18 % |
| Sri Lanka (excluding North & East) | 13,671,000 | 3417 | 2942 | 14 % |

* Calculated on the basis of one PHM for 4000 population

** Annual Health Bulletin, Sri Lanka 1985 p. 31

TABLE II
Availability of Public Health Midwives in Northern Province

| RDHS' Region | Estimated population for 1985 | * Number needed | Number available | Shortage % |
|-------------------|-------------------------------------|-----------------------|---------------------|---------------|
| Jaffna | 902,000 | 226 | 132 | 42% |
| Vavuniya | 347,000 | 87 | 35 | 60% |
| Northern Province | 1,249,000 | 313 | 167 | 47% |
| Sri Lanka | 1,6043,000 | 4011 | 3255 | 18% |

* Calculated on the basis of 1 PHM for 4000 population

Source: Annual Health Bulletin, Sri Lanka, 1985 p. 31

4000 population, Sri Lanka will need 4011 PHMs to cover the estimated mid year population of 16,043,000 for 1985. However the number of PHMs available is 3255 resulting in a shortage of about 18%.

However, when the number of PHMs in the Northern and Eastern provinces is estimated, there is a shortage of 47%. (Table I)

The Northern Province has two Regional Directors of Health Services (RDHS) - Jaffna and Vavuniya. The programme in the area of the RDHS Vavuniya is more handicapped with 60% shortage of PHMs (Table II). The effect of this shortage becomes obvious when global indicators for monitoring HFA 2000 are considered by districts. The percentage of population in Sri Lanka with adequate sanitary facilities at home or in its vicinity is 66.6%. The comparable figures for Mannar (24.2%), Vavuniya (19.2%), Mullaitivu (16.8%) and Batticaloa (17.3%) are poor. Even in the Jaffna District only 55% have adequate sanitary facilities at home or in its vicinity. Inadequate sanitary facilities is the major cause of high morbidity & mortality due to gastrointestinal diseases -especially in the young.

The percentage of infants cared for by trained staff in Sri Lanka is 80%. However, the figure for Vavuniya is 43.5%¹. The data for Mannar & Mullaitivu districts are not available and are probably closer to those given for Vavuniya.

Suitably trained paramedical personnel in adequate numbers are essential for the achievement of HFA 2000 using PHC as a strategy. There is severe

shortage of not only the PHM who is the front line worker in Primary Health Care, but also of other paramedical personnel like Public Health Inspectors, School Dental Therapists and Medical Laboratory Technologists in the Northern and Eastern parts of this country. One reason for this shortage is the absence of training programmes in Tamil for the training of paramedical personnel except for the nurses and Public Health Midwives. Another reason for the shortage is the under-utilization of facilities already existing for training. This is well illustrated in Table III.

The Northern and Eastern Provinces, have each a Nurses Training School situated in Jaffna and Batticaloa respectively. The National Health Manpower study³ shows that the permanent Nurses Training Schools other than Jaffna and Batticaloa trained between 43 and 55 students annually during the period 1962-1970. The NTS Jaffna alone has a capability to train around 50 PHMs annually.

TABLE III

**Output of PHMs from
Nurses Training Schools (NTS)
Conducting Training in Tamil Medium:
1976 - 1985**

| Year | NTS Jaffna | NTS Batticaloa | Total |
|-------|------------|----------------|-------|
| 1976 | — | — | — |
| 77 | 05 | — | 05 |
| 78 | 33 | — | 33 |
| 79 | — | — | — |
| 80 | — | — | — |
| 81 | 78 | — | 78 |
| 82 | 48 | — | 48 |
| 83 | 20 | — | 20 |
| 84 | 02 | 14 | 16 |
| 85 | — | — | — |
| Total | 186 | 14 | 200 |

Table III shows that the output from the two schools had been only 200 during the past ten years. This output is barely sufficient to replace the vacancies created by retirements, resignations and deaths. At present only 11 PHMs are undergoing training at the NTS in Jaffna. The inadequate intake of students for training not only impedes the Primary Health Care strategy, but also increases the cost of training a PHM.

The cause for the poor intake is obscure. It is said that there is a dearth of applicants. But data collected recently from Health Volunteers at clinics conducted by Medical Officers of Health in the Jaffna District give a different picture. There were 284 health volunteers with the basic qualifications who were prepared to undergo training as PHMs. In fact 245 of them had more than the basic qualification needed. Hence there is no shortage in the number of young girls who are eligible and are prepared to be trained as PHMs.

The scarcity in the number of trainees is probably the result of the process of recruitment — from advertising the course to selection. Trainees for PHMs course should be selected by open advertisement at the provincial, district and pradesha mandalaya levels.

Unless sufficient numbers are selected and trained as PHMs, HFA 2000 will remain a distant dawn for those who live in Northern Sri Lanka. In fact, even the existing Primary Health Care is likely to collapse in these regions.

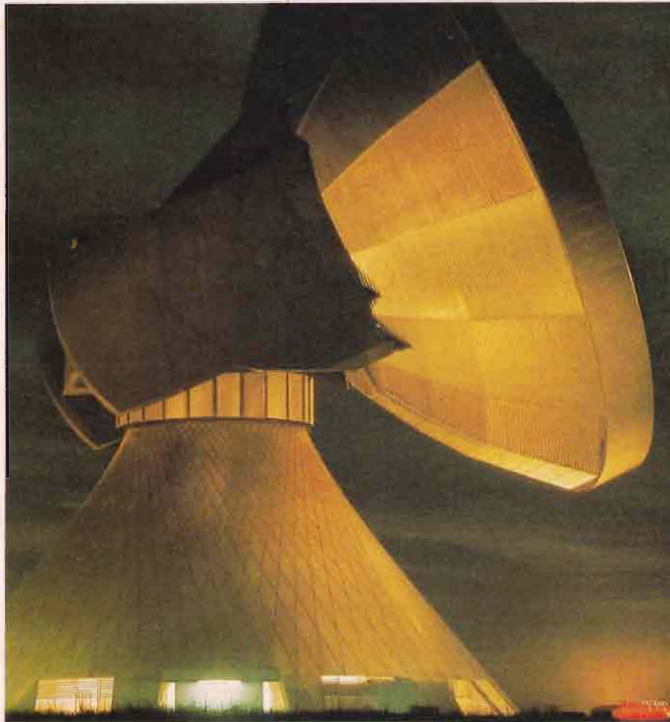
In addition to the training of PHMs and Nurses, post basic training of these paramedical personnel should be organized at the Jaffna Nurses Training School, in order to have the personnel to supervise and monitor the work of PHMs.

The Faculty of Medicine, University of Jaffna could participate in such training programme or as an interim measure, organize short courses for these categories of staff with the concurrence of the Ministry of Health.

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Outcome of Induction of Labour in A University Unit *

(A Prospective Study)

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Summary

Sixty cases were induced in the University Obstetric Unit during a 12 month period 1 March 1982 to 28 February 1983 amongst 1605 deliveries, giving an induction rate of 3.7%. Induction of labour was by amniotomy and simultaneous Syntocinon (Synthetic Oxytocin) infusion in 52 (86.6%) cases and Syntocinon infusion alone in the remainder. The mean induction delivery time was 8 hours 51 minutes for primigravidae (27 cases) and 6 hours 4.4 minutes and 2 hours 46.9 minutes for gravida 2-4 (24 cases) and grandmultiparae (8 cases) respectively with significance testing showing high significance ($p < 0.01$) between the primigravidae and grandmultiparae groups. Eleven (18.3%) patients were delivered by Caesarean section of which only 4 (6.6%) were thought to be due to failed induction. Forty five patients (75%) were delivered within 12 hours. Of these 18 (40%) were primigravidae which accounted for two-thirds of the primigravidae induced.

Introduction:

Induction of labour refers to the adoption of measures designed to initiate labour earlier than it would take

place as a natural event (Percival 1980)¹. Although in recent years the introduction of new methods, with increased efficiency and safety, has considerably extended the scope of the procedure,

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5. Registrar

there is still controversy about the place of induction of labour in current obstetric practice. This is because while induction may bring benefits, it also causes hazards to mother and baby especially when the indications are based on arbitrary or inadequate criteria.

With a view to determining for ourselves, the safety, reliability and outcome of induction of labour, a prospective study was undertaken in the University Unit during a one year period from 1 March 1982 to 28 February 1983

Materials and Methods:

Labour was induced in 60 (3.7%) of 1605 deliveries. After routine preparation, for cases with a favourable or 'ripe' cervix a low amniotomy was performed and a simultaneous intravenous Syntocinon infusion of 3 Units in 500 ml. 5% dextrose, initially at 20 drops per minute, was administered. The dose was then increased by 10 drops per minute half hourly to a maximum of 60 drops per minute. If at this stage regular contractions had not been established then 6 units were used in the next 500 ml. dextrose starting at 30 drops

per minute and the rate increased as above. In cases where the cervix was 'unfavourable' amniotomy was not performed. Maternal sedation was, as a rule avoided, unless the patient was in distress: in such cases 50 mg pethidine was given if the cervix was less than 5 cm dilated. Routine monitoring comprised recording of maternal pulse, blood pressure, foetal heart rate and uterine contractions (its frequency and duration) at 30 minutes interval. A four hourly maternal temperature chart was also maintained.

Results:

These are summarized in Tables 1 to 6. Table 1 shows the incidence of induction of labour. The indications for induction of labour in the 60 cases are shown in Table 2. Prolonged pregnancy comprising 35 cases (58.3%) topped the list. The outcome of induction of labour in this study is indicated in Table 3. Eleven (18.3%) out of 60 patients failed to deliver by the vaginal route. The indications for Caesarean section are given in Table 4. The

TABLE I
INCIDENCE

| | | | | | |
|--|----------------|------------------|-------------------|-------------|-------|
| Total Number of Deliveries | | | | : 1605 | |
| Number of Inductions | | | | : 60 (3.7%) | |
| PARITY | P ₁ | P ₂₋₄ | P ₅ &> | TOTAL | % |
| Amniotomy & Simultaneous Syntocinon infusion | 23 | 22 | 07 | 52 | 86.7% |
| Syntocinon infusion alone | 04 | 03 | 01 | 08 | 13.3% |

TABLE II

Indications for Induction of Labour

| INDICATIONS | P ₁ | P ₂₋₄ | P _{5&>} | TOTAL |
|----------------------------------|----------------|------------------|-------------------------|------------|
| Prolonged Pregnancy | 14 | 18 | 03 | 35 (58.3%) |
| Pre-eclampsia | 04 | 03 | 01 | 08 (13.3%) |
| Premature rupture of membranes | 04 | 02 | — | 06 (10.0%) |
| Elderly primigravida | 02 | — | — | 02 (3.3%) |
| Mild cephalopelvic disproportion | 02 | — | — | 02 (3.3%) |
| Malposition | 01 | — | — | 01 |
| Ante-partum haemorrhage | — | — | 01 | 01 |
| Bad Obstetric history | — | 02 | — | 02 (3.3%) |
| Death in Utero | — | — | 01 | 01 |
| Foetal abnormality | — | — | 01 | 01 |
| Routine ('Favourable' cervix) | — | — | 01 | 01 |

TABLE III

Outcome of Induction

| PARITY | P ₁ | P ₂₋₄ | P _{5&>} | TOTAL |
|--------------------------------|----------------|------------------|-------------------------|------------|
| Number Induced | 27 | 25 | 08 | 60 (100%) |
| Spontaneous vaginal deliveries | 18 | 21 | 08 | 47 (78.3%) |
| Forceps Deliveries | — | 02 | — | 02 (3.3%) |
| Caesarean sections | 09 | 02 | — | 11 (18.3%) |

TABLE IV

Indications for Caesarean Section

| INDICATION | P ₁ | P ₂₋₄ | P _{5&>} | TOTAL |
|--|----------------|------------------|-------------------------|------------|
| Number of Cases delivered by Caesarean section | | | | 11 (18.3%) |
| Failed Induction | 04 | — | — | 04 (6.6%) |
| Foetal Distress | 03 | 01 | — | 04 (6.6%) |
| Lack of Progress | 02 | 01 | — | 03 (5%) |

TABLE V

| TIME IN HOURS | Induction Delivery Interval | | | TOTAL |
|---------------|-----------------------------|------------------|-------------------------|------------|
| | P ₁ | P ₂₋₄ | P _{5&>} | |
| 0 — 3.59 | 08 | 07 | 07 | 22 (36.7%) |
| 4 — 7.59 | 04 | 08 | 01 | 13 (21.7%) |
| 8 — 11.59 | 06 | 04 | — | 10 (16.6%) |
| 12 — 15.59 | 07 | 05 | — | 12 (20%) |
| 16 — 19.59 | 01 | — | — | 01 |
| 20 — 23.59 | — | 01 | — | 01 |
| 24 — 27.59 | — | — | — | — |
| 36 — 39.59 | 01 | — | — | 01 |

TABLE VI

| PARITY | Foetal Outcome | | | TOTAL |
|-----------------------|----------------|------------------|-------------------------|-----------|
| | P ₁ | P ₂₋₄ | P _{5&>} | |
| Number Induced | 27 | 25 | 08 | 60 (100%) |
| Live Births | 27 | 24 | 06 | 57 (95%) |
| Fresh stillbirths | — | 01 | 01 | 02 (3.3%) |
| Macerated stillbirths | — | — | 01 | 01 (1.7%) |
| Neonatal Deaths | 01 | — | — | 01 (1.7%) |

Caesarean section rate was 18.3% as compared with the overall Caesarean rate of 7.2% for the Unit. Of these only 4 (6.6%) were regarded as being performed for failed induction of labour. Four cases (36.6%) of foetal distress, (defined as the appearance of meconium in the liquor or a foetal heart rate below 120 or above 160) and 3 cases (5%) of delayed progress accounted for the remainder of the Caesarean sections performed in this series. The induction delivery interval is summarized in Table 5. Forty five (75%) of the patients delivered within 12 hours and 59 (98.3%) within

24 hours. The mean induction delivery time was 8 hours 51 minutes for primigravidae (27 cases) and 6 hours 44 minutes and 2 hours 46.9 minutes for gravida 2 — 4 (24 cases) and grandmultiparae (8 cases) respectively with significance testing showing high significance ($p < 0.01$) between the primigravidae and grandmultiparae groups. There were no maternal deaths or uterine rupture and maternal infection was minimal, comprising of only two cases of urinary tract infection (3.3%). Two fresh still births were encountered, viz, an anencephalic foetus and a grossly

(intrauterine) growth retarded foetus from pre-eclampsia. A case of neonatal death followed induction at 33 weeks in a primigravida with fulminating pre eclampsia (Table 6).

Discussion:

Induction of labour, one of the most valuable procedures in obstetric practice, has in recent times been much debated and controversy still remains about its place in current obstetrics. To induce or not to induce: that is the question. One of the major hazards of induction of labour is the inevitable resort to Caesarean section should induction fail and this is why every Obstetrician should, before embarking on induction, ask himself whether the indication is strong enough to warrant Caesarean section if other methods of terminating pregnancy prove unsatisfactory or ineffective. There should be increasing awareness amongst Obstetricians about failed induction which should be distinguished from lack of progress following induction due to genuine cephalopelvic disproportion or malposition. Failed induction is a distinct entity. Induction failure may result from either the uterus failing to respond to oxytocin or, if it does, the response being disorderly. Duff 1984² defined it as the failure of labour to enter the active phase after 12 hours of regular uterine contractions.

Modern methods employing amniotomy and simultaneous Syntocinon (Synthetic Oxytocin) infusion in pharmacological rather than physiological doses, should lower the incidence of failed induction and also significantly reduce the induction delivery time. However,

since the dangers of overstimulation with hypertonus and foetal hypoxia are real, the oxytocin infusion must be carefully monitored and controlled (Davey 1980)³.

It is noteworthy that in this study employing amniotomy and simultaneous Syntocinon (Synthetic Oxytocin) infusion, delivery was achieved within 12 hours in 45 patients (75%) and within 24 hours in 59 patients (98%) which seems to be in general agreement with the findings of earlier workers.^{4, 5, 6, 7}

It is also significant that we encountered only 4 cases (6.7%) of failed induction in this series of 60 cases which seems to closely correspond to the findings of Arulkumaran et al (1985)⁸ who noted an incidence of 7% failed induction in their study of a much larger series.

Analysis of indications for induction of labour revealed that, in a fair proportion, the inductions had been performed for debatable and/or trivial obstetric indications⁸. This could, therefore, result in, sometimes, what might otherwise have been avoidable Caesarean sections.

In conclusion, it might be stated that the maxim 'never create an abnormality unless you are faced with a worse one' should have special significance to induction of labour particularly when it involves deliberately rupturing the membranes.

Acknowledgements:

We thank the House Officers of the Unit for their cooperation in this study, Mr. S. Thevathanan of the Department of Community Medicine of the University of Jaffna for the statistical analysis and Miss. N. Sinnadurai of our Department for her secretarial help.

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Case Report:

Total Analgesia following an Epidural Block

Dr. S. Theivendran, MBBS (Cey), D. A (Lond.) *

Summary

A case of total body analgesia following an epidural block for Manchester repair is reported. Other possibilities of this clinical manifestation are discussed.

Case History:

A 34 year old female patient, weighing 60kg and 1.55m in height, was admitted to General Hospital (Teaching) Jaffna, in July 1986, for repair of utero-vaginal prolapse. Preoperative assessment revealed, that she was otherwise clinically normal. She had a brachial arterial blood pressure of 110/70 mm Hg, haemoglobin of 9.5g%, fasting blood sugar of 80 mg%, serum potassium of 4.5 mEq/l, serum sodium of 133 mEq/l, blood urea of 26 mg%, a normal ECG and chest radiograph. The patient was willing for an epidural analgesia and 25 mg tablet of promethazine was given at 6-00 a. m on the day of the operation.

The patient was taken for surgery at 10-00 a. m. An intravenous infusion of normal saline was commenced and the patient was made to sit on the operating table. The epidural space was identified by the loss of resistance to air injection through a Tuohy needle of size 18, between the third and the fourth lumbar spines. Bupivacaine (ASTRA), 18 ml of 0.5% was injected. She was then helped to lie flat and her systolic blood pressure was monitored. It was

found to be 85 mm Hg. Five minutes later, she was put on the lithotomy position and at this moment, she was observed to be still, not breathing and having a feeble radial pulse. She was intubated quickly and ventilated with 100 % oxygen. By now, the carotid pulsation too was not felt. External cardiac compression was commenced immediately, and the head end of the table was lowered. The radial pulse was felt within a minute and a systolic pressure of 80 mm Hg was recorded. One litre of normal saline and 50 mEq of NaHCO₃ were given fast intravenously. At this time, pupils were found to be dilated and not reacting to light. This alarming find prompted us to cancel the operation. She was given 8 mg of dexamethazone, and 200 ml of 20% mannitol intravenously. A cardiac monitor was borrowed from the intensive care unit and connected to the patient. A normal complex at a sinus rate of 70 per minute was observed.

At 11.30 a. m (ninety minutes later), she opened her eyes and became aware of her surrounding. She was then able to move her arms but not her legs, and had loss of sensation to pin prick

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in the whole body including her forehead. It was then decided to transfer her to the ICU to continue the ventilation and monitoring. At 12.30 p. m. (190 minutes later), her breathing was found to be adequate and at 1.00 p. m. the endotracheal tube was removed. At this time, the sensory level had receded to her umbilicus. Nine and a half hours later, at 7.30 p.m, she had recovered completely.

On the next day, she complained of a low tension type of headache and neck pain, both of which subsided in three days. When she was asked to recollect the events on the day of the 'operation', she said that the last thing she remembered after the injection in her back, was the request to lie down and soon after that, an awful sensation of a heavy object falling on her head. The next thing, she remembered was her waking with the whole body benumbed, in the recovery room. The explanation offered to her was, that the injected drug had 'touched' all her nerves but it would not do any more harm.

The patient was discharged on the sixth day. She was readmitted after three months and the operation was performed under general anaesthesia, without any event. She refused a regional analgesia on this second occasion.

Discussion:

Perusal of medical literature available in Jaffna reveals, that though extensive spread of analgesia following an epidural block has been reported, there are no reports of total analgesia.

Extensive spread of an analgesic drug, following an epidural block, may

occur in the epidural space itself, or in the subdural space or in the subarachnoid space, Total spinal blockade, may very occasionally follow true extradural injection¹. The upward spread in epidural space is limited by the fusion of duramater with periosteum at the foramen magnum and thereby spares the cranial nerves. The spread of the drug in the subdural extra arachnoid space has been reported in the journals. Extensive spread of local anaesthetic solution, following subdural insertion (demonstrated radiologically) of an epidural catheter during labour in a patient, was reported in the Anaesthesia journal in 1984². The spread of a drug in the subdural space, can be extensive, but it is asymmetrical and the cranial nerves are usually spared. The spread of a drug in the subarchnoid space can be very extensive and total.

The occurrence of circulatory collapse with apnoea, soon after an epidural block, can be either due to idiosyncrasy/anaphylaxis or due to total spinal analgesia. Unconsciousness, absent breathing, absent carotid pulse and fixed dilated pupils are all cardinal features of cardiac arrest, but these are also features of total body analgesia. In this patient, the fact that the sensory level receded gradually from the forehead to the legs and the motor system recovered before the sensory system, confirms the diagnosis of total spinal analgesia. The cardiac arrest or the acute hypotensive episode was secondary to paralysis of sympathetic and respiratory nerves. The absence of pupillary light reflex and laryngeal reflex during intubation, could be either due to cerebral hypoxia following cardiac arrest or due to the paralysis of cranial

nerves by the local analgesic drug. The fact that there was numbness of face and the cerebral recovery was quick and complete, points to the diagnosis of cranial nerves paralysis by the drug.

The possibility of toxic reaction to bupivacaine in this patient, can be ruled out, because the injected dose of 90 mg is below that of the maximum permitted dose. Furthermore, the circulatory collapse was not preceded by muscle twitching or convulsion.

In this patient, it was never felt that the duramater was punctured. The rapid development of the clinical signs after the epidural injection and the development of low tension type of headache with neck pain on the second day, indicate that the duramater had been punctured unknowingly. It is likely, that the puncture of dura would have taken place during the injection of the last few ml of the drug. Bupivacaine (0.5%) which has a density of 0.997g/ml, at 37°C, will easily spread towards

the head, especially when the patient is seated. This may explain the rapid spread of bupivacaine into the cranium and the patient's recollection of a heavy object falling on her head, soon after the injection.


The finding of widely dilated and fixed pupils made us to think of severe cerebral hypoxia and this in turn made us to postpone the operation. The diagnosis of total analgesia was thought of one hour later, in the recovery room. Vasoconstrictor agent was not given to this patient, because the arterial blood pressure returned to a reasonable level, when the head end of the table was lowered. It remained stable during the rest of her stay in the unit.

Every procedure in medicine, has its morbidity and mortality. The possibility of this alarming complication must always be present in the mind of the Anaesthetist performing an epidural block. It is usually immediate or may be delayed for 30 to 45 minutes³.


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RADMAYR, E.: Clobazam und Diazepam in der ambulanten psychiatrischen Behandlung neurotischer Patienten. *Therapiewoche* 30 (1980), 1117-1125.


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A Tribute To

Dr. A. SINNATAMBY

LMS (Cey.), FRCS (Ed.), FRCS (Eng.),
FRCOG (Gt. Brit.), Hon. DSc. (Jaffna).

Dr. A. Sinnatamby retired Professor of Obstetrics & Gynaecology, University of Ceylon and the first Professor of Obstetrics & Gynaecology of the University of Peradeniya passed away on 1st March 1986, at the age of 74, following a brief illness.

I regard it as my privilege and pleasure, as a grateful student and as one, who has been closely associated with him for many years to write this appreciation.

Dr. Sinnatamby who hailed from Manipay was born on 7th September 1911 and had his education at Manipay Hindu College from where he won the coveted Senior Governor's Scholarship and gained admission to Royal College, Colombo. From there he entered the Ceylon Medical College and had a distinguished career passing the L. M. S, Ceylon in 1935 obtaining first class honours. He proceeded to the United Kingdom in 1946 for postgraduate studies

and returned in 1949 after obtaining the FRCS (Edin) FRCS (Eng) and MRCOG (Gt. Brit.) qualifications. He was the second Ceylonese to return to the Island with such qualifications, the first being Sir Nicholas Attygalle a former Vice-Chancellor of the University of Ceylon. Dr. Sinnatamby was appointed Gynaecologist, General Hospital, Colombo on his return from the United Kingdom and in 1954 he was appointed Co-Professor of Obstetrics & Gynaecology of the University of Ceylon and in 1965 filled the first Chair of Obstetrics & Gynaecology at Peradeniya.

An eminent Obstetrician & Gynaecologist, he commanded wide respect for his clinical skill and surgical ability. As a Gynaecological Surgeon he was par excellence and was the first to perform Wertheim's hysterectomy — the radical operation for cancer of the cervix — in Sri Lanka. He was also a renowned teacher and contributed significantly to

the advancement of Obstetrics & Gynaecology in this country. He published several medical textbooks in Tamil, some even on disciplines outside his speciality. Recently he translated into Tamil two well known Medical Textbooks, the popular Samson Wright's "Applied Physiology" and the American textbook entitled "Integrated Anatomy and Physiology" by Greishmer.

Behind, what might have been, a stern external demeanour was a kind heart in this disciplined Professor, who expected this same discipline from both his staff and students. His ward rounds, teaching sessions and operating sessions reflected his characteristic personality and his many generation of students will always remember the humour and wit of this revered Professor. During the height of his illustrious career he was one of the most sought after Obstetricians & Gynaecologists in Colombo where he enjoyed a lucrative private practice.

His interests extended beyond academic and professional areas into educat-

ional, cultural, social and religious activities in this country. It is noteworthy that he was one of the leading pioneers of the movement for establishing a University in the Northern and Eastern provinces of Sri Lanka.

In recognition of his academic achievements and contributions to Obstetrics & Gynaecology, the Royal College of Obstetricians & Gynaecologists of Great Britain conferred the Fellowship on him in 1958 and the University of Jaffna honoured the degree of Doctor of Science, *honoris causa* at its first Convocation held in 1980.

The demise of Dr. Sinnatamby is a great loss to the medical profession in general and to Obstetricians & Gynaecologists in particular, of Sri Lanka. He would always be fondly remembered by many of his students and colleagues to whom he was popularly known as "Sinna". He is survived by his wife and five children.

Prof. M. Sivasuriya.

NEWS AND NOTES

Hospitals as targets of military attack:

This rot had its beginning in June 1985 with an assault on one of our Vice Presidents, by the army personnel. The surgery of a General Practitioner was gutted down in February 1986. Since then, the State Hospitals have become targets of shelling and air raid. The Teaching Hospital, Jaffna, had been the target on six occasions. District Hospitals in Kilinochchi, Mannar, Adampan and Tellipalai were put out of function by the State Militia. All these attacks were brought to the notice of our Head of State, by the President, of this Association. All letters were acknowledged promptly. The rot still continued and left its unforgettable and unforgivable mark on the 30th of March 1987, when a shell blasted in the centre of an acute medical unit in Jaffna Hospital. This blast killed eight patients on the spot and injured another twenty. One of those killed was a labourer on duty. The Staff Nurse of the ward was seriously wounded and is still in the I. C. U. The people responsible for this gruesome attack have not expressed any regret, leave aside paying compensation to the dead and injured. The magisterial inquiry held into the deaths of these patients has put the blame on the State Security Personnel. Plans drafted by the hospital authorities to cope with a disaster situation were shattered, when the hospital itself became the site of disaster. The hospital has now closed the wards, which are thought to be more vulnerable to shell attack and air raid.

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Teaching of Siddha Ayurvedha students by Medical Practitioners:

The Council of the Association was perturbed by the teaching of students of Siddha, by the members of the Faculty of Medicine in Jaffna. The Council wrote to the Dean, expressing its view, that the Medical Faculty should not undertake teaching and examination of students of other systems of medicine. The Council felt, that such teaching and examination will encourage the improper and misuse of allopathic system of medicine, which could cause harm to the community. Furthermore, there is no statutory body consisting of allopathetic practitioners, to supervise the practice of medicine by the practitioners of other systems of medicine. When this matter was referred to the Ceylon Medical Council, its reply was; "The CMC has no objection to medical practitioners lecturing to students of other systems of medicine, provided that these lectures are confined to basic sciences and shall not include the principle of diagnosis and treatment".

The problem of prescription of western drugs by ayurvedhic practitioners was discussed, in November 1986, at a meeting attended by the Sri-Lanka Medical Association, Minister of Health, Minister Ayurvedha and his Excellency the President. They concluded, that ayurvedhic practitioners could, undergo the same period of training and Examination as the Assistant Medical Practitioners and then use the western pharmacopoeia.

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Annual Scientific Sessions :

These sessions will be held on the first, 2nd and 3rd of May. Dr. V. T. Pasupati Memorial lecture will be delivered on the last day of the sessions. This programme is liable to get postponed at the last minute, because of the unpredictable security situation in Jaffna.

* * *

JMJ News Letter :

This monthly news bulletin has been published regularly from August 1985. It is well received by the members and its Editor, Prof. D. Ramadas deserves commendation.

* * *

Note of Regret :

The printing of this Journal has been delayed by three months due to the unsettled situation in Jaffna,



Aftermath of a shell blast in the Medical Unit
of General Hospital (Teaching) Jaffna
on 30 - 03 - 1987

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