Neurology in Islamabad Children's Hospital

—Present Status and Problems—

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Summary: Pediatric neurologic disease is still progressive health problem in developing countries, Disorders of mental and motor development (34.8% of total 5234 neurological patients in 1988-89), seizure disorders (25.8%) and infections of the nervous system (18.9%) are the most common neurological problems in the Islamabad Children's Hospital (ICH), Pakistan. These figures differ from those in children's Hospitals in developed countries such as Japan. ICH needs to establish a good neurology department with better physiotherapy and rehabilitation centre, a workshop and a facilitated physiological laboratory. The global situation can be controlled by improving the basic life and fundamental factors to improve the hygiene and general health status of mothers and their children. The provision of rural rehabilitation services is also needed. Also international technical cooperation and support would be helpful.

Key words: pediatric neurology—statistical data—infectious disease—developing country—Pakistan

Introduction

Islamabad Children's Hospital (ICH) was established by the Japanese Government with 230 beds inaugurated in December, 1985. It serves more than 10 million population of Islamabad, Rawalpindi, its periphery (119 villages) and the northern areas of Pakistan. The number of patients visiting OPD is 500-700/day including 20-25 patients with neurological problems. Utilizing the statistical figures of the neurological clinic in ICH, we would like to explain the present status of Pediatric Neurology in this Children's Hospital and suggest some problems to be solved.

Statistical data of neurological patients

The statistical data revealed that in a period of two year (1988-89) more than 5,234 neurological patients were seen in outpatient department (Table). Out of these 69% were found male and 31% female patients, 65% under 5 and 35% were found above 5 year of age. More than 70% of the parents were close relative of each other.

The total of 5,234 neurological patients could be classified into two groups: these with more common problems and those with less common problems. The former (ca. 80%) consisted of disorders of mental and motor development, seizure dis-

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TABLE 1
Classification of 5234 (100%) Patients

Group A	4157 (79.5%)	Group B	1077 (20.5%)
1. Disorders of mental & motor development	1821 (34.8%)	1. Cerebrovascular disorders	190 (3.6%)
a. Cerebral palsy*	754	2. Neuropathies	145 (2.8%)
b. Mental retardation	455	a. Facial palsy	79
c. Microcephaly with delayed milestones	314	b. Guillain Barré syndrome	41
d. Speech and language disorders	304	c. Erb's palsy	15
2. Seizure disorders	1349 (25.8%)	d. Post traumatic	10
a. Epilepsy	1060	3. Neuromuscular diseases	140 (2.6%)
b. Febrile seizure	186	a. PMD**	111
c. Breath holding spell	103	b. Spinal muscular atrophy	21
3. Infections of nervous system	987 (18.9%)	c. Polymyositis	8
a. Poliomyelitis	418	4. Hydrocephalus & congenital anomalies of nervous system	131 (2.5%)
Acute	55	a. Hydrocephalus	111
Post polio paralysis	363	b. Meningomyelocele and spina bifida	20
b. Meningitis	356	5. Movement and gait disorders	94 (1.8%)
Acute	314	a. Chorea	36
Sequelae	42	b. Ataxia	31
c. Encephalitis	213	c. Myoclonus	27
Acute	66	6. Headache	73 (1.4%)
Sequelae	147	a. Migraine	41
		b. Brain tumor	32
		7. Unclassified diagnostic problems	304 (5.8%)

* 317/754 due to birth asphyxia, ** Progressive muscular dystrophies (more than 70%: Duchenne type)

orders and infections of the nervous system; the latter (ca. 20%) constituted cerebrovascular disorders, neuromuscular diseases, congenital anomalies of nervous system, neuropathies, headache, and movement and gait disorders. In addition, there were a large number of undiagnosed cases.

Discussion

For a newly established hospital like ICH which still lacks subspecialty departments, 5,234 neurological patients is a large number, especially when there is

no pediatric neurologist, psychiatrist, speech therapist, occupational therapist or a sufficient number of physiotherapists or assistant physiotherapist. These patients were managed by only one pediatrician with the assistance of adult neurologists.

If we compare the above figures with those from a Children's Hospital in a developed country in Asia, for example The Fukuoka Municipal Children's Hospital (FCH), Japan, we see that the total annual number of neurology patients is lower in FCH (1,010 in 1988). Although the more common problems are the same, the percentage of problems are different

(ICH vs. FCH)Cerebral palsy (20.4% vs. 14.0%), mental retardation (8.7% vs. 9.1%), speech and language problems (5.8% vs. 1.7%), seizure disorders (25.8% vs. 40.3%), infections of nervous system (18.9% vs. 1.8%), neuropathies (2.8% vs. 1.2%), neuromuscular disorders (2.6% vs. 1.1%), hydrocephalus (2.1% vs. 1.5%), brain tumor (0.6% vs. 0.2%), headache (0.8% vs. 3.1%) (Saito and Kobayashi, 1989, Fukuoka city Children's Hospital, 1988). The above described percentages showed marked differences ($P=0.000$ /Fisher's exact probability test) except those in the cases of hydrocephalus and brain tumor.

These can be explained on the basis of some direct and indirectly involved factors which reflect the major differences among the developing and developed countries. Poor perinatal care standard and high rate of consanguinity are the main causes for cerebral palsy, neuropathies (brachial plexus birth palsy) and other disorders of motor and mental development. (Stein et al. 1987; Deorani et al. 1989; Goel et al. 1989; Saito and Kobayashi, 1989; Grant, 1991). Also, high infant mortality (108), maternal mortality (500), multiparity, low birth weight and premature deliveries (low birth weight 27%, premature birth rate 25%) (Saito and Kobayashi, 1989, Grant, 1991), are all due to poor mother and child health care facilities, and may explain the higher incidence of cerebral palsy as well as other disorders of mental and motor development.

Poor sanitary conditions (population who can get safe water supply 44%, sewage 6% health service 55%) and low immunization rate (TB 78%, DPT & Polio 73%, Measles 64%, TIT for pregnant women 31%) (Saito and Kobayashi, 1989; Grant, 1991) explain the higher incidence of infections of the nervous system. (Stein et al. 1987) Although the incidence of seizure disorders in FCH is high,

this might be due to relatively low incidence of other categories.

In addition, in developing countries like Pakistan, there are many other factors which increase the number of neurological patients indirectly: the population explosion (118.8 million) and the number of neurological patients indirectly: the population explosion (118.8 million) and failure of family planning with the highest population growth rate (3.7% per year); remarkably low literacy (31%) (Shah et al. 1986; Saito and Kobayashi, 1989) discrimination against female by male, negligence and superstitious beliefs about different diseases like convulsions and the poor socioeconomical condition (GNP 350 \$ US) (Grant, 1991).

Many patients remain undiagnosed due to the lack of sophisticated investigations such as CT, MRI, EEG, muscle biopsy and evoked potentials which are necessary to diagnose neurological patients. Although many patients are advised to obtain those investigations that are available, they cannot afford the high cost, and ICH is not in position to make all these investigation free of cost because of lack of medical funds; there is also no health insurance system.

The present status of ICH can be improved by increasing manpower, establishing a neurology department, providing better physiotherapy & rehabilitation, establishment of coordinating with an orthopedic department that has a workshop for handicapped children, and providing good physiology and pathology laboratories with facilities for studying evoked potentials, CT, MRI and muscle biopsies.

To control the workload and to keep statistical record, introduction of a computerized neurology chart is necessary. The cost of medicine and investigations can be controlled by introducing a health insurance system, increasing medical funds and providing better social welfare

services.

Increased communication among the neurologists, pediatricians, physiotherapists, orthopedic surgeon and weekly, monthly meetings, seminars and research activity are important for better diagnosis and to understand the undiagnosed problems.

On global scale, it is not sufficient to increase the medical facilities but to improve the basic life and health facilities to improve the standard of life and mother & child health status. Increased literacy rate, family planning programs, better socioeconomic conditions, involvement of basic & rural health units, provision of rural rehabilitation services, training of community volunteers, health personnels and public education can play important roles. (Black, 1977; Kobins and Nightingale, 1983)

Family-oriented treatment in which therapeutic activities are incorporated into the daily routine where therapists can train the child and the family members, periodically reassess the child, and provide guidance and advice when necessary may be an effective way to treat handicapped children. (Greenwood, 1984).

International cooperation agencies such as JICA can also help developing countries by increasing communication, providing training, supporting different research programs, and giving economical and moral support to control the number and rehabilitation of handicapped children.

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