Neurological disorders in institutionalized patients in the Eastern Province of Saudi Arabia

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ABSTRACT

Objective: To define the spectrum and types of neurological disorders in patients residing in rehabilitation institutions in the eastern province of Saudi Arabia (Eastern Province, Kingdom of Saudi Arabia (KSA)). Setting: Rehabilitation institutions in the Eastern Province, KSA. Patients and methods: All the residents in the four rehabilitation institutions in the Eastern Province, KSA were evaluated by a neurologist and pediatrician. Results: Six hundred and eight patients (352 males, 256 females) were seen: 244 (40.1%) were aged 13 years old or less; 321 (52.8%) were aged between 14 and 65 years and 43 (7.1%) were more than 65 years. The main neurological disorders seen were cerebral palsy and epilepsy in 531 (87.3%) and 172 (28.3%) cases respectively. Disorientation was encountered in 432 patients (79.4%) and behavioural problems in 255 (49.9%) in the form of hyperactivity (146 cases, 29%) and withdraw (109, 20.9%). Receptive and expressive dysphasia were observed in 307 (55.4%) and 300 (49.3%) patients respectively with some degree of overlap. Other disabilities included hearing loss in 348 (57.2%) and visual impairment in 327 (53.8%). Motor weakness was present in 306 patients (50.3%) in the form of quadriplegia (210), paraplegia (71), hemiplegia (15) and monoplegia (10). Conclusion: Neurological abnormalities are common among residents of the four rehabilitation institutions in the study area. Identification and accurate quantitation of these and other abnormalities may prove useful in planning the type and scope of rehabilitation and other support services in such institutions.


Keywords: Rehabilitation, handicap, cerebral palsy, epilepsy, neurological morbidity, rehabilitation institutions.

The number of individuals suffering from various types of chronic neurologic disorders is steadily increasing as a combined result of the slow progress made in preventive measures and the faster development in secondary and tertiary care available to such individuals. Neurological disorders can result in various forms of impairment, disability and handicaps which may manifest as altered sensation and disturbances of movement and cognitive functions. The establishment of efficient rehabilitation programs and institutions is necessary to help such affected persons live a normal or near-normal life as possible. The prime function of the rehabilitation institutions would be the restitutio of individuals with physical, cognitive and/or sensori-perceptual impairment to functional capacity. The various disorders suffered by the institutionalized patient need to be identified in order to achieve these goals. There is very little information on these aspects in the Kingdom of Saudi Arabia, therefore this study was undertaken to survey rehabilitation institutions in the eastern province, KSA for neurological disorders in order to help the authorities and health care delivery system in planning for the appropriate rehabilitation services.

Materials and methods All the residents in the rehabilitation institutions present in the eastern province of KSA were evaluated after obtaining informed consent from the family or guardian. The institutions surveyed were the Vocational Rehabilitation Center and Comprehensive Rehabilitation Center both in Dammam, the Welfare Society and Rehabilitation Institute in Sehat and the Rehabilitation Center for Severely Handicapped in Hofuf (Table 1). The residents were screened and examined by a team of either a pediatrician and nurse or neurologist and nurse. Islamic ethics, local customs and individual wishes were strictly observed and complied with all through the examination and study. The study data was entered on pre-designed special data forms suitable for computer analysis. The physical examination forms were assessed by a statistician consultant who also acted as the study supervisor. The coded data was entered into a

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Received December 1995. Accepted for publication in final form October 1996.

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standard pre-structured database file by the study secretary using an IBM-compatible desktop computer. In addition, a systematic random sample was checked for further confirmation of accuracy.

**Results** A total of 608 patients (352 males, 256 females) were seen in the four rehabilitation institutions. The age distribution was as follows: 244 (40.1%) were aged 13 years or less, 321 (52.8%) 14-65 years and 43 (7.1%) were more than 65 years old. The main neurological disorders encountered were cerebral palsy and epilepsy in 531 (87.3%) and 172 (28.3%) patients respectively, and chromosomal abnormalities, mainly Down’s syndrome were seen in 11 (1.8%) individuals. The spectrum of neurological abnormalities is shown in Table 2: disorientation in varying degrees was observed in 484 (79.6%), 255 (49.9%) had behavioral changes manifesting as hyperactivity (146 cases) or withdrawal (109) and aphasia was detected in 337 (55.4%). Hearing and visual impairments were seen in 348 (57.2%) and 327 (53.8%) individuals respectively. Motor weakness seen in 306 (50.3%) presented as quadriplegia (210), paraplegia (71), hemiplegia (15) and 10 had monoplegia. Various forms of movement disorders were observed in 65 patients (10.7%).

More than half of the residents (57.9%) were on some form of regular medication (Fig. 1).

**Discussion** The study shows that neurological disorders are common among institutionalized residents in the Eastern Province, KSA and the majority of them suffer from chronic neurological disorders, especially cerebral palsy and epilepsy. The range of neurological abnormalities encountered among the residents included disabilities whose main thrust of management was associated with rehabilitation programs such as speech training, physical therapy, behavioral and stimulant therapies. Although primary prevention offers the best solution for neurological disorders such as cerebral palsy and stroke, the treatment of established cerebral palsy cases is predominantly symptomatic and targeted at minimizing disability and restoring function as perfectly as possible. Although epilepsy was frequent among the residents in this study, it is noteworthy that about 25% were not on any drug therapy. This suggests that not all the patients may be receiving adequate and appropriate therapy as early initiation of, and appropriate use of, antiepileptic drugs improve the prognosis of seizures and up to 80% may become seizure free. Similarly, it is possible that not all the epileptics have seizures which require regular medication. These factors suggest that such individuals need to be evaluated regularly and managed properly. Motor disabilities could result from brain or spinal cord pathologies, primary muscle disorders, especially those of hereditary origin, peripheral nerve lesions such as plexopathies, peripheral neuropathies and radiculopathies and sometimes as a combination of central and peripheral pathology. The treatment of such disabilities include treating the underlying etiology where possible and well constructed rehabilitation programs that involve a step-wise graded team approach. It is not unusual for individuals with neurologic disorders to have more than one disability and the

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association of more than one disability in the majority of patients in this study is similar to the experience from other communities. The increased frequency of epilepsy, extrapyramidal abnormalities and severe cognitive or perceptive disorders in individuals with cerebral palsy suggest that these disorders may have a common or related origin. The multiplicity of disabilities and the wide range of neurologic abnormalities seen among the individuals evaluated in this study suggest that a well-organized multidisciplinary approach involving neurologists, internists, pediatricians, rehabilitation physicians, orthopedic and neurological surgeons, apart from other support services, is required to provide efficient care and rehabilitation of the residents in the rehabilitation institutions surveyed. However, further studies to adequately identify the etiologic factors associated with these disabilities, determine the magnitude of the types and spectrum of pathologies and the nature of available facilities in these institutions are required to provide the information necessary to delineate the current constraints and plan objectively for the future.

Acknowledgments The author is indebted to Prof. Gady Magbool for invaluable advice and unlimited support.

References