

Rehabilitation of Neurological Patient

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Abstract

Loss of health and independence is one of the most difficult losses for every patient and his family. Damage occurs in the patient that they cause the inability to perform activities of daily living. Following the stabilization of the condition, a health care plan is developed that aims to maintain physical functions and prevent complications so that the patient in order to be in the best physical condition for rehabilitation. The patient needs full medical care and rehabilitation to return to daily life as soon as possible.

Keywords: *Neurology, Patient, Rehabilitation*

INTRODUCTION

In a rehabilitation setting, the medical/neurological clinic should be more than a standard consultation aiming at diagnosis and medical management of the clinical condition [1]. Beside this core function, the clinic appointment should be a chance for the patient to be assessed in the most comprehensive way. Most neurologically disabled patients will have complex problems such as medical, physical, psychological, mental health, communication, swallowing, sphincteric, tissue viability, equipment, social, financial, and probably more obscure but nonetheless crucial issues. Most members of the rehabilitation team concentrate on the management of the problem relevant to them, with relatively limited ability to appreciate the impact other disabilities are having and the complex way they can interact together to generate a management problem. For example, a patient with multiple sclerosis who presents with falls may also have a bladder problem, with urgency and frequency of micturition, plus a visual impairment and, consequently, may fall while rushing to the toilet.

The rehabilitation clinic should act as the clinical setting to look at the patient with a wide perspective. Rehabilitation physicians should have the ability to evaluate all the relevant pieces of the puzzle and to use their knowledge of the basic practice principles

of other therapists/clinicians in order to 'plug' the patient into the appropriate services and to review their progress and ensure that goals are achieved.

MANAGEMENT

Specific groups of patients stand out as the most in need of such a comprehensive approach as they often present with complex management issues [1]. Brain injury, whether traumatic or secondary to other causes such as encephalitis, often presents with complex physical and cognitive issues needing a holistic approach to their management. Patients with spinal injuries are usually young with many psychological, social and vocational issues that need to be addressed in conjunction with their primary physical problems. Other conditions such as multiple sclerosis may also benefit from such an approach. Patients with cerebral palsy or spina bifida will probably need annual reviews as many of the problems they face are subtle with an insidious onset and have the potential to lead to long-term major problems such as chronic pain syndromes or renal failure. A specialist review will increase the early detection of such problems.

Treatment of neurologic disease differs from treatment of diseases of other organs in several aspects [2]. First, neurons do not divide after birth. Thus the brain cannot replace lost neurons. Second, damaged central nervous system (CNS) myelin or oligodendrocytes have limited ability to remyelinate naked axon

segments. Third, surgical removal of a brain lesion may not be possible because the lesion is in part of the brain that is inaccessible due to its deep anatomic location or because the lesion is surrounded by critical brain areas (eloquent brain). Fourth, any drugs given systemically to the patient must be capable of crossing the blood-brain barrier. This barrier severely limits many otherwise effective medications that could be given to the patient. Even if the drugs were given intrathecally into the cerebrospinal fluid (CSF) space to bypass the blood-brain barrier, they would have difficulty diffusing any distance into the cerebral cortex.

Management of the patient with a neurologic disease can be divided into four categories: prevention, etiologic treatment, symptomatic treatment, and rehabilitation. The key to success is management of the patient's complaints and not just the laboratory tests.

UNITS

Most neurological rehabilitation units admit patients following acute neurological damage such as brain injury, spinal injury or stroke [1]. The standard practice is to admit patients once they are medically stable, assuming that the patient has good potential for rehabilitation. The necessity of medical stability as an essential requirement for accepting the patient for an inpatient rehabilitation programme is not only to ensure that the patient is able to tolerate therapy but also because of the relative inexperience of the rehabilitation team in dealing with acute and active complex medical issues. Rehabilitation units will certainly differ in their staffing, location and philosophy, with some units geared more towards accepting patients early on after the neurological insult and others accepting patients in after the acute stage. In the acute stage following a neurological insult such as a traumatic head injury, encephalitis or subarachnoid haemorrhage, rehabilitation needs are unique and involve mainly issues such as tracheostomy management, maintaining the range of movements in joints, management of early seizures or managing cognitive or behavioural impairments during the period of posttraumatic amnesia. It is essential that a service dealing with this stage has the expertise to manage such acute stage problems, sufficient staff, an intensity of medical input and a location that ensures immediate access to specialist medical and

surgical support. A unit accepting patients at a later stage of their rehabilitation may need less intense medical input but should have different facilities such as designated large therapy areas, occupational therapy kitchens or small flats for independent living to evaluate patients before discharge.

PATIENTS

Patients with chronic neurological disabilities such as multiple sclerosis or Parkinson's disease form an important clientele to the neurological rehabilitation units [1]. Such patients are usually admitted either straight from home or they may be transferred from an acute ward following an acute admission to manage problems such as bony fractures, infections or general deterioration of functional abilities through natural progression of the primary neurological condition. The intermediate neurological rehabilitation units usually have a case mix of patients with post-acute or chronic neurological rehabilitation conditions.

The basic philosophy and ideas of rehabilitation should be introduced to the patient in the early period following admission. Concepts such as goal setting, supporting the patient to achieve independence, instead of simply providing basic care, and interdisciplinary work of the staff are all important and the patient should be able to grasp these concepts if he/she is going to be able to participate fully into the rehabilitation programme. For example, a patient accepting the philosophy of interdisciplinary work will appreciate that help during washing and dressing, transfers or meals are all integral to the physiotherapy and occupational therapy sessions; consequently, he/she would not feel disappointed about the length and frequency of the formal therapy sessions. Explicit goal setting may help another patient to appreciate the progress that he/she is making and can also help him/her to focus on a particular functional task even during evenings and weekends when formal therapy is not usually available.

To take an interest in preserved environmental perception in old age instead of its losses is in a way to reconsider caring for older people, moving away from a focus on risk factors for pathology and towards a focus on health promoting issues instead [3]. This approach, also called the salutogenic way of caring, advocates that the focus of caring should be on individuals' residual health rather than disease. This focus on health and preserved functions rather than disease

and lost functions is also in line with the concept of patient empowerment, defined as giving the individual the opportunity to engage in and influence his or her care and rehabilitation. By focusing on preserved function, and by implementing this knowledge in the environment and care of the old, the aim is to foster opportunities for patients to behave independently. This is congruent with the central concept of nursing science: person, environment, health and nursing. The characteristic features of nursing are the respect and dignity for the person as a whole in his or her environment with the overall goal of contributing to health and supporting preserved functions.

FIRST CONTACT

During an annual, routine medical review for a patient with a progressive neurological condition such as multiple sclerosis or Parkinson's disease, it is not unusual to hear the patient saying 'what I really need doctor is more physiotherapy' [1]. A referral for further physiotherapy is often made.

It is very difficult to propose the perfect model of service for patients with neurological progressive disorders. However, regular reviews can hardly meet the patient's needs. The expertise and interests of a patient's GP vary greatly and some would prefer to delegate responsibility to a more specialist service. The popularity of specialist nurses is self-evident and they often fulfil their role as a first contact efficiently. They should be able to channel the patient to the appropriate service whether it is for therapy assessment or for medical, nutritional or social review.

One of the shortcomings of this model is the relative lack of experience of the specialist nurses regarding the different roles of all the professionals that can potentially help the patient. Therefore, many inappropriate referrals can be made, creating a huge caseload on popular disciplines such as physiotherapy.

The first contact of the patient should be someone who has the necessary skills to assess the patient fully, the authority to make the necessary referrals and the ability to act as a gatekeeper for other services. For example, the clinician (whether specialist nurse, neurologist or rehabilitation physician) should be able to assess the gait, orthoses, communication, and so on in order to be able to determine if further referral for a more specialist opinion is worthwhile. This highly

skilled specialist would be able to find the time to play this role if freed from the model of routine annual appointments. The savings made in the reduction of the inappropriate referrals could be huge and would justify the cost of having such a specialist as the first contact for the patient.

APPROACH

Sometimes a 'functional approach' is required—the finer points of ideal therapy practice are abandoned to concentrate on repeated performance of practical tasks (such as walking or dressing) [4]. This often works, because many day to day activities, including walking, are well-engrained in the longterm (implicit) memory and can be accessed with sufficient persistence and practice. Rehabilitation may take longer, and the context may be one of longer-term progressive decline. What is required, realistic, and achievable should be negotiated as part of goal setting.

Clearly more major interventions (such as joint replacement) should be considered very carefully, using the usual decision-making process. There may be real benefits to be gained, but the possibility of a long period of debility without ultimate benefit has to be considered if rehabilitation cannot be successfully achieved.

Rehabilitation is hard work. It is not a process of passive receiving; rather it requires prolonged active participation. Issues of 'motivation' and 'engagement' become frustrating for therapy staff and nurses. Foresight, planning, and decision-making may be affected, especially in frontal type dementia. The patient may find therapy effortful or unpleasant, and if they forget why they are doing it, or fail to realize that a stated goal (like going home) depends on achieving intermediate tasks (like walking), they may decline to take part. Gentle persuasion and encouragement helps, and on occasions a more assertive approach is needed (almost 'bullying'). A growing tendency to disengage when superficially taken 'consent' is not gained is probably not in most demented patients' best interests. If engagement really is impossible, then further attempts are futile, a halt should be called, and alternative plans made.

Sometimes in advanced dementia the onset of immobility can be a welcome development, as it reduces problems with agitation and aggression.

The term dementia, which from a neurological point of view is synonymous with mental deterioration and which better than the latter corresponds to international taxonomic criteria, identifies both the disease and its main symptom, ie the acquired and definitive loss of cognitive functions, serious enough to interfere with the activities of daily life [5]. In detail, dementia is characterized by a set of deficits that involve all cognitive aspects; in it the memory, orientation, learning ability, video-spatial perception, language, constructive practice and even higher executive functions such as planning, organization and sequencing are classically compromised.

PRACTICE

In the last few decades, scientific medicine has evolved in an unimaginable way enabling clinicians to help their patients with either curative measures or with highly effective treatments to relieve their symptoms [1]. However, the same period witnessed the development of new concepts such as human rights and patient's autonomy, which in conjunction with the widespread dissemination of medical information, has empowered patients and put them in a better position to challenge their doctors and question their judgements.

In rehabilitation practice, most decisions are made following a discussion with the patient. Goal setting, in particular, is meaningless if the explicit support of the patient for the goal suggested is not secured. Within such atmosphere, conflicts are not uncommon. The patient may focus on walking as a priority, while the clinicians may feel that independence in self-care is more important as it will help the sitting balance and eventually help the patient achieve his goal of walking. Another patient with detrusor sphincter dyssynergia of the bladder may underestimate the risk of renal failure and refuse an inconvenient but safe way to manage his bladder.

Disagreements and conflicts are also common with families and carers, who are often under incredible stress and need significant help to cope with a life-changing event. Occasionally, carers may put pressure on the patient to accept measures with which he/she is not comfortable, leaving the clinicians in a very sensitive position. With the patient's best interest at stake, they must try desperately to balance their role as the patient's advocate with their duty to the family and the importance of respecting the patient's decision.

Rehabilitation in the form of neurocognitive and neurobehavioral therapies also apply to both acute brain injury situations and in a more chronic context [6]. There is certainly controversy and conflicting data regarding the extent of benefit from neurocognitive interventions with regard to the ultimate functional result after brain injury. An argument certainly can be made that at least the rate of improvement is better for individuals receiving the benefit of neurocognitive retraining following brain injury. A body of literature also supports the argument that the extent of recovery is better when neurocognitive interventions are applied during the "healing process" after brain injury. Even in the subacute and chronic time frames after brain injury, neurocognitive interventions certainly have been demonstrated to be beneficial, at least with regard to compensatory strategies which aid in an individual's functional status.

Information is gathered during the health profiling process by finding out in detail about current health conditions and treatments; how the person copes with everyday basic daily living; any potential unmet physical or mental health needs; risks; pain and the person's preference for addressing dementia [7]. This information can then be used to help the person to stay well as well as alerting the carer(s) when something is wrong. For example, something might be wrong if a person who normally eats three meals a day is now only eating very small amounts. However, for a person who only eats very small amounts there would be no cause for concern. Similarly, there would be no cause for concern for a person who has always stayed up late and slept on a settee to be doing the same in a care setting whereas this would be a concerning pattern for somebody who has always retired early and slept in a bed.

Another good reason for learning about the way in which the person engages with these daily living activities is so that the person's needs for staying engaged with them can be understood and met. These familiar living experiences keep us mobile and provide a source of comfort and a sense of purpose and identity. This being said we need to be always mindful of how different and unique each person is. While one person may fall back on familiar routines and habits to help them to cope with failing cognitive ability another may want or need a different routine. Most importantly, it is good practice to explore poor health as a potential cause of changed behaviour or of

ill-being or distress and to give priority to this when you are planning or reviewing the person's care.

Rehabilitation following traumatic brain injury (TBI) is a complex endeavor requiring a coordinated team approach to the spectrum of medical, motor, cognitive, and behavioral issues that can develop [8]. Used in the appropriate circumstances for the appropriate motor disorders, therapeutic exercise, physical modalities, medications, chemical denervation with botulinum toxin or phenol, intrathecal baclofen, and surgical techniques can all be helpful. Certain rehabilitation approaches have been found to improve cognitive deficits. While some medications can worsen cognition, there are drugs that can improve some aspects of cognition as well as diminished initiation and alertness. Depending on the individual, aggressive behavior can often be ameliorated by planned behavioral approaches, counseling, and/or psychopharmacological approaches. Depression and anxiety can be treated with psychotherapy and medications.

PREVENTION

The concept of disease prevention is more specific and comprises primary, secondary and tertiary prevention [9]. Primary prevention is defined as preventing the disease or stopping individuals from becoming at high risk. Universal and selective preventive interventions are included in primary prevention. Universal primary prevention targets the general public or a whole population group without an identified specific risk (e.g. iodine supplementation programmes to prevent neurological and other disorders caused by iodine deficiency). Selective primary prevention targets individuals or subgroups of the population whose risk of developing disease is significantly higher than average, as evidenced by biological, psychological or social risk factors (e.g. prevention of stroke through adequate management of hypertension, diabetes and hypercholesterolemia). Secondary prevention aims at decreasing the severity of disease or reducing risk level or halting progression of disease through early detection and treatment of diagnosable cases (e.g. ensuring drug compliance in the treatment of epilepsy). Tertiary prevention includes interventions that reduce premature death and disability, enhance rehabilitation and prevent relapses and recurrence of the illness. Rehabilitation may mitigate the effects of disease and thereby prevent it from resulting in

impaired social and occupational functioning; it is an important public health intervention that has long been neglected by decision-makers. Moreover, rehabilitation is an essential aspect of any public health strategy for chronic diseases, including a number of neurological disorders and conditions such as multiple sclerosis, Parkinson's disease and the consequences of stroke or traumatic brain injury.

CONCLUSION

Rehabilitation is a dynamic process that contributes to the achievement of optimal physical, emotional, social and psychological potential to maintain the dignity and independence of the patient. Rehabilitation does not change the pathophysiological course of the disease, but it certainly affects the functional capabilities of the patient. The goals in rehabilitation are directed at mitigation or preventing the diminution of the functional capabilities of the patient, the achievement of independence in the activities of daily life and the teaching of the patient and his family.

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