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Rehabilitation of the older patient: a case report

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The likelihood of encountering a disabled older patient in clinical practice will dramatically increase over the next few years due to our aging population. Whether the disability is a result of a post-traumatic injury or the consequences of a degenerative process, it is important to understand the health care needs of this rapidly growing segment of our population.

The following is a case report outlining the essential components on how to adequately assess the disabled older patient and how to successfully administer an active rehabilitation program for these patients.
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KEY WORDS: chiropractic, rehabilitation, geriatric.

La probabilité de rencontrer un patient âgé invalide en clinique augmentera énormément au cours des prochaines années étant donné le vieillissement de la population. Que l'invalidité résulte d'une lésion post-traumatique ou d'un processus dégénératif, il est important de connaître la nature des besoins en soins de santé que requière ce segment de notre population en croissance rapide.

Voici le compte rendu d'un cas qui met l'accent sur les éléments essentiels à prendre en considération afin de procéder à une évaluation adéquate du patient âgé invalide et d'entreprendre avec succès un programme de réadaptation actif adapté à cette clientèle.
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MOTS CLÉS : chiropratique, réadaptation, gériatrique.

Introduction

Over the past several years we have been witness to a dramatic shift in the demographic make-up of the North American population. The segment of the population over 60 is growing rapidly and with the first baby boomers now over 50 we can expect an even more dramatic increase in this population over the next ten years.

A review of the general principles of rehabilitation and better understanding of the health care needs of the elderly would be helpful when assessing and rehabilitating the disabled older patient.

The most important goal in any rehabilitation program is to maximize functional deficits.[1,2,3,4] This is especially true in the elderly patient when independence and quality of life are of primary importance.[3,5]

The following is a case report outlining the essential components on how to adequately assess and administer an active rehabilitation program for the older patient.

Case report

A 60-year-old female homemaker was involved in a motor vehicle accident in which she suffered injuries to her neck, low back and right leg. She stated she was a rear seat passenger wearing her lap and shoulder belts when she was involved in a front-end collision. She recalled her body being thrown forward and then backward and her right leg jamming up against the front seat. She remained conscious but experienced severe abdominal, back and leg pain. She was taken by ambulance to a local hospital where she remained for two days and then was released. Twelve days later she was referred by her physician for assessment and rehabilitation.

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At the time of the initial assessment the patient complained of moderate neck pain and stiffness with intermittent pain radiating into the right arm as far as the elbow. The pain was worse in the morning upon arising from bed and with certain neck movements. Associated symptoms included intermittent occipital-frontal headaches.

The patient also complained of constant mild to moderate low back pain localized to the left lumbosacral region. The pain was described as a dull ache that intensified with certain movements especially when bending forward and getting out of a chair. There were no associated lower extremity symptoms.

In addition the patient complained of anterior right shin pain. The pain was sharp and experienced daily especially during weight bearing activities.

From an emotional perspective the patient had some difficulty discussing details of the accident. She also had difficulty with sleep and experienced regular flashbacks of the accident.

Prior to her accident the patient stated she had not suffered from the above complaints.

Relevant past medical history included an incompetent cardiac valve secondary to childhood rheumatic fever. She also suffered a minor stroke two years prior, affecting the left side of her face, arm and leg. She stated she had fully recovered from the stroke without residual symptoms. She continued to be under the care of a cardiologist and was prescribed anticoagulant and antiarrhythmic medication.

At the time of her initial assessment, the patient claimed she was incapable of performing her regular house duties although self care was not limited.

On evaluation, she stood with rolling shoulders, anterior head carriage and an increased dorsal kyphosis. Cervical spine active movement was moderate-severely restricted during forward flexion. Cervical extension was not possible, limited by pain. There was moderate tenderness and joint dysfunction involving the left C5–C6 and the right C4 to C7 cervical segments during palpation with associated muscle hypertonicity involving the right sternocleidomastoid, scaleni and upper fibres of the trapezius muscles. Adson's test on the right reproduced her right upper extremity symptoms without a change in the quality or rate of the radial pulse. Grip strength using the Jaymar hand dynamometer was 13 lbs. force on the left and 16.6 lbs. force on the right. Both values lie below normal values for a 60-year-old female.[6]

Neurological evaluation of the upper extremities including deep tendon reflexes, sensation and strength were unremarkable.

Evaluation of the lumbar spine revealed moderately restricted ranges of motion. On forward flexion her finger tips extended to mid thigh. Lumbar extension was not possible, limited by pain. Deep palpation over the left L5-S1 and sacroiliac joints reproduced moderate pain with associated joint dysfunction. There was mild-moderate muscle hypertonicity involving the left piriformis and gluteus medius muscles. Straight leg raising was limited to 70 degrees bilaterally by tight hamstring muscles. Deep tendon reflexes and sensation testing of the lower extremities were within normal limits. Strength testing of the lower extremities was not possible due to the reproduction of moderate low back pain. No muscle atrophy was noted in the lower extremities.

On inspection of the right leg there was a moderate contusion along the mid anterior tibia measuring approximately 20 cm long and 5 cm wide. There was no significant swelling or temperature difference when compared to the left leg. Dorsalis pedis pulses were present and bilaterally equal.

Evaluation of the right knee and ankle was unremarkable.

Review of the x-rays taken at the hospital of the lumbar spine and right knee revealed no significant abnormalities. Cervical films taken two weeks following the accident demonstrated early degenerative disc disease at C5–C6.

Objective functional evaluation was difficult to perform. Dynamic and/or static lifting, overhead lifting, stooping, kneeling and crouching were all attempted but terminated prematurely because of excessive perceived pain. This was also true of the national back fitness test where she scored a value of 15 which represents a poor score for overall back fitness.[7]

A self-report functional inventory questionnaire for home tasks (in the process of being validated by this author)[8] was utilized to determine a baseline for functional activities in the home as perceived by the patient. Her score was 83.2% which represents the degree of overall disability in required home tasks. This compares to a score of 74% on the Neck Disability Index and 84% on the Oswestry Low Back Questionnaire. Her initial pain score measured on a 10 cm. Visual Analogue Scale was 8.5.

A working diagnosis of whiplash- associated disorder

grade II, (WAD II)[9] was given. This is defined, according to the Quebec Task Force classification on whiplash-associated disorders as neck complaints of neck pain, stiffness or tenderness with musculoskeletal signs including decreased range of motion and point tenderness without neurological signs, fracture or dislocation.[9] The patient also had underlying degenerative disc disease and joint dysfunction. The upper extremity symptoms were likely due to a scalenus anticus syndrome. She also suffered what appeared to be a mild to moderate lumbar spine strain with joint dysfunction and a moderate contusion to the right anterior tibia.

The patient was then enrolled in a daily functional restoration program. This consisted of goal-oriented gentle exercises progressing to task simulation and finally to work hardening where the patient physically engaged in her required home tasks in a progressive and structured format. Prior to beginning her active program, a medical clearance form was completed by her physician outlining any contraindications or restrictions to exercise.

In addition to her active program, the patient received educational instruction as well as light spinal manipulative therapy and physical therapy modalities. The prime objectives of the passive modalities were to assist the patient to progress through her active program by helping modulate pain symptoms and improving range of motion. From the outset and at all times through the course of her management, the patient was encouraged to maintain her activities of daily living and to gradually increase her functional activities in the home.

Every four weeks and at discharge, the patient was re-evaluated using physical examination, functional assessment comparing required home tasks to the objective capability to perform them, and self-report type questionnaires. At discharge the patient was also required to complete a patient satisfaction questionnaire.

After four months of rehabilitation, the patient was discharged from her functional restoration program. She was able to return to her pre-accident level of function, although she complained of mild residual neck and low back symptoms.

Upon discharge, she was given a structured home exercise program which included a daily brisk walk.

The patient was seen for a follow-up assessment three weeks later and reported no significant change since her discharge. She continued to perform all her regular home tasks with only mild symptoms.

Discussion

The key to rehabilitating the older patient is the emphasis on early activation. Although this is the main component of most rehabilitation programs regardless of age, the consequences of not concentrating on function from the very start in the elderly are more significant.

The benefits of early activation include a decrease in recovery time and duration of disability, a decrease in the rate of strength loss and bone demineralization and minimizing the risk of developing psychological barriers to recovery.[10] To the elderly patient this translates to the maintenance of independence and improved self-esteem.

There are two means by which early activation is possible. One is to encourage the return to everyday activities, including activities of daily living, hobbies and work. The other is by implementing progressive exercise programs.

The benefits of exercise are well known. Some include improved cardiovascular fitness, maintenance and increase in muscle mass, strength and flexibility. These benefits have been shown to be achieved regardless of age.[4,11] Especially important in the elderly is the maintenance of bone density and improved proprioception, balance and coordination which helps decrease the risk of slips and falls.[10,16] There is also an overall psychosocial benefit with exercise in elevating mood and perceived level of health and well being.[10,12] This is particularly important in older individuals who tend to be more prone to anxiety and depression.[12]

There is some controversy as to whether regular exercise prolongs life expectancy. However, there is no doubt that it substantially improves quality of life.[8]

Contraindications to exercise are more prevalent in older patients. It is important to screen elderly patients before enrolling them into an active program. The PAR-Q (Physical Activity Readiness Questionnaire) health screening form is often used for this purpose.[13] If potential problems exist then the patient should be referred to their physician for medical clearance.

In the past it was advised that all elderly patients undergo specialized exercise testing before engaging in exercise training. However, recently the American College of Sports Medicine stated that this is no longer necessary for apparently healthy, elderly individuals.[10,14]

Before the rehabilitation program can begin, the patient

must be adequately assessed. This includes a detailed history, physical and spinal examination and comprehensive outcome assessments which are essential in rehabilitation.[2,3]

Outcome measures are important in order to quantify functional impairments and disabilities and to measure the effectiveness of treatments and therapeutic procedures.[3,15] Self-report questionnaires, physical performance testing and objective measures using instrumentation are all examples of outcome measures.

There are times when more specialized multidisciplinary assessments are required using other professionals such as psychologists (to assess potential psychosocial factors), social workers and medical specialists.

Once the patient has been assessed and deemed an appropriate candidate for active rehabilitation, an individualized program should be designed. The exercise program should include flexibility, strength and endurance components. All three components should be progressive utilizing a goal oriented approach. When the patient is ready, task simulation should be incorporated followed by work hardening where the supervised patient performs the required activities at home and/or work in an environment closely resembling the actual one. Throughout the program regular positive reinforcement and encouragement is essential.

Upon completion of the program as evidenced by full restoration of functional deficits or maximum functional recovery, the patient should be discharged. At that time, it is imperative the patient be given a structured home exercise program to maintain the gains achieved.

All home programs should be explicitly outlined in writing and should include the type, frequency, duration and intensity of exercise activity prescribed. As in a functional restoration program, the home program should be goal oriented and include a cardiovascular component.[10]

Unfortunately there is poor compliance to self-directed exercise in the elderly.[6] To minimize this, it is important to try to make the program fit the patient's daily schedule and lifestyle. The use of a buddy system for support and encouragement may be recommended. Most important, the home program should be enjoyable with a gradual increase in pace and with realistic goals.[6]

Conclusion

In principle, the active rehabilitation of the older patient does not significantly vary from that of a younger patient. There is however, a higher risk of complications, more likelihood of contraindications to exercise and other therapies, as well as an anticipated slower recovery rate in the older patient. Therefore more care, patience and awareness are needed to ensure maximum benefits are achieved without risk or harm.

References

1 Tallis R. The rehabilitation of the elderly in the 21st century. J Royal Coll Phys London 1992; 26(4):413–422.
2 Branch L, Meyers A. Assessing physical function in the elderly. Clinics Geriatr Med 1987; 3(1)Feb:29–51.
3 Studenski S, Duncan W. Measuring rehabilitation outcomes. Clinics Geriatr Med 1993; 9(4)Nov:823–829.
4 Reuben DB, Siu AL. An objective measure of physical function of elderly outpatients. J Am Geriatr Soc 1990; 38(10)Oct:1105–1112.
5 Rodrigues GS, Goldberg B. Rehabilitation in the outpatient setting. Clinics Geriatr Med 1993; 9(4)Nov:873–881.
6 Malhiowetz V, Dove M, Kashman N, Rogers S, Volland G, Weberk. Grip and pinch strength: normative data for adults. Arch Phys Med Rehabilitation 1985;66:69–72.
7 Imrie D, Barbuto L. The Back Power Program. Stoddart Publishing 2nd ed. 1993.
8 Ammendolia C. Unpublished self report questionnaire to assess performance and capacity evaluation for home tasks. 1996.
9 Spitzer WO, Skovron ML et al. Scientific monograph of the Quebec task force on whiplash associated disorders. Redefining Whiplash and Its Management 1995; 20:85.
10 Kligaman E, Pepin M. Prescribing physical activity for older patients. Geriatr 1992; 47(8)Aug:33–47.
11 Morey MC, Cowper PA, Feussner JR, DiPasquale RC, Crowley GM, Kitzman DW, Sullivan RJ. Evaluation of a supervised exercise program in a geriatric population. J Am Geriatr Soc 1989; 2(4):348–354.
12 Shephard R. Exercise and aging: Extending independence in older adults. Geriatr 1993; 48(5):61–64.
13 Physical activity readiness questionnaire. Canadian Soc for Ex Physiology. Rev. 1994.
14 Pollock M. Geriatric stress testing and physical conditioning of the aged. Proceedings Annual Meeting Med Section Am Council Life Ins 1991:99–110.
15 Cole B, Finch E, Gowland C, Mayo N. Physical rehabilitation outcome measures. Basmajian J, ed., 2nd ed. Dept Supply and Services; Canada Comm Group 1994: 1–10.
16 Birge SJ. Osteoporosis and hip fracture. Clinics Geriatr Med 1993; 9(1)Feb:69–86.