WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.074
Volume 7, Issue 6, 1073-1079. Case Report ISSN 2277– 7105

A CASE REPORT OF MOTOR NEURONE DISEASE AND ITS OUTCOME WITH AN ALTERNATIVE THERAPY

Dr. Peddapalli Appa Rao and Dr. Mahwish Jawaid*

Research Centre: IMMA Labs, Hyderabad.

Article Received on
30 January 2018,

Revised on 20 Feb. 2018,
Accepted on 11 March 2018,

DOI: 10.20959/wjpr20186-11548

***Corresponding Author**
Dr. Mahwish Jawaid
Research Centre: IMMA Labs, Hyderabad.

ABSTRACT

Motor neurone disease (MND), or amyotrophic lateral sclerosis (ALS), is a neurodegenerative disorder of unknown aetiology. Progressive motor weakness and bulbar dysfunction lead to premature death, usually from respiratory failure. Confirming the diagnosis may initially be difficult until the full clinical features are manifest. In the absence of curative or disease modifying therapy, management is supportive and requires a multidisciplinary approach. Despite the disease being very rare, has attracted a lot of attention, as its devastating course places it at the centre of the ethical debate about end of life decision making and physician assisted suicide.

KEYWORDS: Motor neurone disease (MND), of unknown aetiology.

INTRODUCTION

Motor neurone disease is a rarely devastating illness which leads to progressive paralysis and eventually death. Motor neurone disease is largely a sporadic disease of middle and elderly life presenting in the sixth and seventh decades, although the disease can rarely present in much younger patients. The classic form of the disease is also referred to as amyotrophic lateral sclerosis and presents with a mixture of upper and lower motor neurone features. Classic motor neurone disease tends to be focal in onset, with a particular group of muscles affected first. Of the three recognised patterns—limb, bulbar and respiratory onset—limb onset is by far the commonest.

Bulbar onset motor neurone disease occurs in about 20% of those affected. The first sign is usually slurring of the speech, caused by impaired tongue movement, which may be accompanied by obvious wasting and fasciculation of the tongue. Dysphagia tends to occur

later, when speech difficulties have become significant. Bulbar symptoms in motor neurone disease, as with other causes of pseudobulbar palsy, are often associated with emotional lability, manifesting as inappropriate laughing or crying.

The least common pattern of onset is when the respiratory muscles are affected first. Patients may present with dyspnoea and orthopnoea or more subtly with the clinical features resulting from hypoventilation overnight, including frequent waking, unrefreshing sleep, hypersomnolence, and early morning headaches.

CASE REPORT

This is a case report of 64 year old man who was diagnosed with Motor Neuron Disease (MND). Patient was apparently asymptomatic till Jan 2017 when he complained of slurred speech which increased over the period of 3 months. In March 2017 his dysarthria increased and was associated with deviation of mouth to the right. There was no history of dysphagia, diplopia, weakness or numbness of limbs and no alternation in taste sensation. There was no history of fever.

He was a known case of HTN, DM Type II and was on regular anti hypertensives and oral anti diabetic drugs. He was addicted to alcohol consumption and smoking.

He was adviced ENT opinion where his dysarthria was confirmed and there were signs of pooling of saliva. For this he was advised upper GI endoscopy which revealed erosive antral gastritis.

As there was no relief in complaints he visited Neuro Centre. By this time there was progressive weakness and wasting of bilateral upper limbs more than lower limbs. There was weakness and wasting of tongue with fasciculations.

His MRI brain revealed mild dilatation of ventricular system and right basi frontal region shows focal areas of gliosis with associated mild perilesional edema. His fasting plasma glucose was 116mg/dl and post lunch plasma glucose level was 260mg/dl. His blood homocysteine levels were raised to 3128 µmol/L which is an independent risk of cerebral vascular disease.

His carotid Doppler study showed echogenic plaque in right proximal internal carotid artery and increased intima media thickness in bilateral common carotid arteries which is suggestive of atherosclerotic changes.

His EMG of tongue changes were suggestive of ongoing + chronic denervation and reinnervation – thus chronic neurogenic changes. Thus he was diagnosed with? MND in March 2017 and was started on Riluzole 50 mg. He continued this for 4 months but with very little improvement. Then in Aug 2017 he visited Dr. Appa Rao's clinic and started his immunotherapy treatment. He is now better and has been seen improving day by day and there is a decrease in symptoms with reduction in slurring and is able to carry out his normal routine life.

Injection Human normal immunoglobulin (12 mg) and histamine dihydrochloride (0.15 mcg). Two vials once in three days (3 doses) followed by two vials once in a week until 8 weeks. Aceclofenac 100mg twice a day for one month. Prednisolone tapered and maintained 5 mg per day. Ranitidine 150mg once a day in the morning. Tomato, Banana fruit, Prawns and milk were restricted in nutrition.

After two months of Dr. Appa Rao's immunotherapy patient condition has improved and his there is a definite decrease in slurring of speech. This is definitely a positive sign for the patient to be motivated. He is supposed to be on maintenance therapy as he is vulnerable to relapse for any immunological insults.

DISCUSSION

Although described in the mid-19th century, ALS-MND has proved to be one of the most puzzling neurodegenerative diseases and remains mostly untreatable.

Most patients with MND have probably lost a very significant proportion of motor units by the time they are seen by a neurologist and effective treatment and arrest of the process of degeneration will require a precise profile of the molecular events that occur early in the disease process.

A diagnosis of motor neurone disease relies on interpretation of the clinical symptoms and signs and use of investigations to exclude other causes. A person who presents with a painless, progressive loss of function in a weak, wasted limb or with one of the presentations described above would benefit from a neurological opinion. The is a lack of definitive test

and this can cause problems, particularly if patients present very early after onset of symptoms.

In these cases waiting and observation of the condition over weeks and months are needed. As with other disorders with such a grave prognosis, alternative cause for the patient's symptoms and signs must be excluded. Several conditions can mimic motor neurone disease and may be treatable, and it is important to consider these.

Giving a diagnosis of motor neurone disease to a patient and their family, as with breaking any bad news, is a difficult task.

Riluzole is the only drug identified to have a beneficial effect on survival, following a double blind, randomized placebo controlled trial in patients with the common amyotrophic lateral sclerosis variant of motor neurone disease. The effect is modest, with a prolongation of life of approximately 3-4 months on average.

The greatest advance in recent years in treating motor neurone disease has been the discovery of the beneficial effects of non-invasive ventilation, in which the patient uses a mask ventilator system (usually bilateral positive airway pressure) overnight during sleep.

A randomised controlled trial found a median survival benefit of about seven months in patients with good bulbar function using non-invasive ventilation.

Given the evidence that oxidative damage by free radicals occurs as part of the pathogenic process in motor neurone disease, there has been great interest in trialling antioxidant treatments. The results have been disappointing.

Most patients will eventually have difficulty swallowing. Early in the disease dysphagia can be managed by an experienced speech therapist and dietitian.

CONCLUSION

There is an urgent need for new therapeutic agents to emerge. Current knowledge would suggest that, whatever the initial insult triggering the disease, a number of biochemical pathways are activated downstream leading to motor neurone death. Despite a focus on helping people to live with motor neurone disease after diagnosis, inevitably the disease will progress, and the provision of effective end of life care is very important. Hospice care is an

option for patients entering the later stages of disease, and this can be introduced gradually as a form of respite for caregivers. It is important to improve the quality of life and not just duration of survival. This should be a part of the measure of effectiveness of drug regimens. This immunotherapy from Dr. Appa Rao may provide a new dimension in management of motor neurone disease as it has a potential to increase the quality of life of people presenting with such degenerative disorder.

REFERENCES

1. Scottish Motor Neuron Disease Register: a prospective study of adult onset motor neuron disease in Scotland. Methodology, demography and clinical features of incident cases in 1989. J Neurol Neurosurg Psychiatry, 1992; 55: 536-41. [PMC free article] [PubMed]
2. O'Toole O, Traynor BJ, Brennan P, Sheehan C, Frost E, Corr B, et al. Epidemiology and clinical features of amyotrophic lateral sclerosis in Ireland between 1995 and 2004. J Neurol Neurosurg Psychiatry, 2008; 79: 30-2. [PubMed]
3. Worms PM. The epidemiology of motor neuron diseases: a review of recent studies. J Neurol Sci., 2001; 191: 3-9. [PubMed]
4. Borasio GD, Sloan R, Pongratz DE. Breaking the news in amyotrophic lateral sclerosis. J Neurol Sci., 1998; 160(1): S127-33. [PubMed]
5. Lacomblez L, Bensimon G, Leigh PN, Guillet P, Meininger V. Dose-ranging study of riluzole in amyotrophic lateral sclerosis. Amyotrophic Lateral Sclerosis/Riluzole Study Group II. Lancet, 1996; 347: 1425-31. [PubMed]
6. Miller RG, Mitchell JD, Lyon M, Moore DH. Riluzole for amyotrophic lateral sclerosis (ALS)/motor neuron disease (MND). Cochrane Database Syst Rev., 2007; 1: CD001447. [PubMed]
7. Bourke SC, Tomlinson M, Williams TL, Bullock RE, Shaw PJ, Gibson GJ. Effects of non-invasive ventilation on survival and quality of life in patients with amyotrophic lateral sclerosis: a randomised controlled trial. Lancet Neurology, 2006; 5: 140-7. [PubMed]
8. Barber SC, Mead RJ, Shaw PJ. Oxidative stress in ALS: A mechanism of neurodegeneration and a therapeutic target. Biochim Biophys Acta, 2006; 1762: 1051-67. [PubMed]
9. Orrell RW, Lane RJ, Ross M. Antioxidant treatment for amyotrophic lateral sclerosis/motor neuron disease. Cochrane Database Syst Rev., 2007; 1: CD002829. [PubMed]

10. Andersen PM, Borasio GD, Dengler R, Hardiman O, Kollewe K, Leigh PN, et al. EFNS task force on management of amyotrophic lateral sclerosis: guidelines for diagnosing and clinical care of patients and relatives. Eur J Neurol, 2005; 12: 921-38. [PubMed]
11. Desport JC, Preux PM, Truong TC, Vallat JM, Sautereau D, Couratier P. Nutritional status is a prognostic factor for survival in ALS patients. Neurology, 1999; 53: 1059-63. [PubMed]
12. Kasarskis EJ, Berryman S, Vanderleest JG, Schneider AR, McClain CJ. Nutritional status of patients with amyotrophic lateral sclerosis: relation to the proximity of death. Am J Clin Nutr, 1996; 63: 130-7.[PubMed]
13. Thornton FJ, Fotheringham T, Alexander M, Hardiman O, McGrath FP, Lee MJ. Amyotrophic lateral sclerosis: enteral nutrition provision—endoscopic or radiologic gastrostomy? Radiology, 2002; 224: 713-7.[PubMed]
14. Traynor BJ, Alexander M, Corr B, Frost E, Hardiman O. Effect of a multidisciplinary amyotrophic lateral sclerosis (ALS) clinic on ALS survival: a population based study, 1996-2000. J Neurol Neurosurg Psychiatry, 2003; 74: 1258-61. [PMC free article] [PubMed]
15. O'Brien T, Kelly M, Saunders C. Motor neurone disease: a hospice perspective. BMJ, 1992; 304: 471-3. [PMC free article] [PubMed]
16. Barber SC, Shaw PJ. Molecular mechanisms of motor neuron degeneration in amyotrophic lateral sclerosis. In: Eisen A, Shaw PJ, eds. Motor neuron disorders Amsterdam: Elsevier, 2007; 57-88. (Handbook of Clinical Neurology, 3rd ed.).
17. Ferraiuolo L, Heath PR, Holden H, Kasher P, Kirby J, Shaw PJ. Microarray analysis of the cellular pathways involved in the adaptation to and progression of motor neuron injury in the SOD1 G93A mouse model of familial ALS. J Neurosci, 2007; 27: 9201-19. [PubMed]
18. Mazzini L, Mareschi K, Ferrero I, Vassallo E, Oliveri G, Nasuelli N, et al. Stem cell treatment in amyotrophic lateral sclerosis. J Neurol Sci., 2008; 265: 78-83. [PubMed]
19. Neumann M, Sampathu DM, Kwong LK, Truax AC, Micsenyi MC, Chou TT, et al. Ubiquitinated TDP-43 in frontotemporal lobar degeneration and amyotrophic lateral sclerosis. Science, 2006; 314: 130-3. [PubMed]
20. Monk PN, Shaw PJ. ALS: life and death in a bad neighborhood. Nat Med., 2006; 12: 885-7. [PubMed]

21. Boillee S, Yamanaka K, Lobsiger CS, Copeland NG, Jenkins NA, Kassiotis G, et al. Onset and progression in inherited ALS determined by motor neurons and microglia. Science, 2006; 312: 1389-92.[PubMed]
22. Nagai M, Re DB, Nagata T, Chalazonitis A, Jessell TM, Wichterle H, et al. Astrocytes expressing ALS-linked mutated SOD1 release factors selectively toxic to motor neurons. Nat Neurosci, 2007; 10: 615-22. [PMC free article] [PubMed]
23. Dunckley T, Huentelman MJ, Craig DW, Pearson JV, Szelinger S, Joshipura K, et al. Whole-genome analysis of sporadic amyotrophic lateral sclerosis. N Engl J Med., 2007; 357: 775-88. [PubMed]
24. Schymick JC, Scholz SW, Fung HC, Britton A, Arepalli S, Gibbs JR, et al. Genome-wide genotyping in amyotrophic lateral sclerosis and neurologically normal controls: first stage analysis and public release of data. Lancet Neurol, 2007; 6: 322-8. [PubMed]
25. Jiang YM, Yamamoto M, Kobayashi Y, Yoshihara T, Liang Y, Terao S, et al. Gene expression profile of spinal motor neurons in sporadic amyotrophic lateral sclerosis. Ann Neurol, 2005; 57: 236-51. [PubMed]