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Awareness Regarding Parkinson's Disease: A Survey Report

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ABSTRACT

Parkinson disease also known as paralysis agitans is a neurodegenerative disorder. It is thought to occur as a result of decline of dopamine secreting cells in substantia nigra. The common symptoms related to Parkinson are tremors, rigidity, slowness of movement and dementia. The purpose of this study was to evaluate awareness regarding Parkinson disease, its cause, symptoms, diagnosis and treatment. The survey is conducted based on questionnaire, in which general population belonging to different public universities and government hospitals were questioned regarding Parkinson disease. The ratio found was not upto our expectations as less than 55 people(out of 210) knew the name of the disease but only 18 of them were aware about the causes and symptoms associated with it and even lower awareness was observed regarding diagnosis and treatment of disease. From this survey we found that awareness regarding parkinsons disease is negligible in general population.

Keywords: Alpha Synuclein Protein, Deep Wave Stimulation, Dopamine, Monoamino Oxidase B Inhibitors and Parkinson.

INTRODUCTION

After Alzhiemer's, Parkinson's is the second most common neurodegenerative disorder [1]. It is most prevalent in elderly people over 60 years but 5-10% cases of early age onset between 25-30 years have also been reported [2]. Parkinsonism is term usually associated with motor symptoms such as tremors, rigidity, bradykinesia and postural instability [3]. Besides these non-motor symptoms also appear with progressing disease these include sleep disturbances, depression, emotional problems and dementia [4]. Parkinson is generally considered idiopathic disease however in less than 15% of cases it can be genetic. Earlier Parkinson was considered nongenetic but atleast 15% cases have been reported in which patient of Parkinson disease has first degree relative suffering from same disease. Mutations occur in the following specific genes more commonly in synuclein, alpha (non A4 component of amyloid precursor) that is SNCA gene that codes alpha synuclein and LRRK2 (leucine-rich repeat kinase 2) gene [5]. The role of the SNCA gene is important in Parkinson disease because the alpha-synuclein protein is the main component of Lewy bodies. Abnormal accumulation of alpha synuclein protein with ubiquintin leads to formation of lewy bodies [6]. The individuals are asymptomatic when these lewy bodies accumulate in medulla oblongata and olfactory

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bulb but as it progresses towards substantia nigra, mid brain and forebrain neuronal degeneration starts [7]. Besides this lysosomal system dysfunction and decreased mitochondrial activity may also contribute in progression of disease.

Primary symptoms of Parkinson disease is associated with reduced dopamine secreting neurons in substantia nigra. There are 5 major pathways that is motor, orbito-frontal, limbic, associative and occulo-motor that connect with basal ganglia. The symptoms that appear are due to disruption in these pathways [8]. Besides various environmental factors have been associated with increased risk of Parkinson's disease such as exposure to pesticide and insecticides. Head injuries may also contribute as additional risk factor [9]. Diagnosis is usually done by looking at patients past history and by conducting neurological examination. Brain scan can be done to rule out other diseases. The UK Parkinsons Disease Society has created criteria to help in assessing the patients of Parkinson. It checks severity of symptoms such as Bradykinesia, rigidity, resting tremor and postural instability. These symptoms are evaluated by neurologist and then progression of Parkinson is reported [10]. Prevention from progression of Parkinson disease can be achieved by increasing intake of caffeine in diet and starting consumption of nicotine in form of gums [11]. These agents act as dopamine stimulants thus increasing dopamine concentration in brain [12]. Parkinson disease cannot be cured once the onset of symptoms has occurred but it can be managed by medications and surgery to provide relief from symptoms. [13] Levodopa is drug commonly used for treating motor symptoms. This is the precursor of dopamine, Levodopa is readily converted into dopamine by dopa decarboxylase. To reduce peripheral metabolism of levodopa, it is combined with a peripheral dopa decarboxylase inhibitor (ie carbidopa or benserazide). This increases the amount of levodopa that crosses the blood-brain barrier.[14] The dopamine receptor agonists can also be used. They produce similar effect as dopamine by binding directly with the post-synaptic dopamine receptors. They were introduced as adjuvant therapy to levodopa in later disease, but, more recently, trials have examined their effects as initial monotherapy in the hope that they may delay the onset of motor complications [15]. MAOB inhibitors block the metabolism of dopamine, thereby increasing its level in the striatum. Mono amino oxidase B inhibitors are recommended as neuroprotective agents that improve motor symptoms and stop progression on disease [16]. The ventrolateral nucleus of the thalamus has been one of the commonly used target sites for surgical lesions or stimulators placed at this target can dramatically improve tremor [17]. Nowadays bilateral subthalamic nucleus stimulation is done which is considered very useful in relieving symptoms of Parkinson [18]. The purpose of our study is to evaluate the awareness regarding Parkinson in general population so measures can be adopted to improve awareness which will be beneficial in improving the quality of life of Parkinson patients.

METHODOLOGY

Age group (18-40), N= 210.

It is survey based study which was conducted in different Public Universities and Government Hospitals such as University of Karachi, Jinnah Postgraduate and Medical Centre and Civil Hospital Karachi etc. The survey conducted consisted of 10 questions which were all related to Parkinsons disease, its cause, symptoms and treatment etc. The answers were carefully evaluated and then recorded as open ended.

RESULTS AND DISCUSSION

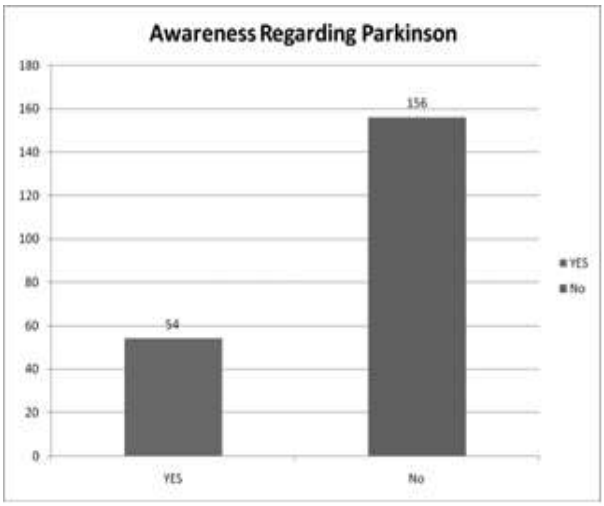

Figure 1: Awareness regarding Parkinson in General Population.

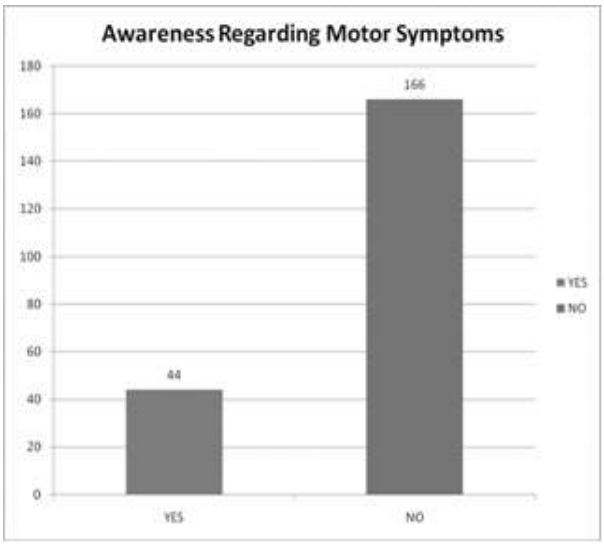

Figure 2: Awareness regarding Motor symptoms of Parkinson's disease.

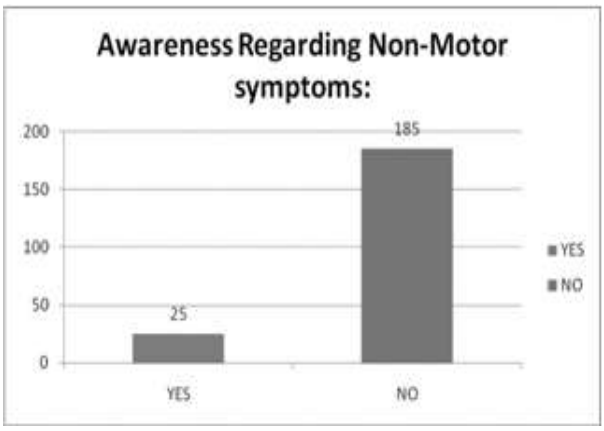

Figure 3: Awareness Regarding Non-Motor symptoms of Parkinson's Disease.

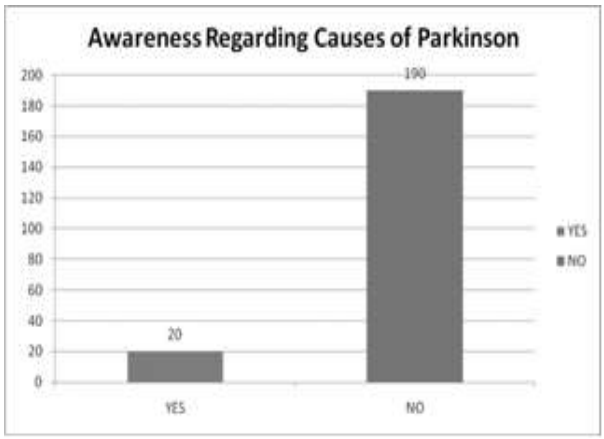

Figure 4: Awareness Regarding Awareness of Causes of Parkinson Disease.

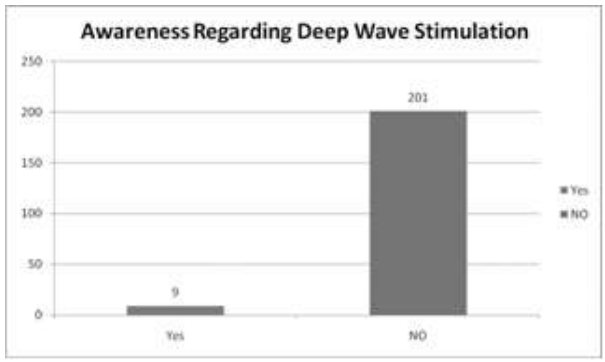

Figure 5: Awareness Regarding Deep- Brain Stimulation.

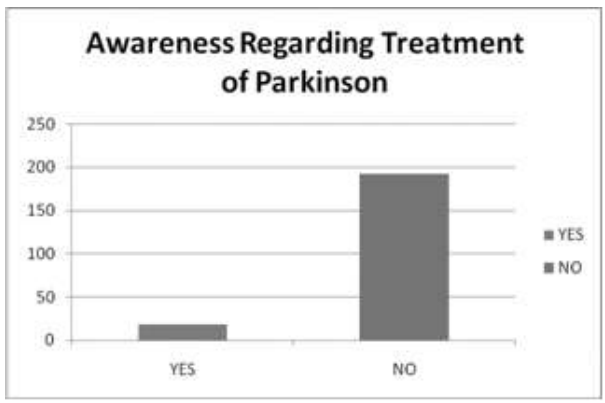

Figure 6: Awareness Regarding Treatment of Parkinson Disease.

Parkinson disease is progressive disorder of central nervous system. Figure 1.0 shows the awareness among general population about the disease. This figure indicates that people are generally not very well aware with names of neurodegenerative diseases. Figure 1.2 shows the awareness about motor

symptoms of Parkinson's disease such as tremors of hands, legs, arms and face, pin rolling tremor, bradykinesia, pain due to stiff and rigid muscles and postural instability. Our results show that level of awareness was very low but some positive answers were received because some family member was suffering from this disease.

Figure 1.3 shows awareness about non-motor symptoms such as depression, dementia, sleep disturbances and emotional problems. Although the people were aware of these symptoms they were unaware of them inassociation with Parkinson disease. Our results show that less than 30 people were aware about these symptoms. Figure 1.4 shows the awareness of Causes due to which Parkinson can occur, loss of neurotransmitter Dopamine plays dominant role, loss of norepinephrine also occurs as disease progresses which leads to depression. Loss of neurotransmitter Dopamine occurs as result of detoriation of neurons in substantia nigra. People usually answered the cause being genetic but few were aware of the role of neurotransmitter and dopamine.

Figure 1.5 shows the awareness about deep brain stimulation which is surgical treatment done to transmit electrical signals to different parts of brain especially subthalamic nuclei and globus pallidus. It is beneficial for those Parkinson patients whose symptoms are not relieved by medication. Less than 10 people were aware about this treatment and awareness was found in only those people who had witnessed Parkinson patients in their family, relatives or neighbours.

Figure 1.6 shows awareness about treatment of Parkinson disease which commonly includes Levodopa or Dopamine agonist which increases level of dopamine in brain. Monoamino-B oxidase inhibitors can also be used to increase level of dopamine. Our results show less than 20 people were aware about the treatment strategies associated with Parkinson disease.

CONCLUSION

By conducting the above research we came to conclude that although Parkinson Disease Day is being celebrated throughout the world on 11 April and different famous people suffering from it such as boxer Mohammad Ali and actor Michael.J.Fox have tried creating awareness among general population, in Karachi the people are still not very much aware about the disease. Different measures such as arranging seminars etc should be done to create awareness regarding neurodegenerative diseases in general population so measures can be taken before progression of disease and people who are suffering from it, their quality of life can be improved by cooperation of fellow human being.

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