

Are tremors in old age, really senile? A hospital based study

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ABSTRACT

Objective: To study the frequency and severity of tremors in otherwise healthy elderly adults at Sind Government Hospital Liaqatabad, Karachi.

Methodology: This cross-sectional study, was conducted at the Sindh government hospital, Liaquatabad, Karachi from October, 2007-2009. Five hundred otherwise healthy adults of both genders of more than 60 years were selected. After thorough clinical examination, classification and the severity of tremors were assessed by tasks given to the patients by principal investigator which he designed himself. All variables were put in proper register. Data entry and analysis was performed by single researcher on SPSS 16 for biostatistics. The inclusion criteria were adults of more than 60 years of either gender with no history of any systematic or neurological illness and presently not on drugs. The exclusion criteria were disputed age groups and those who cannot sign or write their names because they cannot be assessed by tasks.

Results: The mean age was 68.75 years \pm 6.74 with male female ratio of 1.95:1. Out of 500 subjects 84 (16.8%) showed no tremors, 307 (64.4%) had mild tremors only evident on special movements i.e. enhanced physiological tremors (physiological senile tremors) and 109 (21.8%) had moderate to severe tremors evident on movements i.e. kinetic, essential tremors (pathological senile tremors), with family history of 50.45%.

Conclusion: Tremors in old age are not part of life. Most of them had enhanced physiological tremors while few were of essential type with strong family history. If these are detected, they should be evaluated and classified and can be managed to make elderly population more useful to their family and the society.

KEY WORDS: Tremors, Senile Tremors, Essential Tremors, Thyrotoxicosis, Parkinson's disease, Healthy elderly adults, Frequency, Severity.

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INTRODUCTION

There is a famous old saying that "Old age is the center of all ailments" and old age is itself a disease.¹ Tremors appearing in old age are usually considered as part of the growing age according to most of the surveys.² The elderly population with tremors are usually neglected by the patient himself or by the caregivers.³ It is also a unfortunate that geriatric health care authorities in most part of the world do not take tremors as disease rather than as part of retired life.⁴ Tremor is defined as a rhythmic, oscillatory type of involuntary movement.⁵ It is one of the most common movement disorder seen in the general practice and specialists clinics.⁶ When found in

the elderly, it needs to be distinguished from the specific disorders which can cause tremors viz Parkinsonism, chorea, athetosis, myoclonus, akathisia, tardive dyskinesias, enhanced physiological tremors e.g. thyrotoxicosis and psychiatric diseases.⁷

There is discrepancy in deciding the "old age" and the term "ageing" is somewhat ambiguous.⁸ Most of the clinicians satisfied with "age of retirement in public service" as 60 years in Europe, Africa, Asia and Australia and 65 years in north and south America for the definition of "senile age groups", while WHO has agreed with 60 years as "old age". As principal investigator, has been working on different aspects of tremors for the last ten years, I noticed that the senile tremors can be classified in to 1, enhanced physiological tremors which are usually mild in intensity and called as physiological senile tremors, 2, a variant of essential tremors where no specific pathology can be detected on investigations are almost moderate to severe in intensity and labelled as pathological senile tremors, 3, tremors in old age which are related with definite pathology, i.e., parkinson's disease, dystonia, etc. Recognition of tremors in old age is important as if evaluated and classified properly, can be managed and these people will take self care better and may be useful to the society

The aim of this study was to contradict the misconception that tremors are the part of life and in fact these can be managed with cost effective measures if evaluated properly. More over there is scarcity of studies on this topic.

METHODOLOGY

This was the single centre observational and descriptive study carried out in two years from October 2007 to October 2009 at Sindh Government Hospital Liaquatabad (SGH), Karachi.

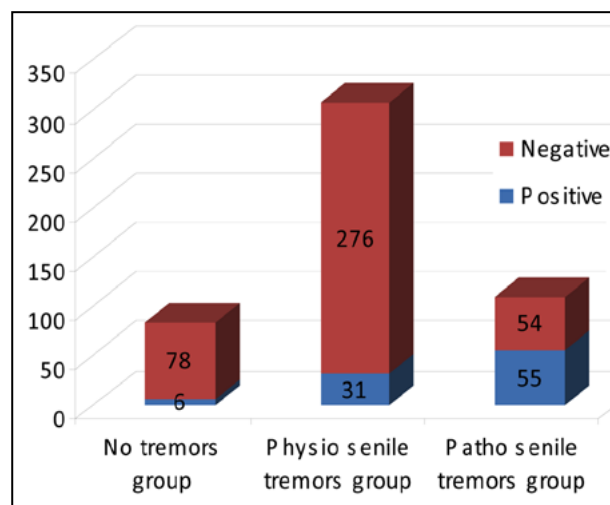
Elderly people of either gender who were visiting the hospital as attendants were selected after confirming their ages from national identify cards. The sampling technique was non probability and convenience. The selected subject information was recorded in register. All information were collected and enrolled by trained medical officers at the out patient department. Verbal consent was taken by these medical officers. A detailed medical history was taken.

A thorough clinical examination was done to exclude the diseases which can cause tremors. Persons were asked to show their hands with fingers spread, then placed on the table, raise both hands in space, abduct both upper limbs for 10

seconds, clench their hands for five seconds, pick the glass of water, sign or write few words on paper and draw a spiral. Other body parts were also checked for tremors.¹⁰ On the basis of the history and clinical examination the subjects were classified as no tremors, mild, moderate and severe tremors. The criteria for the severity of tremors¹¹ are classified as follows; mild, moderate and severe. The tremors having following characteristics are classified as mild tremors, no visible tremors of hands at presentation, tremors only appear with on command activities, can perform the routine work, can perform the spiral test. Moderate tremors are classified as visible tremors of hands, affecting daily pursuits, cannot satisfactorily sign on paper and cannot perform the spiral test. While severe tremors are classified as if the tremors of hands and others parts of the body are present, severely affecting the daily life, unable to sign at all, cannot perform the spiral test. The scale used in this study is modified by the principal investigator, as it is easy to perform and can be applied in any clinical settings.

Data analysis was performed with statistical software SPSS 16 and expressed as mean values and the proportions of the variety of the tremors.

Inclusion criteria: Informed consent was taken, elderly persons of either gender of mere than 60 years, apparently healthy with no presenting complaints, no history of addiction, no past history of CVA, psychiatric disorder, endocrine diseases, and neurological diseases including Parkinsonism. Presently not on any drugs except analgesics, hematinics and multivitamins, no history of surgery or head trauma and no history of acute medical conditions e.g. fever, vomiting diarrhea etc.



Bar Chart: Family associations with different groups of tremors.

Exclusion criteria: Those who refused to participate in the study, disputed age groups, and could not write their names.

RESULTS

Out of 2013 subjects, 500 were randomly selected for the study, the mean age was 68.75 years \pm 6.74, the youngest was 60 and the oldest was 89 years old. Among total of 500 patients, 344 (68.8%) were males and 156 (31.2%) were females. The male to female ratio was 1.95: 1.

Two hundred twenty seven (45.4%) belonged to lower socioeconomic group while 273 (54.6%) were from the middle class. Regarding the literacy, 289 (57.8%) had done primary education, 78 (15.6%) had post primary education and 132 (26.4%) were illiterate i.e. can sign or write their names but cannot read news papers.

Out of 500 subjects 84 (16.8%) showed no evidence of tremors (NT), 301 (60.2%) showed mild tremors i.e. physiological senile tremors (Ph T) and 115 (23.0%) exhibited moderate to severe tremors i.e. pathological senile tremors (PST). The latter are labelled as pathological in sense that they are affecting daily pursuits and always progressive with age and usually genetically in origin.

The family history of movement disorders was present in different groups as shown in the bar chart. All those who had pathological senile tremors did not show bradykinesia and rigidity and all of them had kinetic type of tremors rather resting tremors. Five of them also had lips tremors and two had voice tremors. 413 (82.6%) of the subjects had caretakers while 87 (17.4%) were living alone. The effect of gender and education on the severity of the tremors can be seen in the Cross-Table I and II.

DISCUSSION

Tremors are one of the commonest movement disorders seen in clinical practice caused by

Cross Table-I: Effect of education on tremors.

Education * Diagnosis Cross tabulation		Diagnosis			Total
		NT	PST	PhT	
Education	illiterate	23	34	75	132
	primary	44	67	178	289
	post primary	17	13	48	78
	36	0	1	0	1
Total	84	115	301	500	

NT=No Tremors, PST=Physio Senile Tremors, PhT =Patho Senile Tremors

the imbalance between agonist and antagonist muscles.¹² The contraction of a voluntary muscle is accompanied by tremors of muscle in the form of minute oscillations.¹³ This rippling of the muscle is known as physiological tremor. This means that tremor activity is hidden in every individual despite any age and is oblivious clinically in certain exaggerated conditions e.g. stress and known as enhanced physiological tremors.¹⁴ The latter usually disappear when the initiating stimulus is withdrawn.¹⁵ The presence of physiological or enhanced physiological tremors does not depend on the age. Although certain specific pathological processes e.g. Parkinsonism are more common in old people, the presence of tremor in geriatric population does not mean that it is due to old age related to degenerations, but needs further probe for the diagnosis and management.¹⁶ In this study out of 500 selected healthy elderly individuals, overall tremor activity was present in 416 (83.2%) and no evidence of tremors was found in 84 (16.8%). These findings can be compared to the study done by Louis and his colleagues in 2000 who found 98% tremors activity in 75 elderly subjects. The difference in prevalence could be because of small sample size and methodology.²

The age in those who showed no tremor activity was comparatively younger (mean age 65.5) than those who had physiological senile tremors or pathological senile tremors (mean age 71.2), these findings are supported by the study done by Lucotte and his co workers in 2006.¹⁷ In our study most of the old subjects showed mild tremors with special maneuvers which were labeled as physiological senile tremors. The prevalence of this group was 301 (60.2 %), the family history of movement disorders was only 31 (10.09%) and this group did not need treatment except reassurance because these tremors did not influence their daily life. These facts are supported by the study done by Benito -Leon and Louis in 2006.¹⁸

In this study 115 (23%) of the elderly subjects had moderate to severe tremors and we classify as

Cross Table-II: Effect of gender on tremors.

Gender * Diagnosis Cross tabulation		Diagnosis			Total
		NT	PST	PhT	
Gender	Male	59	70	220	349
	female	25	45	81	151
Total	84	115	301	500	

NT=No tremors, PST=Physio Senile Tremors, PhT= Pathological Senile Tremors

“pathological senile tremors”. The latter tremors were named as senile tremors by Joel Hurwitz in 2001 in his article published in Canadian journal of diagnosis.¹⁹ Pathological senile tremors are the variant of essential tremors, the most common type of tremor after enhanced physiological tremor in the world.²⁰ The family history in this group was found to be 55 (50.45%) which means strong familial association and this finding was supported by Lorenz and Deuschlin in 2007 who reported 30-60% association in different communities.²¹ Five subjects (9%) had in addition lip tremors while two (3.5%) showed the voice tremor these findings are in consistent with the study done by Louis, Marder and Cote in 1995.²²

CONCLUSION

Tremors in the old age are frequent finding but not age related. Senile tremors are now misnomer as tremors appearing in the old age should be properly investigated and classified. Enhanced Physiological Tremors are the commonest cause, while essential tremors can be considered especially if family history is present. Characterization of the tremors would be of value to the practitioners who care for older adults.

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