Suicidality among Patients with Sex-linked Dystonia-Parkinsonism (XDP)

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ABSTRACT

Background. Sex-linked dystonia-parkinsonism (XDP) is an adult-onset, progressive, debilitating movement disorder that manifests with features of dystonia and parkinsonism. It is endemic among Filipino males from Panay Island. Many of these patients would have peculiar postures and bizarre movements forcing them to retreat to the confines of their home or probably in solitude.

Objective. To describe the rate of suicide among XDP patients.

Methods. We identified the patients from the Philippine XDP registry maintained by the XDP Study Group. A retrospective chart review was then done.

Results. There were 21 deaths attributable to suicide from the 194 deaths from the XDP registry (10.8%). The mean age at suicide was 44 $\pm$ 11.38 years, around 7.76 $\pm$ 4.65 years from onset of illness and 5.81 $\pm$ 4.32 years from the diagnosis. Most patients (17/21) were in the generalized dystonia stage at the time of suicide. Five of the suicide cases belonged to two families. The most common method of suicide were hanging (10, 47.6%), refusal to eat (5, 23.8%), non-accidental organophosphate poisoning and self-mutilation (1 each, 4.8%).

Conclusion. There was a high rate of suicide (10.8%) among XDP patients compared to the national suicide rate of 3.59/100,000. Hanging was the most common method used to commit suicide.

Key Words: DYT3, suicide, XDP

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Introduction

Sex-linked dystonia-parkinsonism (XDP, DYT3, 'lubag', OMIM #314250) is an adult-onset, progressive, debilitating movement disorder that manifests with features of dystonia and parkinsonism.[1] It was first described by Lee et al. in 1976 as endemic to Filipino males from Panay Island, Philippines.[2] But, it has also been reported in females.[1,3-5] The reported prevalence of XDP in Panay Island is 5.74/100,000 and 0.31/100,000 for the Philippines.[1] Among the provinces in Panay Island, Capiz has the highest prevalence at 18.9 cases/100,000 population.[1]

The majority (93.4%) of XDP cases present initially with focal dystonia, whereas initial parkinsonian traits are observed in only 5.7%. In about 4 years, the dystonia generalizes. The mean age at onset of the disease is 39.67 (range of 12-64) and the mean duration of illness is 16 years (range 1-41 years).[1]

Neuroimaging findings reflect what is seen neuropathologically, and include varying degrees of bilateral and symmetric caudate and putaminal atrophy as well as signal abnormalities in striatal structures on MRI.[6] Therapy however, is limited to relaxants and botulinum toxin and remains to be symptomatic.[7] Bilateral pallidal deep brain stimulation for XDP, first reported to be useful in 2007, seems to be a promising, safe and effective procedure for alleviating the disabling symptoms of XDP.[8-12]

Many of these patients would have peculiar postures and bizarre movements. People in the community believe that this strange posturing has superstitious significance i. e., they are mistaken for evil creatures or *aswang*.[1] The situation is worsened by the debilitating progression of the disease from the dystonic phase to the parkinsonian as he will be unable to work and eventually unable to care for himself. There have been anecdotal reports of patients who have been abandoned or maltreated by their immediate relatives, forcing these patients to live on their own, usually in very poor living conditions. With the social stigma of the disease, they are forced to retreat to the confines of their home or probably spend his life in solitude.

While previous publications reported a high incidence of suicide among XDP patients: 16% in a 2001 review and 9% in a 2011 review, an account of all these cases has yet to be done. [1,13] We therefore investigated the rate of suicide among XDP patients.

Methods

We identified the patients from the Philippine XDP registry maintained by the XDP Study Group. A retrospective chart review was then done to gather baseline demographic data as well as available disease-related factors and psychosocial information. Quantitative variables were expressed as means ± SD while qualitative variables were expressed as percentages.

Results

We identified 21 deaths attributable to suicide from the 194 deaths reported as of 2010 (10.8%). Of the 21 cases, 20 were males (Table 1). The mean age at suicide was 44 ± 11.38 years (range: 32 – 75 years) occurring around 7.76 ± 4.65 years from onset of illness (range: 2 - 20 years) and 5.81 ± 4.32 years from the diagnosis (range: less than a year - 14 years). Five of the suicide cases belonged to two families. Majority (17/21, 81%) had a focal onset of dystonia which generalized within four years. Consequently, they were also assisted or dependent in their activities of daily living. Most patients (17/21, 81%) were in the generalized dystonia stage when they committed suicide. Data on the BFM and UPDRS scores were not included as these were incomplete.

Table 1. Profile of Suicide Cases among Patients with XDP

		Total n = 21
Sex	male (%)	20 (95)
	female	1 (5)
Age (years)	at diagnosis/ consult, in years	38.71 ± 10.44
	at onset, in years	36.24 ± 10.37
	at death, in years	44 ± 11.38
Years to suicide	from onset of illness	7.76 ± 4.65
	from diagnosis	5.81 ± 4.32
Stage at onset	focal	19 (90)
	multifocal	2 (10)
Stage at suicide	generalized dystonia	17 (81)
	multifocal dystonia	1 (5)
	parkinsonian	3 (14)
Marital status*	single	2
	married	14
	separated	2
Education**	college graduate/ undergraduate	6
	vocational	1
	high school level/ graduate	4
	elementary level/ graduate	6
	professional	4
Previous	skilled labor	6
Employment***	unskilled labor	3
	unemployed	5

*3 *patients with incomplete data;* **4 *with incomplete data;* ***3 *with incomplete data*

Twelve patients were on 2 or more medications and only 2 were on a single medication. The most common medication used were: trihexyphenidyl (11), lorazepam (6), carbidopa/levodopa (3), biperiden (2), diphenhydramine (2), and 1 each for clonazepam, clorazepate, carbamazepine, and botulinum toxin A. The rest of the patients (7/21, 33.3%) were not on any medication.

Table 2. Method of Suicide

	n = 21
Hanging	10
Self-starvation	5
Organophosphate poisoing, non-accidental	1
Self-mutilation	1
Unknown	4

Most of the patients (14/21, 66.7%) were married, 2 of whom were separated. There were 6 patients who had a tertiary level of education, half of which were able to graduate with a bachelor's degree. Majority still had occupations at the time of diagnosis, three of them professionals.

None of the patients had a prior documented psychiatric illness. However, some of the patients were noted to have psychological disturbances during their follow ups at the XDP clinic. Some of these observations were emotional lability, depressed mood, irritability, dependent behavior, feelings of fatigue and, difficulty in sleeping. Later on, 2 of the patients had prior episodes of self-inflicted harm e. g., tried to cut off nose or big toe. Another patient was at one point admitted to a psychiatric hospital. None of them had other significant medical illnesses.

Majority of the patients committed suicide by hanging (10/21, 47.6%) and refusal to eat (5/21, 23.8%). In 4 patients however, there was no mention in the records on the manner of suicide. However, it was noted in the chart by the attending physicians that these patients indeed committed suicide.

Discussion

To the best of our knowledge, this was the first comprehensive summary on suicide among XDP patients in the Philippines. The rate of suicide among XDP patients (10.8%) was higher than that of the general population. In 2005, the Philippine incidence of suicide for males was reported at 3.59/100,000, highest in men aged 15-24 or 65 and above.[14] This was not seen in our patients, whose age range from 32 – 75 years. Our rate of suicide was comparable to the number of suicides observed among patients with Huntington's disease (HD) at 5.7%.[15] This overall trend of increased risk of suicide has also been observed in other neurodegenerative diseases like Parkinson's disease (5.3 times higher), and amyotrophic lateral sclerosis (ALS) (5.8

times higher) than the general population.[16,17] However, one study on ALS estimates mortalities from suicide at only 1.3%.[18]

The age at death of our XDP patients who committed suicide were younger compared to the non-suicide XDP deaths (44 years vs 55 years old).[1] XDP suicides occurred at an average of 5.8 years from diagnosis. This is in contrast to HD and ALS where suicide occurs relatively early in the disease. In HD, suicide occurs among early symptomatic individuals and in pre-manifest gene carriers, when the diagnosis has just been established.[19] While in ALS, a higher risk of suicide was observed after the first hospitalization, relatively early in the disease.[17]

One possible reason for suicide among our XDP patients is the nature of the disease. The diagnosis of XDP can be a family burden because of its genetic basis and the disfigurement it produces. This may lead the patient to withdraw or be abandoned or hidden from others, leading to poor treatment and less than ideal living conditions. In addition, patients who have relatives with the same condition are very much aware of this situation. These patients may be more vulnerable to depression and suicide after observing the disease and its effects on their relatives.[1] This may be exemplified by two families in this series where three from one family and two from another family have committed suicide. Moreover, there has been no reported effective cure.[7]

Majority of our patients (17/21, 81%) were in the generalized stage of the disease when they committed suicide. This reflected the poor functional capacity of these patients at the time of suicide. None of these patients were working. In a recent summary, only 6% of the living XDP patients were still working and 23% were either wheelchair bound or bedbound.[1]

In the Philippines, the most commonly used methods of suicide in the Philippines were hanging, shooting and organophosphate poisoning.[14] This was also reflected in our results. Next to hanging, starvation and non-accidental organophosphate poisoning were the top methods of suicide among XDP patients.

Two patients had episodes of self inflicted harm while another patient was eventually admitted at a psychiatric institution. These may have been the critical symptoms of depression among this group of patients. A high prevalence (54.8 – 92.9%) of depressive symptoms among XDP patients have been reported.[20,21] In HD, the atrophy of the caudate and putamen was thought to disrupt the frontal and prefrontal circuitry predisposing to depression.[22] This might also be true for XDP as we also see atrophy of the caudate and putamen in all of the autopsied XDP cases.[6]

As this was a retrospective chart review, some of the psychosocial factors that may have played a role in our patient's suicide may not have been noted in the chart. Also missing in some patients were the BFM and UPDRS scores. Moreover, it would have been best if the death certificates have been retrieved and reviewed. However, there is likely to be under-reporting because of the non-acceptance of suicide by the Catholic church as well as the associated disgrace and stigma to the family. As in other Catholic countries, a high proportion of suicide deaths are likely to be misclassified as injury of undetermined intent or accidents.[14] Missed cases can occur as a result of the family member's refusal or non-reporting of the deaths to the group.

Despite these limitations, this was the only review on suicide among XDP patients for the last 35 years. Our results showed that there is a high rate of suicide (10.8%) among our XDP patients with hanging as the most common method used. Thus, screening for depression, which is highly correlated with suicide needs to be done routinely. This also highlights the need for a comprehensive approach to the clinical care of XDP patients.

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