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A Study of Socioeconomic Status and Psychiatric Illness in Patients of Suicidal Organophosphorus Compound Poisoning

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ABSTRACT

Background: Organophosphorus compounds are common means of suicidal attempts in rural Bangladesh- due to their easy availability. Despite being a major health hazard in rural Bangladesh, it is seldom a priority area for health research. Though medical management is more or less adequate, a psychiatric assessment of patients is largely neglected. The role of psychiatric illness in such poisoning is yet to be evaluated. This study attempted to assess the socio-economic status and psychiatric illness in patients of OPCs poisoning.

Materials and methods: In this descriptive study a total of 84 patients self-poisoned with OPCs were selected by purposive sampling. In the study population details regarding age, sex, marital status, educational level, occupation, economic condition and presence of psychiatric illness were collected using a questionnaire.

Results: In this study 71.42 % patients were found in 10 to 30 years age group, 51 % patients were from poor families and none from rich families, students were 30.95% and cultivators were 25%, most of the victims (39.28 %) studied up to primary level or less. Only 9.52 % (n = 8) patients had underlying psychiatric illness. 90.47 % patients took OPCs as an act of impulse and no underlying psychiatric illness was found among them. Depressive illness was the most frequent (3.6 %) psychiatric diagnosis among those who were suffering from psychiatric illness.

Conclusion: OPCs were used for suicidal attempt mostly by young people of low socioeconomic class and mostly out of impulsive act. Presence of small number of patients having psychiatric illness suggested that recurrent suicidal attempt would be low.

Key words: Organophosphorus compounds; Poisoning; Mental disorders; Socioeconomic status; Suicide.

INTRODUCTION

Suicide has been described as the seriousness or intensity of the patient's wish to terminate his or her life[1]. Increased suicide risk after attempted suicide involves factors like male gender, advancing age, coexisting psychiatric disorder, previous psychiatric treatment, long - term use of hypnotics, poor physical health, and living alone[2,3]. Poisoning refers to the development of dose related adverse effects following exposure to chemicals, drugs, or xenobiotics[4]. Globally, recent estimates suggests that each year worldwide there are 3 million acute poisonings with 2,20,000 deaths[5]. Developing countries bear most of this burden. In those countries, more than 80% of such acute poisonings are due to pesticide[6]. Around the world, poisoning is a very commonly faced medico-social problem. The poisoning agents vary from country to country depending on the ease of availability, socio-economic status, and educational background of the victim. In tropical countries, Organophosphorus Compounds (OPCs) are the commonly used agent[7].

Self-poisoning is the most common form of acute poisoning. The intent of this poisoning may be suicidal or a manifestation of deliberate self- harm[8].

Poisoning is an important health problem in Bangladesh- causing around 2,000 deaths per year[9]. Self-poisoning constitutes more than half of the total poisoning cases admitted in the hospital[10]. A suicidal attempt is the most common intention[11,12]. Pesticides are most commonly used for this purpose.

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Self-poisoning is a potentially serious problem and sometimes distressing for both hospital staff and family members. It consumes valuable health resources, produces an economic burden on the affected family and causes considerable mortality and morbidity. As clinicians in hospital practice have to deal with this common medical problem, a clear idea is required regarding background factors, influence of underlying psychiatric illness and the risk of a repeated suicide attempt. This study aims to focus on two aspects of patients with OPC poisoning namely socioeconomic status and the presence of psychiatric illness.

One of the most common modes of committing suicide in a developing country like Bangladesh is by consuming poisons especially OPCs. The reason for choosing OPCs is an inherent advantage of its easy availability in our agro-based country and almost predictable results. Currently, OPCs poisoning has become a major health problem in Bangladesh. Unfortunately, such poisoning is seldom included as a priority for health research in this country[13,14]. Psychiatric evaluation of this group of patients are neglected, at the end of the study, we will be able to know the prevalence of psychiatric disorders in suicide attempters with OPCs so that early interventions to prevent further attempt will be possible.

MATERIALS AND METHODS

This descriptive study was conducted on 84 patients who were admitted in Medicine Ward of Dinajpur Medical College Hospital, from 1st March to 31st August 2011.

We initially included patients who either had a history of ingestion of OPC compound or presented with cholinergic toxidrome. In each instance, we asked the victim's family members to bring the container /pack of the poison to confirm OPC poisoning. Consecutive cases of eligible patients were included in this study. All patients were within 13 to 60 years of age.

Patients in whom OPC poisoning was not confirmed by identifying the sample, instances of poisoning with multiple substances, patients below 13 and above 60 years of age and patients unwilling to participate in the study were excluded.

The variables studied were age, sex, occupation, marital status, educational qualification, monthly income of the patient or his/her family, presence of psychiatric illness, diagnosis of psychiatric illness if any.

A structured questionnaire was formed that included all the variables of interest. The questions were designed to elicit details of socioeconomic status, psychiatric illness, and intention of suicide. Pre-testing was done before data collection. After the improvement of physical condition and the establishment of rapport with the individual patient, we collected the necessary information. A psychiatrist evaluated the patients and confirmed the nature of the psychiatric illness. The diagnosis of associated mental disorders was made according to ICD-10.

Data were processed on a computer using SPSS version 18 for windows. The descriptive-analytical technique involving frequency, distribution, computation of percentage, mean SD etc. were applied.

RESULTS

Mean age of OPCs-poisoning cases was 25.3 ± 8.9 years (Range 14 to 50 years). Socio-demographic characteristics of the patients are presented in Table I.

Gender ratio of OPCs-poisoning was male: female = 1.4:1. Among 84 patients admitted with history and clinical features of OPCs poisoning only eight patients (9.52%) had psychiatric illness, remaining 76 patients (90.47 %) ingested OPCs as an impulsive act and had no psychiatric illness. Three (3.6 %) patients suffered from depressive illness, two (2.4 %) patients had dissociative (Conversion) disorders, one (1.2 %) patient had adjustment disorder, one (1.2 %) patient was suffering from chronic organic psychiatric disorder and one (1.2 %) patient had schizophrenia (Table II).

Table I : Socio-demographic characteristics of the poisoning patients.

Traits	n	%
Age distribution		
11 – 20 years	34	40.47
21 – 30 years	26	30.95
31 – 40 years	16	19.04
41 – 50 years	8	9.52
Gender		
Male	49	58.33
Female	35	41.66
Marital status		
Married	41	48.80
Unmarried	43	51.19
Occupation		
House wife	11	13.09
Cultivator	21	25.00
Student	26	30.95
Day laborer	8	9.52
Service holder	11	13.09
Others	7	8.33
Economic status		
Poor (< 5,000 taka /month)	43	51.19
Middle class (5000-10,000 taka/month)	41	48.80
Rich (> 10,000 taka /month)	-	-
Educational status		
Illiterate	9	10.71
Class V	33	39.28
Upto class VIII	17	20.23
SSC	17	20.23
HSC	8	9.52

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Table II : Types of Psychiatric illness among OPCs-poisoning patients.

Diagnosis	n	%
Depressive disorder	3	3.6
Adjustment disorder	1	1.2
Dissociative (Conversion) disorders	2	2.4
Schizophrenia and delusional disorders	1	1.2
Organic disorders (Chronic)	1	1.2

DISCUSSION

Among patients with suicidal OPC poisoning, 40.47% were within 11-20 years and 30.95% within 21-30 years of age. The young population made up 71.42% of the study subjects. This observation was consistent with the results observed among poisoning patients admitted in four General Hospitals in the then Chattogram division in two consecutive years. In 1985, 64% and 1986, 65% of the total poisoning patients belonged to the 11 to 30 years group[15]. The mean age of the poisoned patient was 25.3 ± 8.9 years (Range 14 to 50 years). This data also showed similarity with the study on acute poisoning in Dhaka Medical College Hospital (1994) where the mean age was 28.47 years and 21.69 years in males and females respectively[10].

Most of the victims were male (58.33%) in comparison to females (41.66%). A similar scenario was described by Rahaman et al where the male to female ratio was 1.6:1[10]. Azhar reported differently at Jhenidah District Hospital, where the male to female ratio was 1:2[16]. OPC poisoning victims had almost equal frequency by marital status (Married 48.80% vs. unmarried 51.19%) in the present series. However, a study from rural India showed that 63% of victims of self-poisoning were married. In a rural Indian set up marital disharmony was shown as the prime cause[17].

Most of the patients were from low socio-economic conditions (51.19%) whose monthly income was below 5,000 taka's, whereas 48.80% were from middle-class, who had monthly income between 5,000-10,000 taka. None of the patients had a monthly income of more than 10,000 taka's.

In one study, Chattarjee from India reported 75% of poisoning victims were poor, and 25% in the middle class[18]. Agarwal in 1993 reported 21% of incidence in the lower class, 69.4% in the middle class, and 9.5% in the upper class[19].

Students comprised about one-third of the total population of self-poisoning (30.95%) followed by cultivators (25%) housewives (13.09%) service-holder (13.09%) day-laborer (9.52%) and 8.33% from other occupation. This observation showed dissimilarities with the occupation of OPC poisoning patients in a study at Chittagong Medical College Hospital, where 25.8% were house-wife, 16.1% students, 12.9% day-laborer, 15% service-holder and 14% cultivator[20]. The probable reason for these dissimilarities was that the present study was done in an agricultural-based area.

Assessment of educational status revealed that 9 (10.7%) were illiterate, 33 (39.3%) studied up to class V, 17 (20.25%) studied up to class VIII, 17 (20.25%) passed SSC and 8 (9.5%) of them passed HSC exam. None of them were graduates. In contrast, Rahaman MM et al showed that OPC poisoning was commonest among uneducated persons (53.2%)[10]. Kara et al reported most of the OPC poisoning patients had a primary education level (66.7%)[21].

Only eight (9.52%) patients had a psychiatric illness, the remaining 76 (90.47%) patients ingested OPCs as an impulsive act and had no psychiatric illness. But one study in Katmandu, Nepal showed a totally different result, where 90.7% of patients with suicidal attempts had psychiatric illness[22]. But studies from China, India and Malaysia suggest that a major portion of people who die from self-harm do not have a diagnosable mental illness[23-26].

Three (3.6%) patients had a depressive illness, two (2.4%) patients had dissociative (Conversion) disorders, one (1.2%) patient had adjustment disorder, one (1.2%) patient was suffering from a chronic organic psychiatric disorder and one (1.2%) patient had schizophrenia. But in the Katmandu study among suicidal attempters, 62.8% of patients had a depressive illness, 11.6% had adjustment disorder, 9.3% of patients had schizophrenia and 2.3% had conversion disorder[22]. In that study presence of psychiatric illness among OPCs poisoning patients was not classified separately.

This dissimilarity, in the frequency of psychiatric illness, between present study and the Katmandu study is probably because the Katmandu study was conducted in a hospital where most poisoning patients were from urban areas. In contrast, this study was conducted in Dinajpur Medical College hospital where most poisoning patients were from rural areas.

LIMITATIONS

Only survivors from acute OPC poisoning were interviewed and assessed by a psychiatrist. Fatal cases were excluded. As it was a regional study, the findings were not nationally representative. Moreover, as the sample size was purposive, the study could not reflect the true hospital prevalence.

CONCLUSION

OPC poisoning is common among young people with a low socioeconomic class. The poisonings occurred out of an impulsive act. The presence of a small number of patients with psychiatric illness suggests a lower risk of repeated suicidal attempts.

DISCLOSURE

Both the authors declared no competing interest.

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