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Short Review Paper

Pesticide poisoning among farmers of India: a study of Karnataka State

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Abstract

Pesticide poisoning cases were examined between 2014 and 2018 to better understand the pattern of poisoning cases among Karnataka farmers. From OPD (Outpatient branch) through IPD (Inpatient branch), a total of 1459 poisoning cases were investigated, surveyed in a systemic sense from admission to rehabilitation or death of way In order to understand the Victims' age ranges, with the youngest being the most popular form poisoning, the manner in which a person is poisoned, the agricultural and city characteristics, many of these cases have been studied. Of 1459 cases, male 1112 cases (76.22%) were mainly female 347 cases (23.79%) with the remainder (48.32%) belonging to the organization of 41-50 age holder, Organophosphorous compounds are the most often found poisons (54.49%). Compared to others, the most common victims were agricultural farmers with a rural history who belonged to the lower socio-economic strata (78.54%).

Keywords: Agricultural, organophosphorous compounds, suicide, poisoning cases, farmers.

Introduction

Rural communities in developed countries have changed dramatically over the previous few decades. Pesticides used in agriculture have become a common household commodity. Moreover, insecticides have been widely used for deliberate self-poisoning as a result of their easy accessibility[1-3]. Pesticide poisoning has been one of the leading causes of morbidity and mortality around the world[3]. In the year 2016, organic farm management was used on 57.8 million hectares around the world[4].

Agricultural employees who account for roughly three-quarters of the labour force in the poorest countries[5]. Pesticides are used all over the world to protect plants, at least a third of them are said to have been wiped out by pests[6]. Pesticide usage, on the other hand, poses significant risks to human health: Acute poisoning occurs when hazardous reactions appear quickly after exposure, whereas chronic poisoning occurs when the reactions appear gradually after extended exposure[7]. In every accidental and suicidal poisoning in growing nations such as India, Srilanka, South Africa and many others, A significant role is played by the clean availability and low cost of hazardous chemicals[1,8-11]. Intentional organophosphorus (OP) chemical poisoning has the highest fatality rate, according to reports from Southern and Imperative India[12-14]. More than three million poisoning cases have been registered, according to the WHO, each year, 251,881 people die around the world, 99 percent of poisoning deaths occur in developed countries, due to various types of poisoning, primarily among farmers, poisonous herbal toxins[14,15]. Consequently, an early review, remedy and prevention warning is important for reducing the weight of any country's poisoning-related harm. In this regard, the current studies are being carried out to observe the pattern of pesticide poisoning cases among a few of Karnataka's farming community.

Materials and methods

In the district stage government hospital within town and district of Karnataka state, we accumulated and checked data from all sufferers admitted with pesticide poisoning. A complete of 1459 poisoning instances admitted at Karnataka state of the all 30 districts has been analyzed for the duration of 2014-2018. From entry to the OPD to the wards, the patients were examined and followed up until recovery or loss of life. Facts from the background provided by patient, records from medical facilities, investigations by the police, post-mortem examinations, Reports from the Forensic Science Laboratory, as well as personal documents and interview of victim's spouse and children were accumulated in a designed. Information on the poisoning kind, converted into a proforma, age and frequency of sex, spouse acceptance, different sects, In each case, the number of days spent in the hospital has been recorded and analysed using statistics.

Results and discussion

Out of the 1459 instances research on poisoning for duration 2014-2018. The most of the victims (Table-1) were between the ages of 41 and 50. (509, 45.77%), the most typical form of poison (795, 58.49%) encountered become Organophosphate pesticide (Table-3). Principal treatments and consequences in keeping with pesticide ingested in all government Districts Hospitals were treat start for the Atropine 754 (95%).

The majority of agriculture farmers were from rural areas, i.e. 1146 (78.54%) in contrast to (Table-2) city location (313, 21.46%). individuals of low socio-financial strata are the commonest sufferers (959, 65.72%) accompanied with the aid of center magnificence (367, 25.16%) and upper magnificence (133, 9.12%) least involved (Table-2). Most of the agriculture farmers' belonged admission to government Districts Hospitals less than five hours 284 (25.53%) male farmers was (Table-4) died comparing to out of 415 (28.45%).

Table-1: Shows the Pesticide toxicity is distributed by age and gender.

Age / Gender	Male	Female	Total
11 - 20	5(0.45%)	2(0.57%)	7(0.47%)
21 - 30	97(8.72%)	13(3.74%)	110(7.53%)
31 - 40	214(19.25%)	57(16.43%)	271(18.57%)
41 - 50	509(45.77%)	196(56.48%)	705(48.32%)
51 - 60	264(23.74%)	64(18.45%)	328(22.48%)
61 above	23(2.07%)	15(4.33%)	38(2.60%)
Total	1112(100%)	347(100%)	1459(100%)

Table-2: Shows the type of poisoning, the locations impacted, and the farmers' socioeconomic status.

Economic Status	Number of Cases	Areas	Number of Cases
Lower class	959(65.72%)	Rural	1146(78.54%)
Middle class	367(25.16%)	Urban	1146(21.46%)
Upper class	133(9.12%)	Total	1146(100%)
Total	1459(100%)		

Table-3: Principal treatments and consequences in keeping with pesticide ingested in all government Districts Hospitals.

Types of Pesticide	Admitted Pesticide Cases	Atropine (%)	Pralidoxime iodide (%)	Anticonvulsants (%)	Intubation (%)	Duration of stay in hours
Organophosphate	795 (54.49%)	754 (95%)	697 (88%)	89 (11%)	451 (57%)	98 (58-120)
Organochlorine	374 (25.63%)	280 (75%)	243 (65%)	356 (95%)	203 (54%)	76 (47-92)
Cypermethrin	105 (7.20%)	85 (81%)	71 (68%)	60 (57%)	32 (30%)	80 (36-80)
Carbamate	15 (1.03%)	14 (93%)	12 (80%)	1 (7%)	7 (47%)	84 (34-80)
Other pesticides	170 (11.65%)	155 (91%)	40 (24%)	142 (84%)	135 (79%)	48 (30-65)
Total	1459 (100%)	1288	1063	648	828	386

Table-4: Time from presentation until death with hours or days.

Living Period in Hospital	Male	Female	Total
less than 5 hours	284(25.53%)	131(37.75%)	415(28.45%)
6 to 10 hours	245(22.04%)	112(32.28%)	357(24.46%)
11 to 20 hours	217(19.52%)	57(16.42%)	274(18.77%)
21- 24 hours	156(14.03%)	25(7.21%)	181(12.41%)
1 - 2 days	145(13.04%)	17(4.89%)	162(11.11%)
2-3 days	41(3.68%)	4(1.16%)	45(3.09%)
3 - 4 days	24(2.16%)	1(0.29%)	25(1.71%)
Total	1112(100%)	347(100%)	1459(110%)

Discussion: In contrast to popular culture, the current globalisation situation, Citizens, in particular, are subjected to a great deal of stress as a result of urbanisation and industrialization. The most significant victims of either suicidal or accidental poisoning are individuals who are unable to sustain these demanding circumstances. The commonest poison observed was the Organophosphate (795, 54.49%) compounds and least encountered was the Carbamate[15] (1.03%). This corresponds to the findings of previous research. Suicide is an act of self-destruction is typical method due to poisoning (1146, 78.54%) with rural living belonging to the reduction of socioeconomic strata (959, 65.72%); these results are much like the alternative of previous employees[16,17]. It's believed that this is due to rural agricultural farmers' illiteracy and poverty. Because of a few causes depend entirely on the rural profits for their livelihood, if they are unable to generate the required profits for their daily lives as well as obligations, they'd become frustrated and commit suicide as a result of such agricultural pesticides. Wild plant killers that can be accessible from their outdoors. Most of formers were ingested less than 5 hours died (415, 28.45%) at time of consuming high Organophosphate pesticide.

Poisons may also reach the body through one of the kind paths; a poison's speed of motion depends on the management path, the absorption rate, and the mode of movement in which it is widely incorporated into the gadget. The routes are as follows in terms of speed of motion; injection into the blood vessels; intramuscular, subcutaneous, intradermal injection; helpful for an open wound, inhalation in gaseous or vaporous form.

Men outnumbered the females and majorities had been within the age organization of forty one-50 years (705, 48.32%). Psychologically stable men, Agriculture is both physically and socially involved, this particular age organization is the maximum living segment of life; they can be subjected to everyday life stresses than women, With previous study, this remark is routine[16,18,19].

The incidence, poisoning rates, poisoning-related morbidity and mortality will probably minimized following: i. a strict caution over the situation distribution selling pesticides. ii. To inform operators on security measures. iii. Correct remedy centers (i.e. antidotes and so forth) in rural areas such as the PHC's and PHU's iv. Creating poison records centers in schools and hospitalising students in many locations. v. Right accurate execution community commercial programs intended at uplifting vulnerable and defeated farmers.

Conclusion

The take a look at virtually highlights the profile of poisoning of Karnataka state, displaying the adult males of 41-50 years age institution are the important sufferers. It also factors closer to the most typical poisoning used i.e. Organophosphate compounds are used by rural farmers belonging to lower socio-economic strata to commit suicide. Most of formers were ingested less than 5 hours died at time of consuming high Organophosphate pesticide. Primary treatments and consequences in keeping with pesticide ingested in all authorities Districts Hospitals have been treat start for the Atropine.

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