ALLEGED PARAQUAT POISONING IN PERAK

K. T. WONG
T. S. NG

SUMMARY

This communication describes a survey on 94 cases of alleged paraquat poisoning for a period of one-and a-half years in Perak state. The highest prevalence of such cases was noted in the district of Batang Padang. The incidences between males and females as well as between married and single persons were found to be equal. 81.9% were Indians and 73.4% were suicidal cases. More than 80% of the cases were in the 10-to 40-years age group.

INTRODUCTION

Paraquat, a commonly available herbicide, is widely used in Malaysia and is a cause of death in a large number of suicidal poisonings. As there is no effective antidote, death can only be averted by early stomach washout and prevention of further intestinal absorption.[1] Studies of haemoperfusion through a charcoal column have shown that this is an ineffective method of treatment. The death rate is very high because of consumption of large amounts in suicide cases[2] and fatalities had been reported after skin absorption.[3] An epidemic was reported where fortunately no deaths occurred because the sauce (kicap) which was contaminated was only taken in small amounts.

This survey which covers all cases of paraquat poisoning reported in Perak for one-and-a-half years, studies the prevalence of such cases in the various districts, the demographic and related variables of the victims, the incidences of suicidal, accidental or occupational poisoning, time interval between consumption of the poison till arrival at the hospital for treatment, length of stay of the victims in the hospital and finally, the status of the victims.

MATERIALS AND METHOD

Data were gathered by sending the proforma containing the required particulars to the Director of Health Services, Perak with the co-operation from all district hospitals in Perak. The criteria for the diagnosis of paraquat poisoning was the presence of paraquat in either urine or stomach washout; the actual description by the patient or relative taking a brand of weedicide known to contain paraquat; and those patients who presented with the classical signs and symptoms of paraquat poisoning which include (a) jaundice, (b) renal impairment, (c) lung involvement, and (d) mouth ulceration.

The demographic data was not complete in every case and the tables of the results have one column to show that the data requested for was not available. The paraquat poisoning cases occurred over a period

K. T. Wong, B Pharm (Hons), DMM, FSHP (Aust)
Pharmacist
General Hospital
Ipoh, Perak

T. S. Ng, MBBS (S'pore), MRCP (UK), FRACP
Consultant Physician
General Hospital
Alor Setar, Kedah

TABLE I
PREVALENCE OF ALLEGED PARAQUAT POISONING IN PERAK

District	No. of cases*	Estimated population of district 1981+	Prevalence per 100,000
Krian (Parit Buntar)	11	200,900	5.5
Larut, Matang and Selama (Taiping)	11	288,640	3.8
Hulu Perak (Grik)	1	82,000	1.2
Kuala Kangsar	4	185,320	2.2
Kinta, Ipoh, Kampar, Batu Gajah	22	631,400	3.4
Perak Tengah (Ckt. Melintang)	Nil	100,450	
Manjong (Lumut)	11	168,100	6.5
Hilir Perak (Teluk Intan)	13	235,750	5.5
Batang Padang (Tapah, Tanjung Malim)	21	158,260	13.3
Total	94	2,050,820	4.6 (average)

*Note: Referred cases from other hospitals not included
+Projection of 2.6% per year based on 1970 census figure

of one-and-a-half years between 1 January 1981 to 30 June 1982.

RESULTS

Table I shows the prevalence of the estimated population in each of the districts which had alleged paraquat poisoning. The estimated population is projected at 2.6% per year based on the 1970 census figures. The highest prevalence occurred in Batang Padang district followed by Manjong, Hilir Perak and Krian.

Of the 94 cases studied, both males and females were found to be equally liable to take paraquat and there were almost similar proportions between married and single persons. 81.9% were found to be Indians, 12.8% Chinese and only 5.3% Malays.

The results also indicate 73.4% suicidial, 13.8% accidental and only 1.07% occupational. Many of these do not realise that no antidote is available and almost all do not live to regret their actions. Table II reveals that more than 80% of the cases are in the 10 to 40-years age group. Table III shows clearly the various occupations of the victims but no conclusion can be drawn from it.

Table IV shows that one third of the cases did not give data on the time of consumption till arrival at the hospital, but the rest were admitted from half-an-hour to more than six hours. The length of stay in hospital varied from less than one day to 20 days as shown in Table V, but data on 17% of them were unavailable. Table VI is a reminder that our data is not complete as no mention of what happened to the

TABLE II
AGE GROUPS OF PARAQUAT POISONING PATIENTS

Age groups (Years)	No.	%
1 - 10	2	2.1
11 -20	30	31.9
21 - 30	37	39.4
31 - 40	11	11.7
41 - 50	9	9.6
51 - 60	2	2.1
61 - 70	1	1.1
71 - 80	2	2.1
Total	94	100.0

TABLE III
OCCUPATION OF PARAQUAT POISONING PATIENTS

Occupation	No.	%
Labourer	17	18.0
Housewife	11	11.7
Rubber tapper	9	9.6
Student	5	5.3
Factory worker	2	2.2
Businessman	1	1.1
Shop assistant	1	1.1
Lorry attendant.	1	1.1
Vegetable gardener	1	1.1
Weed sprayer	1	1.1
Odd job man	1	1.1
Not working	21	22,2
Data not available*	23	24.4
Total	94	100.0

*Not stated on questionaire form.

TABLE IV
TIME TAKEN FROM CONSUMPTION OF PARAQUAT TILL ARRIVAL AT HOSPITAL OF PARAQUAT POISONING PATIENTS

Time taken from consumption till arrival at hospital	No.	%
16 mins - 30 mins	1	1.1
31 mins - 45 mins	1	1.1
46 mins - 1 hr	3	3.2
>1 hr - 2 hrs	16	17.0
>2 hrs - 3 hrs	16	17.0
>3 hrs - 4 hrs	8	8.5
>4 hrs - 5 hrs	3	3.2
>5 hrs - 6 hrs	7	7.4
>6 hrs	10	10.6
Data not available *	29	30.9
Total	94	100.0

*Not stated on questionaire form.

patients eventually were absent from the proforma in about one-quarter of the 94 cases.

It was noted that there were three cases with positive identification of paraquat in the body, the final outcome of the patients were not stated.

TABLE V
LENGTH OF STAY IN HOSPITAL OF PARAQUAT POISONING PATIENTS

Length of stay in hospital (Days)	No.	%
<1	16	17.0
1 - 2	17	18.1
2 - 3	10	10.6
3 - 4	1	1.1
4 - 5	8	8.5
5 - 10	14	14.9
10 - 15	5	5.4
15 - 20	7	7.4
Data not available*	16	17.0
Total	51	100.0

*Inclusive of AOR discharge and transferred to other hospitals for further treatment.

DISCUSSION

The analysis of all the cases of alleged paraquat poisoning from January 1981 till the end of June 1982 was presented. They total 94 cases. As certain data is incomplete in about a third of the cases, general conclusions cannot be drawn. However, most of the cases (more than 80%) were of the Indian race. There were only five cases of poisoning in Malays as Malays are Muslims by religion and their religion forbids suicide. It is surprising to find that equal numbers of men and women are affected. As more cases were suicidal more women would be expected. The victims of paraquat are tragic and many of them land in hospitals without anything active being done to them.

It is urged that strict control of paraquat sales be imposed but health education on the dangers of paraquat can contribute to public education and more awareness.

ACKNOWLEDGEMENT

The authors would like to thank Dr Martin Joseph, Deputy-Director (Medicine), Perak, all the doctors who helped fill in the proforma and clerical personnel who helped to gather the data. We also express our

TABLE VI
STATUS OF PARAQUAT POISONING PATIENTS

Status	CHEMISTRY RESULTS			Total	%
	Positive	Negative+	Data not available*		
Dead	32(52.4%)	3(4.9%)	26(42.6%)	61	64.9
Survived	2(18.2%)	2(18.2%)	7(63.3%)	11	11.7
Data not available*	3(13.6%)	1(4.6%)	18(81.8%)	22	23.4
Total	37	6	91	94	100.0

+Inclusive of pathology report on lung, liver or kidney but no mention of whether paraquat is present or not.

*Inclusive of AOR discharge and transferred to other hospital for further treatment.

thanks to Cik Zaroni binti Muhammadan for typing the manuscript.

REFERENCES

[1]Vale J A, Crome P, Volans G N, Widdop B and Goulding R. The treatment of paraquat poisoning using oral sorbents and charcoal haemoperfusion. *Acta Pharmacol Toxicol (suppl)* 1977; 41(2): 109-17.

[2]Wohlfahrt D J. Fatal paraquat poisoning after skin absorption. *Med J Aust* 1982; 1(12): 512-3.

[3]Ng T S, Wong K T. An 'Epidemic' of paraquat poisoning. *Family Practitioner* 1983; 3: 71-2.