

ORIGINAL ARTICLE

Kerosene Intoxication in Dr. Pirngadi Hospital Medan, Indonesia

by

*ARMAN PANJAITAN, ENDANG D. HAMID, DACHRUL ALDY and
ZAKARIA SIREGAR*

*(From the Department of Child Health, School of Medicine
University of North Sumatera, Medan,).*

Abstract.

A retrospective study on kerosene intoxication in children was conducted in Dr. Pirngadi Hospital Medan during the period 1976 - 1981. In this period 13504 children were hospitalized of which 144 cases (1.66%) were with kerosene intoxication. Age peak incidence was 1-3 years (75.69%), of whom 66.66% were boys. Male to female ratio was 96 to 48 (2 : 1). The majority of cases were brought to the hospital in less than one hour after ingestion of kerosene. The major presenting symptoms were coughing (45.83%), vomiting (40.28%), dyspnea (25.65%), bronchopneumonia (15.97%) and restlessness (7.59%). Mortality was 5.55%. Careless storage was the main cause of kerosene intoxication.

Introduction.

Kerosene is a hydrocarbon complex derived from petroleum. Ingestion of this liquid produces signs of intoxication and sometimes ends fatally. Kerosene poisoning is one of the accidental poisonings which ranks among the first few important causes

of mortality and morbidity in children. This study attempts to report a continual increase in the number of cases of kerosene poisoning in children in the Pediatric Unit, Dr. Pirngadi Hospital Medan, during a 6 years period (1976 – 1981).

Material and methods.

This is a retrospective study of cases with kerosene poisoning admitted during a period of 6 years (1976 – 1981) to the Pediatric Unit, Dr. Pirngadi Hospital Medan.

The diagnosis was based on the history of kerosene ingestion and clinical findings. X-ray examination was only done when indicated.

Result.

During the study period there were 144 cases of kerosene poisoning in the Pediatric Unit, Dr. Pirngadi Hospital, Medan, being 1.15% of the total admission (12504), (Table 1). The peak incidence was at the age group of 1 – 3 years namely 109 (75.69%) of the total admission (Table 2). Table 3 shows that the sex distribution of the cases was 96 (66.67%) males and 48 females. In the majority of cases (47.92%)

the quantity of kerosene ingested was unknown (Table 4). Table 5 shows that the majority of cases (47.22%) were brought to hospital within one hour after the ingestion of kerosene. The major presenting symptoms were coughing (45.83%), followed by vomiting (40.28%), dyspnea (25.69%) and bronchopneumonia, 15.97% (Table 6). Eight cases (5.55%) out of the total number of 144 died during hospitalization (Table 8).

Discussion.

Accidents occur more common at the extreme of life i.e. childhood and old age. There is widespread belief that accidents are inevitable, although most of them can actually be prevented (Park, 1970). The prawling inquisitiveness of infants, the experimentation of toddlers and bravado of older children all expose them to accident risks. When one mention children's accidents, traffic accidents come specially to mind, although there are also domestic accidents like kerosene poisoning or intoxication which take place within the house itself. In this study the number of cases of kero-

sene poisoning showed an increasing trend each year (Table 1). This might be caused by the increasing use of kerosene in households. Most households in Medan use kerosene for cooking and sometimes for lighting also. Table 2 shows that the highest incidence was in the age group of 1 – 3 years. This is similar to the finding of Dackrul Aldy et al. (1978) in thier restrospective study of kerosene poisoning in children admitted to Dr. Pirngadi Hospital, Medan. Buhariwall and Sanjawalla (1969), Ghost and Agardal (1962), Jhatakia et al., (1974), Talati and Gandhi (1973), in their studies

in India about children with keronene intoxication had found similar results. A child between 1 – 3 yearn is already able to stand and walk around, and out of curiosity reach out for kerosene and drink it.

The manjority of cases in this study were males (Table 3), this might be due to their more during character. Boys like adventures also more than girls. In most of the cases the quantity of kerosene ingested was unknown (Table 4). Usually when a child inhales or ingests kerosene he immediately coughs or vomits, and the parents or family soon know what has happened.

Table 5 reveals that 47.22% of the cases were brought to hospital within one hour after the accident. Sometimes the parents knew about the accident only after the child showed signs of illness, which was also the main reason for bringing the child to the hospital after more than 6 hours (11.11%).

Kerosene poisoning gives manifestation in the respiratory system in the form of coughing, dyspnea, bronchitis and bronchopneumonia. In the gastrointestinal system, the manifestation are vomiting, abdominal distention and epigastric pain. The manifestation in the central nervous system are restlessness, shock and convulsion. Table 6 shows that the major symptoms were coughing, vomiting and dyspnea. This was similar to the findings of Dachrul Aldy et al. (1978). (Table 7).

Nelson (1979) found that ingested hydrocarbon accidents happened 90% in children under five years and one hundred died every year. This study shows the increase of mortality each year in Medan (Table 8). Most of the children got the kerosene from an uncovered bottle or tin box carelessly stored within reach of children. The most dangerous place in the house where accidents can happen is the kitchen. Home accidents (60%), are due to negligence of parents (Park, 1970).

Summary and suggestion.

1. There is widespread belief that accidents are inevitable, but those of kerosene intoxication can actually be prevented.
2. Education safety and prevention of accidents should be taught by women's organizations to mothers and those committed with child rearing practices.

TABLE 1 *Incidence of kerosene poisoning.*

Year	Number of admission	No. of cases	%
1976	1800	20	1.11
1977	1910	29	1.52
1978	2159	16	0.74
1979	1981	20	1.01
1980	2209	27	1.22
1981	2445	32	1.31
Total	12504	144	1.15

TABLE 2 : *Age Incidence.*

Age (year)	1976	1977	1978	1979	1980	1981	Total	%
- 1	-	1	1	2	1	2	7	4.86
1 - 3	17	22	12	14	20	24	109	75.69
3 - 5	3	-	3	3	2	5	16	11.11
5	-	6	-	1	4	1	12	8.33

TABLE 3 : *Sex Incidence.*

Sex	1976	1977	1978	1979	1980	1981	Total	%
Male	10	24	11	13	18	20	96	66.67
Female	10	5	5	7	9	12	48	33.33

TABLE 4 : *Quantity of kerosene ingested*

Quantity (ml)	No. of cases	%
- 10	11	7.64
10 - 30	37	25.69
30 - 50	16	11.11
50 - 100	11	7.64
Unknown	69	47.92

TABLE 5 : *Time lag between kerosene ingestion and hospital admission.*

Hour	1976	1977	1978	1979	1980	1981	Total	%
- 1	7	17	5	7	12	20	68	47.22
1 - 2	6	3	4	6	5	6	30	20.83
2 - 4	7	3	4	4	5	5	28	19.44
4 - 6	-	-	-	1	1	-	2	1.39
6 -	-	6	3	2	4	1	16	11.11

TABLE 6 : *Clinical picture of kerosene poisoning*

Clinical picture	No. of cases	%
Coughing	66	45.83
Vomiting	58	40.28
Dyspnea	37	25.69
Bronchopneumonia	23	15.97
Restlessness	11	7.64
Shock	6	4.17
Fever	6	4.17
Abdominal distension	3	2.08
Epigastric pain	3	2.08
Bronchitis	2	1.39
Convulsion	2	1.39
Sweating	2	1.39
Chest pain	1	0.69

TABLE 7 : *Comparison of Clinical Picture*

Clinical picture	Number of cases			
	Dachrul Aldy et al. 1970 - 1975		Present Study 1976 - 1981	
	Number	%	Number	%
Coughing	98	78.8	66	45.83
Vomiting	61	48.9	58	40.28
Dyspnoea	36	29.0	37	25.69

TABLE 8 : *Mortality*

Year	No of cases	Death	%
1976	20	—	—
1977	29	1	3.45
1978	16	1	6.25
1979	20	1	5.0
1980	27	2	7.41
1981	32	3	9.38
Total	144	8	5.55

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