



## Analysis the Clinical Profile of children Admitted with Kerosene Poisoning in a tertiary care Medical College Hospital

Authors

**Dr Wakil Paswan<sup>1</sup>. Dr Bankey Behari Singh<sup>2</sup>**

<sup>1</sup>Assistant Prof. Department of Pediatrics A.N.M.M College Gaya

<sup>2</sup>Associate Prof & Head Department of Pediatrics A.N.M.M College Gaya

### ABSTRACT

**Introduction:** Kerosene Poisoning is an important and preventable cause of morbidity and mortality in the developing world. Kerosene aspiration may be associated with pulmonary complications and sometimes death.

**Objectives:** To study the clinical profile of children with kerosene poisoning.

**Material and Methods:** This is retrospective study of children admitted with kerosene poisoning in A.N.M.M college Hospital Gaya between the years 2015 to 2017. Demographic and clinical data were recorded from the case records.

**Results:** 105 children were admitted with kerosene poisoning Male preponderance (57%) was noted. There was seasonal preponderance in the months of April to June. There was also an rural preponderance. The peak age group was from 1 to 3 years. Cough. (82%) fever (69%) and vomiting and Nausea (78%) were the dominant symptoms. Radiologically Right lower lobe infiltration was seen in 52.3% in children and bilateral lower lobe infiltration was seen in 13.3 % of children.

**Conclusion:** All pediatrics age groups are at risk of Acute kerosene poisoning. Most children suffer due to unintentional poisoning because of easy availability of kerosene in their house itself. As Acute kerosene poisoning is preventable it must be given due importance in health control programs at all levels of health care.

**Keywords:** Kerosene, Aspiration, Children, Vomiting, Pneumonitis.

### INTRODUCTION

Kerosene is a hydrocarbon which still remains as a major fuel used for cooking in rural India .Kerosene is usually stored in any household container and is easily accessible to children. Kerosene Poisoning is an important and preventable cause of morbidity and mortality the

developing world<sup>1,2</sup>. Kerosene has been identified as the most common cause of accidental poisoning in various studies around the world<sup>1-6</sup>. Ingestion of large quantity of kerosene is rare because of its foul smell and taste. Aspiration of kerosene usually occurs during swallowing and even 1ml of kerosene aspiration may be associated with

pulmonary complications and sometimes death. Low viscosity of kerosene enhances penetration into distal alveoli. Low surface tension facilitates spread over a large area of lung tissue. Kerosene affects the respiratory system. Signs and symptoms of respiratory involvement appear within 30 minutes after aspiration and progress during the first 1-2 days and then subside in the following one to two weeks. The complications of kerosene poisoning include hypoxia, pneumonitis, bacterial pneumonia, pneumatocele, pleural effusion, pneumothorax, Subcutaneous emphysema and empyema<sup>8-10</sup>. The usual gastro intestinal symptoms of kerosene poisoning are abdominal pain, vomiting and diarrhoea. Its Central Nervous system manifestations include drowsiness and convulsions. The aim of the study is to analyze the clinical profile of children admitted with kerosene poisoning in the A.N.M.M College Hospital Gaya.

## MATERIAL AND METHODS

This was a retrospective study. All the 105 children with kerosene poisoning admitted in A.N.M.M college Hospital Gaya from April 2015 to March 2017 formed the study group. From the case records data regarding demographic, clinical features and radiological findings of children with kerosene ingestion were collected.

## RESULTS

During the study period there were 105 children admitted with kerosene poisoning. All the 105 children were hospitalized in Pediatric Intensive Care Unit with duration of hospitalization ranging from 2-7 days. A male preponderance was observed with 57% of admitted children. With regard to age group 1 to 3 years age group was most affected with about 88% affected children in the study group.

According to social status majority belonged to Lower socioeconomic status 72(69%) and were from the villages and rural area. The kerosene was kept in the home and was routinely used for cooking. Heating and lighting the house.

The peak incidence of kerosene poisoning was in the months of April to June. In the symptom analysis of kerosene poisoning, the respiratory symptoms dominated the clinical picture. Cough, fever vomiting and dyspnea were the most common symptoms and signs observed. Fever developed in 69% of patients with duration from 1-5 days. About 14% of the children had drowsiness and 1% had encephalopathy and convulsions. Abdominal pain was reported by 5% of affected children. In the analysis of x-rays of children affected with kerosene poisoning. About 52.3% showed right sided lung involvement, 16.1% showed left sided involvement and 13.3% showed bilateral lung involvement.

**Table-1:** Distribution of age and sex(n=105)

Characters		No of patients	Percentage
Sex	Male	60	57%
	Female	45	43%
Age	<1 Year	1	1%
	1-3 Years	92	88%
	>3 Years	12	11%

**Table-2:** Distribution of symptoms and signs

Signs and symptoms	No of Children	Percentage
Cough	86	82%
Fever	73	69%
Vomiting and Nausea	82	78%
Dyspnea	44	42%
Cyanosis	1	1%
Grunting	34	32%
Drowsiness	15	14%
Convulsion	1	1%
Abdominal Pain	5	5%

**Table-3:** Involvement of the Lungs in chest x-rays

S.no	Lung Involvement	No.	Percentage
1.	Right sided lung	55	52.3%
2.	Left sided lung	17	16.1%
3.	Bilateral	14	13.3%
4.	Normal	19	18%

## DISCUSSION

Kerosene poisoning remains as a serious cause of morbidity and occasional mortality in rural India. The peak age group affected was 1 to 3 years as in study by Rashid et al and Anwart al<sup>7,11</sup>. According to the social status majority belonged to lower socioeconomic status 72 (69%) and were from the village and rural area with similar data of

72.3% has been reported from referral centre in india.<sup>12</sup> Similar to studies by L. Nouri and K. Al Rahim, this study also showed a seasonal preponderance in the months of April to June.<sup>13</sup> cough was present in 86 patients (82%) whereas it was found in (83.5%) in Nagi study, (96%) in Mahjoob Al Naddawi study and (67%) in shotal study.<sup>14-16</sup> Fever was present in 73 patients (69%) which was (73.8%) in nagi study and (94%) in Mahjoob al-Naddawi study.<sup>14-16</sup> vomiting after kerosene consumption was seen in 82 patients (78%) of this study Nagi reported vomiting in 60.6% and mahjoob Al-Naddawi reported vomiting in 90% of cases.<sup>14-16</sup> Majeed et al reported close relationship between the pulmonary involvement and neurological complications.<sup>17</sup> In the present study 15 children manifested drowsiness and 1 children had convulsions.

## CONCLUSION

Accidental childhood kerosene poisoning is a major public health problem. The awareness of the acute Kerosene Poisoning could reduce the morbidity and mortality rate as prevention of ingestion is the cure. Pharmaceutical drugs and medicines, Kerosene, and household chemicals are that main substances responsible for acute Poisoning as these substances are not stored properly. Parental education is the hall mark in prevention of all acute Poisoning with due importance of acute Kerosene Poisoning at home

## REFERENCES

1. Shiamo W, Bucurales JC Balistreri WF. Paraffin (Kerosene) Poisoning in under-five children, a problem of developing countries. *Int J Nurs Pract* 2009; 15:140-44
2. Meyer S, Mc Adamas AJ, Hug G. Unintentional household poisoning in children *Klin Padiatr* 2007; 219:254-260
3. Krug A, Ginsburg CM, Moses SW. The impact of child resistant containers on the incidence of paraffin (kerosene) ingestion in children. *S Afr Med J*. 2010;84:730-34
4. Sarker AK, Ghosh S, Barik K. A study of accidental poisoning ( in children) in a rural medical college hospital of West Bengal, *Indian J Public Health*. 2005;34:159-62.
5. Thomas M, Zach MS, Atkinson SD, Profile of hospital admission following acute poisoning-experiences from a major teaching hospital in south India. *Adverse Drug React Toxicol Rev* 2000;19:313-17
6. Hamid MH acute poisoning in children *J Coll Physicians Surg Pak* 2005;15:805-8
7. Anwar S, Clinical Profile of Kerosene Poisoning in a Tertiary Level Hospital in Bangladesh. *Bangladesh J child Health* 2014;38:11-14
8. Thalhammer GH, Eber E, Zach MS. Pneumonitis and pneumatoceles following accidental hydrocarbon aspiration in children *wien klein wochenschr*. 2005;117,150-153
9. Gupta P, singh RP, Murali MV, Bhargava SK, Sharma P. Kerosene oil poisoning- a childhood menace. *Indian Pediatr*. 1992;29:979-984
10. Annobil SH, Ogunbiyi OA. Pulmonary Radiological changes in Kerosene poisoning in the Asir region of Saudi Arabia *Ann Trop Padiatr*. 1991;11:391-395
11. Rashid MM, Hasan MA, Chowdhury FR. Childhood acute poisoning in a tertiary medical college hospital of Bangladesh. *Mym Med J* 2007;16:12-14
12. Singh S, Singhi S, Sood NK, Kumar L, Walia BN. Changing pattern of childhood poisoning (1970-1989): experience of a large north Indian hospital. *Indian Pediatr*. 1995 Mar, 32(3):331-6. (PubMed)
13. Nouri L, Al-Rahim K kerosene poisoning in children *Postgraduate Medical Journal* 1998; 46:71-75
14. Nagi NA, Abdullah Z.A. Kerosene poisoning in children in Iraq. *Postgraduate medical J* 1995;71:419-422

15. Shotar A M Kerosene poisoning in children A 6-year prospective study at the Princess Rahmat Teaching Hospital Neuro-endocrinology letters 2005;26:835-838
16. Mahjoob Al-Naddawi, Kerosene Poisoning in children The Iraqi Postgraduate Medical Journal 2009;8:23-27
17. De Wet B, van Schalkwyk D, van der spuy J, du plessis J. du Toit N, Burns d. Paraffin (Kerosene) poisoning in childhood- is prevention affordable in south Africa ? S Afr Med J. 1994;84: 735-738.