Paraffin ingestion in children: Rationalising antibiotic treatment

To the Editor: We were delighted to see the recent CME articles on prevention of childhood injuries,[1] particularly highlighting the significant contribution of poisoning in injury-related morbidity and mortality in children. We noted with added interest the article by Kimemia and Van Niekerk[2] on energy poverty, shack fires and childhood burns. It brings to the fore the serious potential fire-related dangers associated with the use of paraffin (kerosene) stoves as a cheap and readily available alternative source of energy for cooking, heating and lighting. In addition to the trauma-related burn injuries already discussed, it is important to remember the potential dangers of paraffin ingestion in children, as paraffin is often decanted from cumbersome large containers into smaller cooldrink bottles, placing thirsty and inquisitive toddlers at great risk of exposure.[3]

In low- and middle-income countries, including South Africa (SA), ingestion of paraffin remains a common cause of childhood poisoning.[4,5] In 2006, it was estimated that there were 40 000 - 60 000 cases per annum in SA.[6] Although the absolute numbers have dropped since the 1990s, paraffin ingestion presentations still constituted on average over 20% of all poisoning cases seen at Red Cross War Memorial Children's Hospital in Cape Town between 2003 and 2015 (1 151 paraffin cases with 2 deaths).[5,7]

Although the majority of paraffin ingestions do not result in poisoning,[8] the primary clinical concern is the risk of aspiration leading to a sterile chemical inflammatory pneumonitis.[9] The mainstay of treatment is symptomatic, with appropriate respiratory support, and the majority of children who require hospital admission are discharged within a few days.[5,10,11] In patients with pneumonitis, the potential for secondary bacterial infection exists, but the difficulty of clinically determining inflammation v. infection has raised doubts about the use of antibiotics in treatment. As routine use of antibiotics in cases of paraffin ingestion is common practice,[12] and in light of the recent emphasis on antibiotic stewardship, it should be noted that a growing body of evidence points to the rarity of secondary infection and that prophylactic antibiotics are unwarranted.[10,11,13] Although further research is required, we suggest that antibiotic therapy should be reserved for children with concomitant infections or suspected secondary bacterial infection 48 hours after ingestion, or those who have an increased risk of developing complications, e.g. children with HIV/AIDS, severe malnutrition or underlying respiratory illness.

It is evident that paraffin ingestion and burns remain common preventable childhood injuries. One can only hope that these commentaries will fuel both government and industry's commitment to hastening the delivery of safer, more efficient and affordable energy alternatives.

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1. Van As AB, van Niekerk A. Prevention of childhood injuries. S Afr Med J 2017;107(3):182. https://doi.org/10.7196/SAMJ.2017.v107i3.12364
2. Kimemia DK, van Niekerk A. Energy poverty, shack fires and childhood burns. S Afr Med J 2017;107(4):289-291. https://doi.org/10.7196/SAMJ.2017.v107i4.12436
3. Schwebel DC, Swart D, Hui SA, Simpson J, Hobe P. Paraffin-related injury in low-income South African communities: Knowledge, practice and perceived risk. Bull World Health Organ 2009;87(9):700-706. https://doi.org/10.2471%2Fblt.08.057505
4. Kohli U, Kuttiat VS, Lodha R, Kabra SK. Profile of childhood poisoning at a tertiary care centre in North India. Indian J Pediatr 2008;75(8):791-794. https://doi.org/10.1007%2Fs12098-008-0105-7
5. Balme K, Roberts JC, Glasstone M, Curling L, Mann MD. The changing trends of childhood poisoning at a tertiary children's hospital in South Africa. S Afr Med J 2012;102(3):142-146. https://doi.org/10.7196%2Fsamj.5149
6. Matzopoulos R, Carolissen G. Estimating the incidence of paraffin ingestion. Afr Saf Promot 2006;4(3):4-14.
7. Balme KH, Stephen CR, Mohamed F, Curling L. The profile of paediatric poisoning from Red Cross War Memorial Children's Hospital: 2009-2015. Poster presented at the Biennial South African Paediatric Association and South African Association of Paediatric Surgeons Congress, Durban South Africa, 1 - 4 September 2016.
8. Anas N, Namasonthi V, Ginsburg CM. Criteria for hospitalizing children who have ingested products containing hydrocarbons. JAMA 1981;246(8):840-843. https://doi.org/10.1001%2Fjama.1981.03320080026021
9. Eade NR, Taussig M, Marks MI. Hydrocarbon pneumonitis. Pediatrics 1974;54(3):351-357.
10. Reed RP, Conradie FM. The epidemiology and clinical features of paraffin (kerosene) poisoning in rural African children. Ann Trop Paediatr 1997;17(1):49-55. https://doi.org/10.1080%2F02724936.1997.11747863
11. Simmank K, Wagstaff L, Sullivan K, Filteau S, Tomkins A. Prediction of illness severity and outcome of children symptomatic following kerosene ingestion. Ann Trop Paediatr 1998;18(4):309-314. https://doi.org/10.1080%2F02724936.1998.11747965
12. Malangu N, du Plooy WJ, Ogunbanjo GA. Paraffin poisoning in children: What can we do differently? S Afr Fam Pract 2005;47(2):54-56. https://doi.org/10.1080%2F20786204.2005.10873189
13. Balme KH, Zar HJ, Swift DK, Mann MD. The efficacy of prophylactic antibiotics in the management of children with kerosene-associated pneumonitis: A double-blind randomised controlled trial. Clin Toxicol (Phila) 2015;53(8):789-796. https://doi.org/10.3109%2F15563650.2015.1059943

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