

Acute Intoxication among Children in Monrovia, Liberia

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Background

In July 2015 an increased admission of patients presenting multi-organ symptoms majorly involving liver was observed at MSF paediatric hospital in Monrovia. Patient history including paracetamol, herbal treatments and other conventional medicine suggested toxicity. The objective of the study is to identify the potential toxicant and describe its toxidrome.

Methods

A hospital-based matched case-control study included patients admitted between September 2015 and January 2016. A sample size of 30 cases and 60 asymptomatic matched controls (two hospital and two community controls for each case ideally) were needed to reach the desired power of 80%. Intoxication cases were identified as all children presenting respiratory distress, normal SPO2 and either hepatomegaly, hypoglycaemia or absence of fever. A case-series analysis was conducted including a line-listing of all suspected intoxication patients with two different organ symptoms between July and December 2015.

Results

The line-list included 77 patients with 60% being under the age of one year. 45% of the patients admitted died during hospitalization. Respiratory distress (94%), hepatomegaly (74%), high anion gap (67%), severe elevation in AST (50%) and ALT (43%) enzyme levels were the major signs present; highlighting hepatotoxicity.

We enrolled 30 cases, 53 hospital and 48 community controls in the case-control investigation. Significantly, altered consciousness, convulsions, and difficulty breathing were higher among cases than controls (60 vs.36% p-value: 0.001 & 48%vs.24% p-value: 0.001 & 77%vs.53% p-value: 0.004; respectively). In the multivariate analysis, paracetamol associated significantly with toxicity resulting an aOR=5.3 (95%CI: 1.6-17.3) for paracetamol supra-therapeutic doses, aOR=6.3 (95%CI: 1.8-21.9) for paracetamol dose \geq 500mg/day and aOR=32.5 (95%CI: 2.0-533.4) for paracetamol dose \geq 1000mg/day.

Conclusion

Research suggests paracetamol toxicity is a common cause of morbidity and mortality in developed countries. The strong association between paracetamol supra-therapeutic doses and toxicity highlight it as a public health issue in developing countries.

The investigation suggests that the majority of cases present an intrinsic hepatotoxicity with liver injury confirming paracetamol supra-therapeutic dosage to be the major potential toxicant.