



PARACETAMOL INTOXICATION AND USE OF N-ACETYLCYSTEINE: A RETROSPECTIVE DESCRIPTIVE ANALYSIS FROM MOCHA, YEMEN

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BACKGROUND AND OBJECTIVES

Paracetamol (PCT) represents one of the global leading causes of overdose in children and adolescents.

At the newly opened MSF-supported Paediatric ward at Mocha General Hospital (MGH), Yemen, the medical team identified multiple cases of critically unwell children with high mortality, with a history of supra-therapeutic PCT ingestion. As verification of blood PCT concentration was not possible in our setting, a presumed diagnosis of PCT overdose was made based on history of supra-therapeutic ingestion and the presence of clinical findings consistent with liver failure: hepatomegaly, recurrent hypoglycaemia, encephalopathy, coagulopathy, jaundice, or abnormal liver enzymes.

We aimed to describe the epidemiology, clinical characteristics, treatment and outcome of children admitted to our paediatric ward with presumed PCT overdose.

RESULTS

Between May and November 2023, 36 cases were identified, representing 2.1% of admissions; 69% had severe acute malnutrition (Figure 1). Fifty percent (N=19) originated from the same health service area.

The most common clinical presentations included **neurological complications** such as reduced level of consciousness (lethargy, coma) or generalised tonic-clonic convulsions (n=11, 30%), **gastrointestinal bleeding** including melaena and/or haematemesis (n=11, 30%) and **respiratory distress** (n=7, 19%). Severe liver impairment (AST or ALT > 1000U/L) was observed in 58% of patients. Fourteen deaths were registered.

Nineteen patients received N-acetylcysteine, of which 63% survived to discharge. The mortality rate before the introduction of NAC was 41% (n=7/17), whereas in the post-NAC group it was 36% (n=7/19).

CONCLUSIONS

PCT overdose is common among children living on the West Coast of Yemen, where the non-regulated pharmaceutical industry and the lack of knowledge on proper usage of drugs leads to children being given supra-therapeutic doses of PCT, resulting in acute hepatic failure. PCT overdose should be considered in any case presenting with hepatic failure.

The small difference observed in the mortality rate between the two groups can be explained considering that PCT overdose is rarely the only diagnosis, with a high percentage of comorbidities (severe wasting, end stage septic/hypovolemic shock) confounding the results.

Raising awareness about correct usage and dosage of PCT and the effects of overdose, and ensuring the availability of NAC as an antidote where overdose occurs, is essential to improve clinical outcome and reduce mortality.

METHODS

A retrospective review of clinical cases describing the impact of supra-therapeutic PCT ingestion on paediatric morbidity and mortality over a period of six months pre and post introduction of N-acetylcysteine (NAC).

Criteria to start NAC:

- History consistent with supratherapeutic ingestion of paracetamol alone
- Or a history of supra-therapeutic ingestion and:
 - Clinical features of paracetamol toxicity, including: nausea, vomiting, right upper quadrant pain, signs and/or symptoms of liver failure, renal failure, acute respiratory distress syndrome, multi-organ failure, cerebral oedema, coma
 - Evidence of hepatic injury: abnormal liver function test
 - And/or impaired kidney function

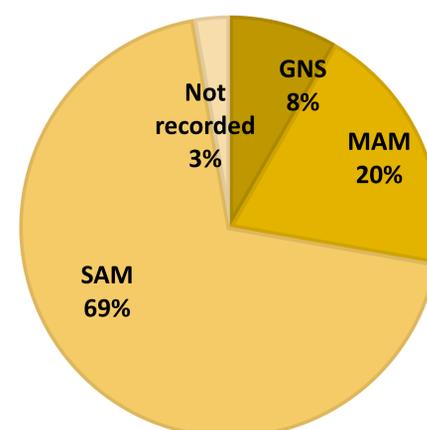


Fig.1: Nutritional status of children with PCT overdose according to MUAC and/or WHZ at the MSF-supported MGH paediatric ward.

ETHICS STATEMENT

Fulfils the exemption criteria set by the MSF ERB and was approved for submission by the OCB Medical Director