Development of respiratory acidosis following the ingestion of liquid detergent capsule by 1 year 10 months old boy: A case report.

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Objective

Liquid detergent capsules are water soluble laundry detergent capsules (LDC), containing highly concentrated cleaning agents. In Estonia (population 1,3mil) LDC-s became widely available in 2012. Estonian Poisoning Information Centre (EPIC) has received 43 inquiries concerning LDC exposure during the period 1 January 2012-1 November 2013 (22 months) (and already 13 calls by the next 6 months). At the same time with increased number of poisonings started by EPIC educations for medical personel and to population about LDC and prevention / treatment from poisoning of LDC.
The majority of inquiries concerned unintentional exposures in children 5 years of age or less, except one intentional exposure concerning a 16 year old.

Exposures mainly occurred as "ingestion only". Ingestion may result in gastrointestinal complaints, chemical burns, respiratory problems, acidosis (1) and central nervous system (CNS) depression (3). Respiratory and CNS effects are associated with more severe outcome (2,,4). Severe cases are reported to cause respiratory distress with delayed bronchospasm, GI lesions and prolonged respiratory effects (5).

The aim of this report is to describe development of acidosis due to ingestion of LDC by a toddler.

Case report

03.03.2013

An **1 year 10 months** boy who had swallowed at 4.00PM about half of LDC was admitted to the Children´s Clinic of Tartu University Hospital.
At the admission there were no aberrations in clinical findings. The child was hospitalized for observation. A few hours later the child developed hyperthermia , hyperglycemia, metabolic acidosis, dyspnea and airway secretion. Moist rales were auscultated bilaterally.
Acetaenophen, ibubrofen and amoxicilline were started

By the next morning patient´s condition deteriorated:

04.03.2013

- **respiratory rate 50x, SpO2 86-90% HR 161x,**
- **acidosis** do to accrual of respiratory component worsened
- **on X-ray aspiration pneumonia was detected**
- **EPIC was consulted.**

The patient was transferred to the Paediatric intensive care unit:

additional oxygen, iiv normal saline, prednisolone iiv, *Salbutamol*um inhalations were started

As a result of treatment the ventilation improved (SpO2 95-97%), acidosis corrected.

05.03.2013

Patient was transferred to the paediatric department: subfebrile temperatures persisted, child had no appetite, drinks minimally. Iiv saline was continued, 10% Glucose added.

SpO2 without additional oxygen increased up to 93%, respiratory rate remained 50x.

Condition improved during the following days, respiratory distress diminished, positive dynamics on lung x-ray appeared

09.03.2013

The child started to eat and drink in proper amounts 06.03. (3rd day after exposure), but preferred soft food, cried when ingesting hard food, probably due to esophageal lesions.

Patient was discharged from the hospital 7 days after admission.

11.03.2013

Follow up on 11.03:

- minimal cough;
- minimal findings on chest X-ray persisted

Results

	03.03.2013	04.03.2013			05.03.2013	09.03.2013
time:	7.10 pm	08.55 am	02.14 pm	09.10 pm		
pH	7,289	7,234	7,359	7,417		
BE (mmol/L)	-5,9	-5	-5,9	-4,3		
pCO2	40,6	52,2	33,9	30		
HCO3 (mmol/L)	18,8	21,3	18,1	19,1		
Lactate (mmol/L			3,1	1,8		
Glucose (mmol/L	15,2	14,6	7,2	6,4		
CRP (mg/L)			36		108	3

Fig 1. LAB-results changes 03.03.-09.03.2013.

Conclusion

Due to the increased risk of aspiration pneumonia, acidosis and chemical burns, children with exposure to LDCs should be referred to hospital for evaluation even in the case of mild initial symptoms.
Greater consumer awareness is required to reduce injury from LDC.

References

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