

International epidemiological and management differences in the acute pediatric poisonings. A Pediatric Emergency Research Networks

(PERN) prospective multicenter study

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Objective

To determine the epidemiology and management differences of acute poisonings in children evaluated in emergency departments (EDs) from 8 different regions of the world in 2013

Materials & Methods

This was a registry-based international multicenter prospective study of children treated for acute intoxication on the 4th, 14th and 24th days of each month in 110 EDs from 20 countries between 01/13 and 01/14.

All the patients admitted with a presumed poisoning have a specific electronic questionnaire fulfilled, which is sent to the main researcher.

Information was collected from interviews conducted with parents, caretakers, or accompanying people as well as the patients themselves in children older than 12 years. Interviews were performed by the physician in charge and took place at the paediatric emergency department.

Results

To date, 227.301 ED visits, and 1,123 acute poisonings (0.49%; 95% CI 0.47-0.52)

- Highest rate in Eastern Europe (2.47%); lowest in South America (0.32%, p<0.001).
- Most common: therapeutic drugs (45.9%), household products (17.9%), ethanol/illicit drugs (9.7%).

- Pesticides: leading cause in the Middle East-Asia and South America.

Main mechanisms:

- Non-intentional: 784, 69.8%; mainly in South America and the Middle East-Asia.
- Suicide attempts: 132, 11.8%; more common in Oceania and North America.
- Recreational: 126, 11.2%; mainly in Oceania and Europe.

GLOBAL 1,123 episodes

EPIDEMIOLOGY		MECHANISM OF POISONING		Pre-hospital Management		ED Management	
Non intentional	69.8%	Non intentional	69.8%	Poison Control Center	6.5%	ED treatment	46.9%
Suicide	11.8%	Suicide	11.8%	Ambulance	30.8%	Gastric lavage	12.6%
Recreational	11.2%	Recreational	11.2%	Pre-hosp treatment	14.7%	ICU	3.8%
Drugs	41.3%	Drugs	41.3%				
Household pr.	25.1%	Household pr.	25.1%				
Pesticides	6.3%	Pesticides	6.3%				

ED poisonings/ED total visits 0.49% (0.47-0.52)

Summary

There are substantial epidemiological and treatment differences related to acute poisonings in children in different countries and regions of the globe.

These differences appeared in both the pre-hospital and ED settings. International best practices need to be identified for prevention and management of acute pediatric poisonings.

References

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EPIDEMIOLOGY

MANAGEMENT

SOUTH AMERICA

Non intentional	80.4%	Poison CC	7.8%
Recreational	5.6%	Ambulance	21.8%
Suicide	3.9%	Pre-hosp treat	14.5%
Drugs	45.8%	ED treatment	59.2%
Household pr.	18.1%	Gastric lavage	15.1%
Pesticides	13.9%	ICU	3.4%

N= 179 episodes; 0.32% (0.27-0.37)

WESTERN EUROPE

Non intentional	64.6%	Poison CC	4.8%
Recreational	16.3%	Ambulance	33.3%
Suicide	10.2%	Pre-hosp treat	19.7%
Drugs	31.6%	ED treatment	40.1%
Household pr.	29.5%	Gastric lavage	2.7%
Pesticides	6.3%	ICU	6.1%

N= 147 episodes; 0.57% (0.49-0.68)

NORTH AMERICA

Non intentional	54.9%	Poison CC	14.1%
Suicide	32.4%	Ambulance	42.3%
Recreational	5.6%	Pre-hosp treat	16.9%
Drugs	66.7%	ED treatment	25.4%
Household pr.	23.1%	Gastric lavage	0
Pesticides	5.1%	ICU	5.6%

N= 71 episodes; 0.58% (0.46-0.73)

NORTHERN EUROPE

Non intentional	62.5%	Poison CC	2.3%
Recreational	20.5%	Ambulance	31.8%
Suicide	15.9%	Pre-hosp treat	6.8%
Drugs	47.3%	ED treatment	30.7%
Household pr.	32.7%	Gastric lavage	0
		ICU	0

N= 88 episodes; 0.62% (0.5-0.77)

MIDDLE-EAST-ASIA

Non intentional	92.9%	Poison CC	0
Suicide	7.1%	Ambulance	0
Recreational	0	Pre-hosp treat	0
Pesticides	30.8%	ED treatment	71.4%
Drugs	15.4%	Gastric lavage	7.1%
Household pr.	15.4%	ICU	0

N= 14 episodes; 1.64% (0.9-2.74)

SOUTHERN EUROPE

Non intentional	72.3%	Poison CC	5.3%
Suicide	11.2%	Ambulance	22.6%
Recreational	10.0%	Pre-hosp treat	15.3%
Drugs	46.5%	ED treatment	47.3%
Household pr.	27.7%	Gastric lavage	15.8%
Cosmetics	5.0%	ICU	4.3%

N= 419 episodes; 0.38% (0.35-0.42)

OCEANIA

Suicide	52.9%	Poison CC	5.9%
Recreational	23.5%	Ambulance	70.6%
Non intentional	17.6%	Pre-hosp treat	5.9%
Not enough data		ED treatment	29.4%
		Gastric lavage	0
		ICU	0

N= 17 episodes; 0.81 (0.47-1.30)

EASTERN EUROPE

Non intentional	70.2%	Poison CC	9%
Recreational	12.8%	Ambulance	49.5%
Suicide	8.5%	Pre-hosp treat	14.4%
Drugs	25.0%	ED treatment	55.3%
Household pr.	21.2%	Gastric lavage	22.9%
CO	8.3%	ICU	3.2%
Plants	8.3%		

N= 188 episodes; 2.47% (2.13-2.84)