



Characteristics of Patients Presenting to a Medical Toxicologist for Exposure to Heavy Metals

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Background

- Adult patients increasingly present to medical toxicologists for evaluation of potential heavy metal exposure.
- This population is not well characterized in the medical literature.
- The Toxicology Investigators Consortium (Toxic) is a prospective registry of cases of suspected or confirmed toxicologic exposures evaluated by a medical toxicologist.

Goal of Study

- To characterize patients presenting to a medical toxicologist for evaluation of heavy metal exposure.

Methods

- An advanced search of the Toxic database was performed from 1/1/2010 through 10/10/2013 for exposure to heavy metals with separate queries for each metal.
- Included were any adult patients with reported exposure to heavy metals.
- Exclusion criteria were age less than 18, age range not recorded, or acute iron exposure.
- Data including demographics, source of referral, reported signs or symptoms, and treatments were collected.

Conclusions

- Patients were more likely to be male, with an average age of 52 years.
- Primary care or other outpatient physicians were the most common source of referral.
- Cobalt, chromium, and mercury were the most frequently reported exposures.
- Only a minority of cases (11.1%) were diagnosed as likely metal toxicity by a toxicologist.

Results

Demographics							
Age	Range 20-89	Mean 51.6, (SD 16.2)	Median 51	Mode 44	Only age range 19-65, or >65 reported 9 (16.7%)		
Gender	Male 30 (55.5%)	Female 24 (44.4%)					
Referral							
Source	Primary care/ other outpatient physician 26 (48.1%)	Self referral 13 (24.1%)	Emergency Department 8 (14.8%)	Admitting service 4 (7.4%)	Employer/ independent evaluation/ workmans compensation 1 (1.9%)	Poison center 1 (1.9%)	
Reason*	Interpretation of laboratory data 31 (57.4%)	Unintentional non-pharmaceutical exposure 17 (31.5%)	Organ dysfunction 7 (13%)	Environmental evaluation 5 (9.3%)	Occupational evaluation 3 (5.6%)	Other 2 (3.7%)	None listed 4 (7.4%)
Exposure							
Metal Exposure	Cobalt 21 (38.9%)	Chromium 13 (24.1%)	Mercury 13 (24.1%)	Lead 8 (14.8%)	Arsenic 4 (7.4%)	Copper 4 (7.4%)	Other 5 (9.3%)
Symptoms							
Symptom	Numbness/ Paresthesias 8 (14.8%)	Rash 4 (7.4%)	Hemolysis 2 (3.7%)	Nausea/ vomiting 2 (3.7%)	Peripheral neuropathy 2 (3.7%)	Other 8 (14.8%)	Symptom not reported 18 (33.3%)
Related to exposure	Most likely related 6 (11.1%)	Unlikely related 21 (38.9%)	Unknown if related 8 (14.8%)	No response 19 (35.2%)			
Treatment							
Treatment Given?	Yes 8 (14.8%)	No 45 (83.3%)	No response 1 (1.9%)				
Type of Treatment	Chelation 3 (37.5%)	IV fluids 2 (25%)	Gastric lavage 1 (12.5%)	Prosthetic hip revision 1 (12.5%)	N-acetylcysteine 1 (12.5%)	Whole bowel irrigation 1 (12.5%)	Vitamin C 1 (12.5%)

*% total >100, more than one response possible for each

