

CAUSTIC EXPOSURES REPORTED TO THE BELGIAN POISON CENTRE

Verstegen G., Mostin M. Belgian Poison Centre, Brussels, Belgium.

The Belgian Poison Centre is commonly consulted for exposures to **caustic substances**, potentially causing important **injuries** and a **heavy psychological and economic burden**. Nevertheless, no systematic study has so far been published to estimate their incidence. In this **preliminary study**, we aim to identify (1) the **main products** involved and (2) the **relevant variables** to organise a surveying system.

Call files recorded between 01/01/2014 and 30/06/2014 were screened. Only **actual exposures** were included. Agents were limited to **household, industrial and plant protection products and to biocides**. Veterinary and voluntary exposures were excluded. Only one call was counted for a single event. All cases were analysed manually to identify any potential caustic exposure, based upon the **product composition** as present in our database and upon the detailed case record. For the period up to 10/03/2014 an exploratory follow-up was performed by telephone if judged useful and if technically possible.

Of the **6296 exposures** selected in the first phase, **628** were retained as **potentially caustic**. A successful **follow-up** by telephone was performed in **96 cases**.

We collected **121 (19.3%) professional and 507 (80.7%) domestic cases**. The main injury causing chemicals were **acids** (180/628, 28.7%) and **bases** (238/628, 37.9%), especially **inorganic bases** (181/628, 28.8%). For the household exposures only, there was a clear preponderance of bases (194/507, 38.3%) over acids (136/507, 26.8%). We found 127 children in our domestic series (25.0%). The most frequently involved products were drain cleaners (103/628, 16.4%).

There was an obvious **dominance of dermal exposures in the professional group** (96/121, 79.3%), with the remaining mainly ocular (39/121, 32.2%). We observed a more equal distribution of exposure routes in domestic cases with 209 dermal (41.2%), 148 (per)oral (29.2%) and 139 (27.4%) ocular exposures. The remaining cases involved multiple routes.

The **most striking symptoms were dermal burns** with respectively 8 third degree burns, 50 second degree burns and 110 burns of first or unspecified degree. There were 46 cases with eye pain, 22 with vision defects or corneal lesions and 5 with eyelid oedema. Additionally, there were 32 oral burns.

	Way of exposure			
	Private cases		Professional cases	
	Absolute	% of category	Absolute	% of category
Adults	380	100.0	121	100.0
Skin	171	45.0	76	62.8
Eyes	120	31.6	39	32.2
(Per)oral	81	21.3	3	2.5
Mixed	5	1.3	3	2.5
Respiratory	3	0.8		
Children	127	100.0		
(Per)oral	63	49.6		
Skin	41	32.3		
Eyes	19	15.0		
Mixed	4	3.1		

	Children		
	Private	Private	Professional
Base	54	141	44
Inorganic	39	106	35
Mixed / unspecified	12	4	6
Organic	-	6	1
Ammonia	3	25	2
Acid	38	97	44
Hydrogen fluoride	20	9	6
Inorganic	7	58	21
Mixed / unspecified	7	10	2
Nitric acid	3	8	5
Organic	1	12	10
Hypochlorite	25	80	9
Liquid	18	74	7
Solid	7	5	1
Unspecified	-	1	1
Quaternary ammonium compound	5	24	6
(Un)hydrated lime and cement	2	11	1
Unspecified / others	3	27	17

Number of symptoms (not number of expositions)

Private expositions (623)	Professional exposures (157)
Eye irritation (109)	Skin burns, not specified (35)
Skin irritation (85)	Eye irritation (32)
Skin burns, not specified (75)	Skin irritation (20)
Mouth/throat irritation or salvation (39)	Skin burns, 2 nd degree (16)
Eye pain (35)	Eye pain (11)
Skin burns, 2 nd degree (34)	Vision loss or corneal damage (9)
Burns lips, mouth or esophagus (27)	Skin discoloration (4)
Vomiting (20)	Pain (4)
Pain (16)	Others (4)
Others (16)	Skin burns, 3 rd degree (3)
Vision loss or corneal damage (14)	Edema (3)
Tears (11)	Burns lips, mouth or esophagus (2)
Skin discoloration (8)	Breath shortness (1)
Airway irritation (7)	Mouth/throat irritation or salvation (1)
Skin burns, 3 rd degree (5)	
No symptoms (91)	No symptoms (6)
Unknown (19)	Unknown (4)

CONCLUSION

We received 628 calls for accidental caustic exposures over one semester with often significant consequences, confirming that caustic burns are a real public health problem because of their frequency and severity. Acids and bases, especially inorganic bases, were the main causative substances. Drain cleaners were most frequently involved. These data illustrate the need for preventive and regulatory action.