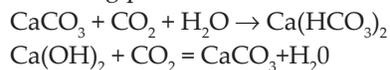


Poisoning with depilatory agents in Iran

Sir

Depilatory agents are cheap and easily accessible in Iran, therefore, they are progressively used more often for a suicidal purpose, even in prisons, in the form of a powder, paste, or liquid solution. Before 1998, the active ingredients used for this traditional depilatory agent included 65% calcium bicarbonate $\text{Ca}(\text{HCO}_3)_2$, 25% arsenic sulfide (As_2S_3), and 10% clay and moisture.^[1] Lime components reacted in the following process:



Both arsenic salts (acidic properties) and lime components (alkaline properties) are corrosive, and thus, in a mixture, a synergistic corrosive effect is seen in subjects who have orally ingested this substance.^[1,2]

On account of the high toxicity of arsenic, fatality due to arsenic base depilatory agents (ABDA) is high. The use of ABDA is limited to Iran and a few other Middle Eastern countries that use it, as much as we know. Although many articles have published about arsenic poisoning (the major, but former poisonous element of this depilatory agent), there are few published data in the international medical literature describing the toxic effects of ABDA. In a study in the Loghman-Hakim hospital poison treatment center, the largest poison treatment center of Iran,^[3] an increased rate of mortality due to arsenic base depilatory agents was found between 1994 and 1999. The study showed a significant decrease in mortality rate in poisoning with this agent after the year 1999. It is because, in 1999, a new depilatory agent was produced, which was arsenic-free.^[4] Also the availability of this agent, in prisons, was strictly limited at that time; as a result of which there was a significant decrease in the number of poisoned patients. Also results from the Surgery Department of this center showed no operation for poisoning cases of this agent after that time. The new depilators, such as, Khorfe \AA , Tizbar \AA , Momtaz \AA , DP \AA , Jame Noore \AA are made of sulfides, mainly barium sulfide or strontium sulfide.^[4] Lime components were still used in some depilators. Although antimony and thallium were used as depilators in some countries, we could not find them in the Iranian depilators.

These changes in depilator agents affected our patients' mortality accordingly from 22% in 1998, to 5.7% in 2003,^[4] and no mortality in 2009,^[5] suggesting that elimination of arsenic from the depilators could change the outcomes dramatically. In this letter we would like to bring the attention of readers to this point that an arsenic base depilatory agent is not an easy available agent in Iran these days, and poisoning with this agent is very uncommon. Yeganeh *et al.* reported that early surgery could worsen the outcome, so they stopped surgery in the early stage for all patients who were admitted for depilatory poisoning, particularly after 1998, when they knew that most available depilators were not arsenic-based.^[4] It has been suggested that early surgical intervention may manifest with more mortalities.^[5] Past experience, which showed more mortality in the early stage, and elimination of arsenic from the depilators has convinced the surgeons to be more conservative in recent years.^[4] In conclusion, there is no reliable evidence to show that the current depilators are arsenic-based and physicians should avoid treatment for arsenic poisoning without laboratory confirmation, in cases of depilatory ingestion.

Omid Mehrpour^{1,2,3}, Esmail Farzaneh⁴,
Hossein Hasanian-Moghaddam⁵, Ahmad Abdollahi⁶,
Mohammad R. Rayesson⁷, Mohammad Abdollahi⁸

¹Birjand Atherosclerosis and Coronary Artery Research Center, Birjand University of Medical Science, Birjand, ²Medical Toxicology and Drug Abuse Research Center, Birjand University of Medical Science, Pasdaran Avenue, Birjand, ³Addiction Research Centre, Mashhad University of Medical Toxicology, Mashhad, ⁴Department of Forensic Medicine and Toxicology, Ardabil University of Medical Sciences, Ardabil, ⁵Department of Clinical Toxicology, Shahid Beheshti University of Medical Sciences, Tehran, ⁶Department of Internal Medicine, Mashhad University of Medical Sciences, Mashhad, ⁷Department of Community Medicine, Birjand University of Medical Sciences, Birjand, ⁸Department of Toxicology and Pharmacology, Faculty of Pharmacy, and Pharmaceutical Sciences Research Center, Tehran University of Medical Sciences, Tehran, Iran

Address for Correspondence: Omid Mehrpour
Medical Toxicology and Drug Abuse Research Center,
Pasdaran Avenue, Birjand University of Medical Sciences,
Birjand 9713643138, Iran.
E-mail: omid.mehrpour@yahoo.com.au

REFERENCES

- Hojjati M, Saleh M, Osanlu KH, Salehi N, Hajnasrollah E, Yegane RA. Surgical management of poisoning by a corrosive arsenic-based depilatory agent. *Arch Iran Med* 1999;2:77-82.
- Tofighi SH, Pajoumand A, Afzali S. Autopsy of patients committing suicide by a depilatory agent during 1996-1998. *Sci J Forensic Med of Iran* 2001;6:10-4 [in Persian].
- Mehrpour O, Abdollahi M. Poison treatment centers in Iran.

- Hum Exp Toxicol 2012;31:303-4.
4. Yeganeh R, Salehi NA, Hasanian-Moghadam H, Taremi M, Ahmadi M, Sharifi M, *et al.* Mortality resulting from poisoning with depilatory agent in patients who referred to Loqman Hakim Hospital. *Sci J Forensic Med of Iran* 2006;12:90-4 [in Persian].
 5. Yeganeh RA, Peivandy H, Mohajeri M, Bashashati R, Bashtar M, Ahmadi M. Investigation of mortality after corrosive ingestion: A prospective study. *Acta Med Iran* 2009;47:15-9.