

H108 A Case Series of Cyanide Poisoning: A Rising Trend

Cemyigit Deveci, MD*, Akdeniz University, Antalya 07070, TURKEY; Mehmet Atilgan, Akdeniz University, Antalya 07070, TURKEY; Refik Akman, MD, Akdeniz University, Antalya 07070, TURKEY

Learning Overview: After attending this presentation, attendees will have meaningful insights into pathologic features and toxicologic and autoptic findings in cases of cyanide poisoning.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by reporting an overview of cases of cyanide poisoning in Antalya, Turkey, after a new trend of suicides by cyanide ingestion sparked within the country in late 2019.

Cyanide is used in industrial processes for gold extraction, metal refinery, or in organic syntheses and other chemical processes.^{1,2} Additionally, it can be detected in edibles such as apple or apricot seeds and bitter almond.³ The toxicity of the substance is very well described in humans. A fatal dose of 0.15–0.3 g/person for potassium cyanide or 0.05g/person for hydrogen cyanide can rapidly inhibit the electron transportation system within cellular aerobic metabolism. Moreover, as with other toxic substances and drugs, cyanide has also been reported in literature to be used for suicidal and homicidal purposes.²

This case series consists of five cases of cyanide poisoning after emergence of a new trend of suicide by cyanide poisoning. Four of the five cases were from a murder-suicide incident. A family of four was found dead in their home and the suicide note, left by the father, revealed that he had poisoned his family and subsequently committed suicide due to his financial problems. The last is a case of a 30-year-old man found dead in his car with a note warning people about the presence of cyanide.

Histopathological and toxicological investigations were carried out for all cases following complete postmortem examinations. During the postmortem examinations, the Ghon's technique was performed with removal of the thoracic block and the rest of the internal organs according to Virchow's technique. All the cases had signs of asphyxia with cyanosis of fingernails and face, widespread petechial hemorrhages on their skin, petechial hemorrhages and hyperemia of the brain, subpleural hemorrhages, pulmonary congestion, and congestion of other internal organs. Toxicological analysis determined the presence of cyanide in fatal levels for all cases.

Cyanide is known to be an extremely toxic substance to humans, and yet in many places, as well as in Turkey, it is easily obtained; in fact, it could be found online until recently, available with just a few clicks. An incident of murder-suicide in Istanbul, two other murder-suicide incidents, a homicide, and isolated suicide cases by cyanide poisoning had occurred within a month. This trend eventually forced the government to restrict and control the sale of potassium cyanide.

In conclusion, the present case series demonstrates the need for forensic pathologists and medical examiners to be prepared for emerging trends worldwide. In this new world order of internet/electronic access to information, information can easily be disseminated and can turn an isolated incident into a new trend.

Reference(s):

1. Erwan Le Garff, Yann Delannoy, Vadim Mesli, Delphine Allorge, Valéry Hédouin, and Gilles Tournel. Cyanide Suicide After Deep Web Shopping. *The American Journal of Forensic Medicine and Pathology* 37, no. 3 (2016): 194–97.
2. Sang-Ki Lee, Jong-Sook Rhee, and Hye-Sun Yum. Cyanide Poisoning Deaths Detected at the National Forensic Service Headquarters in Seoul of Korea: A Six Year Survey (2005–2010). *Toxicological Research* 28, no. 3 (2012): 195–99.
3. Basak Nur Akyildiz, Selim Kurtoğlu, Meda Kondolot, and Aydin Tunç. Cyanide Poisoning Caused by Ingestion of Apricot Seeds. *Annals of Tropical Paediatrics* 30, no. 1 (2010): 39–43.

Cyanide, Suicide, Autopsy Investigation