

Detection of HFC-134a in a Case of Asphyxia Using a Plastic Bag

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Abstract

Introduction: We present a case involved with inhalation of HFC-134a, an alternative fluorocarbon widely used as propellant.

Case Report: A male in his thirties was found dead on the back seat of his car. His head was enclosed within a plastic bag. Autopsy findings revealed no pathological findings other than congestion of the organs.

Results: A drug screening test using a Triage™ (Biosite Diagnostic Inc., San Diego, CA, USA) panel yielded negative results, and subsequent toxicological examinations using liquid chromatography tandem mass spectrometry also showed negative results. Ethanol was not detected, but an unknown peak was detected from a blood sample by headspace gas

chromatography. This unknown peak was subsequently identified by gas chromatography mass spectrometry as HFC-134a, an alternative fluorocarbon.

Conclusion: We speculate that the deceased had inhaled HFC-134a before death. However, as the toxicity of HFC-134a is relatively low, and its concentration was lower than reported in other cases, we concluded that the cause of death was asphyxia. This case suggests the importance of analysis of drug and chemicals to clarify the situation at the time of death.

Keywords: asphyxia; HFC-134a; toxicological examination; volatile substance

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