H77 Body Packers and Body Stuffers: The Role of Cardiac Oxidative Stress on Myocardial Damage

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The goal of this presentation is to elucidate the mechanisms of acute cardiac toxicity for very high blood concentrations of cocaine such as those found in dead body packers and body stuffers. Presented are seven cases of death from cocaine overdose in the absence of other psychotropic substances; the results of the immunohistochemical and biochemical analysis used to study the role of oxidative stress in the myocardial damage.

This presentation will impact the forensic science community by emphasizing the problem of acute myocardial damage and the necessity of understanding the mechanisms of acute cocaine cardiotoxicity in order to explore a clinical-translational approach to this problem.

The "body-stuffer," usually small-time drug user or dealer, is a person who, when intercepted by authorities, ingests the drug coarsely packed in pouches made from scraps of polyethylene, cellophane, aluminum foil, or paper. These packages can easily open, causing acute poisoning syndromes.

Case 1: A 29-year-old woman in police custody was referred for a general disease. She was admitted to the emergency department but a fatal cardio-respiratory arrest occurred suddenly. No foreign material was detected from a total-body computed tomography scan. The autopsy revealed a single, open plastic bag in the gastric lumen and several deep ulcers of the gastric mucosa. Cocaine and benzoylecgonine were detected in the blood (1.72mcg/ml and 4.31mcg/ml, respectively) and in the urine (5.74mcg/ml and 43.23mcg/ml, respectively).

Case 2: A 32-year-old man was found in cardiopulmonary arrest in an apartment. During the autopsy, ten single plastic bags were found in the intestinal lumen and necrosis of the intestinal wall was detected. The concentration of cocaine in urine was 147mcg/ml.

Case 3: A 34-year-old man was found in cardiopulmonary arrest in an apartment and a spoon with white powder was found next to him. The autopsy revealed a single plastic bag in the esophagus. High levels of cocaine and benzoylecgonine in his blood (23.76mcg/ml and 6.57mcg/ml, respectively) and in urine (230.42mcg/ml and 737.27mcg/ml, respectively) were detected.

Case 4: A 30-year-old man was found in a car. A single opened plastic bag in the gastric lumen was found at the autopsy. High levels of cocaine in his urine and blood were found (42.29mcg/ml and 3.00mcg/ml, respectively) and the concentration of benzoylecgonine in his blood and in urine were 11.09mcg/ml and 92.50mcg/ml, respectively.

Case 5: A 20-year-old female ingested a plastic bag with cocaine and after two hours developed convulsions and respiratory failure. The autopsy revealed a single plastic bag in the gastric lumen. Cocaine and benzoylecgonine in her blood (7.03mcg/ml and 10.67mcg/ml, respectively) and urine (816.92mcg/ml and 540.17mcg/ml, respectively) were detected.

Case 6: A 35-year-old man was found in his car. An autopsy was performed and a broken plastic sachet was found in the intestinal lumen. The levels of cocaine in his urine and in blood were 11.41mcg/ml and 0.10mcg/ml, respectively, while the levels of benzoylecgonine were 1,609.26 mcg/ml in his urine and 8.87mcg/ml in his blood.

Case 7: A 17-year-old man ingested a plastic bag with cocaine to avoid arrest. During the autopsy, the package was found in the gastric lumen. In his blood, the following concentrations, 98.1mcg/ml of cocaine and 86.1mcg/ml of benzoylecgonine, were detected; in his urine, their concentrations were 10mcg/ml and 4.2mcg/ml, respectively. At the autopsy, cerebral and pulmonary edema, slight heart hypertrophy, and multiple bluish areas in the ventricular wall were described. The histological investigations confirmed the macroscopic findings and revealed diffuse foci of contraction band necrosis. An immunohistochemical study with Ab anti IL-1β, IL-6, TNF-α, IL-8, b1 adrenergic receptors, NF-kB, Bcl-2, and apoptosis was performed. The biochemical examination revealed an alteration of antioxidant systems, the reduction of the GSH/GSSG ratio and a significant increase of MDA.

Body Stuffer, Acute Cocaine Cardiotoxicity, Cardiac Oxidative Stress