Cardiovascular Toxicity of Single and Repeated Inhalation of Kolla A Locally Abused Egyptian Glue

ALAAELDIN ELKOUSSI

Abstract:

Background: "Kolla" is local glue widely abused by Egyptian street children. In this work we study the cardiovascular toxicological effects of acute and chronic inhalation of "Kolla". Effects of acute and chronic inhalation on blood pressure of rats and their plasma electrolyte level were investigated using toluene as a standard solvent inhalant. Methods: Two concentrations of "Kolla" (5000 & 10000 ppm) or toluene (28225 & 56450 ppm) were tested after single or repeated 10 day inhalation. which was performed in a sealed box designed to allow administration of known concentrations of the vapors of substances. Blood pressure was measured by the rat tail cuff method after 15 and 30 minutes following single inhalation and then hourly for 6 hours. For testing the effect of repeated inhalation; rats were allowed to adapt for 15 minutes following the 10th inhalation and the blood pressure was measured. In another set of experiments; rats were decapitated after inhalation and the blood was collected for determining effects on the plasma electrolyte levels using a flame photometric method. Results: Single inhalation of Kolla or toluene led to an initial phase of increase followed by prolonged decrease in rat's blood pressure. A 10 day repeated inhalation of led to a significant dose-dependent decrease in blood. in the plasma sodium levels increased after repeated administration of "Kolla" with No change in potassium or calcium levels. Conclusion: Single inhalation of Kolla leads to an initial increase followed by prolonged decrease in rat's blood pressure. Repeated inhalation led to significant hypotension and hypernatremia.

Published In:

A Locally Abused Egyptian Glue , ,