Letters to Editor

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Dr. Rakesh Gorea
Editor, JETV
KSA

Dear Dr. Gorea

Congratulations are in order the first issue of the International Journal of Ethics, Trauma and Victimology. This journal reflects the broad theories and applications of interdisciplinary coordination between the forensic sciences, healthcare and social justice. It will provide a critical resource on the topics that impact the lives of victims and those who have been wrongly accused and the professionals who investigate the violation of ethical behavior within these combined sciences. The scholarly articles published within this premier issue represent an impressive and essential perspective of healthcare, science and the law. The authors and editors are to be commended for their contributions to the criminal and civil investigation of violence, abuse and violations of human rights.

Respectfully,

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Application of histopathological changes in the lungs and liver of death from AluminumPhosphide poisoning

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In developing countries Aluminum Phosphide is the third cause of mortality due to contact with pesticides.This substance produces phosphine gas in contact with water or moist air or acid which causes cell death through cellular respiration disorder in various organs of the body (1),(2),(3). In recent decades Aluminum Phosphide tablets are easily available and widely used for suicidal attempts by Iranian population (4),(5),(6),(7),(8),(9),(10),(11),(12). Aluminum phosphide through involvement with almost all vital organs of the body causes different clinical features (1),(10) for example the poisoned patients catch pulmonary symptoms such as tachypnea, cyanosis, pulmonary rales bilaterally, ALI-ARDS, pulmonary edema, atelectasis, dyspnea, respiratory failure, cough, shortness of breath, tightness in chest (3),(5),(12), pleural effusion (13) and acute respiratory arrest (14).

In autopsy of aluminum phosphide poisoned patients has been reported multiple organ failure and the most of the internal organs congested (15). The reported pathological changes in the lungs are often in the form of asphyxial lesions and including congestion, edema, alveolar thickening, capillary congestion, lymphocytic infiltration around bronchioles and compensatory diffused emphysema (16), non- fibrin pulmonary edema, capillary vasodilation, alveolar collapse, hemorrhage (17),(18), disorders of the alveolar wall (4), gray or red hepatization and round cell infiltration (19). Pathological changes observed in the liver include: edema, congestion, centri-zonal necrosis (mild to moderate), fat changes (16), cytolysis and liver stasis, sinusoidal congestion, micro vesicular steatosis of the liver (20), inflammation, edema, the portal vein congestion, central venous congestion, fragmentation of the hepatocytes' nucleus, PMN leucocytes accumulation in sinusoids, lobular necrosis, cholestasis, hepatic vacuolization, macro vesicular steatosis , subcapsular hemorrhage(Saleki, Ardalan and Javidan-Nejad), small granulomas (19), hydropic degeneration of hepatocytes, bile pigments in the cytoplasm of the hepatocytes, dilatation of

sinusoids, patchy necrosis, centri-lobular necrosis, hemorrhage (4), bile stasis, Kupffer cell hyperplasia and infiltration of mononuclear cells (17),(18).

In our study on referred bodies from center of toxicology Baharloo Hospital of Tehran to forensic research center of Kahrizak in cases were approved the diagnosis of Aluminum Phosphide poisoning based on positive history of taking pills and compatible clinical findings and also positive silver nitrate test of postmortem biological samples and no history of past illness, and toxicological studies about drugs , opiates, alcohol, and metal poisons after death was negative too, histological study by forensic pathologist and forensic medicine specialist was performed after H&E staining on 16 cases and the only pulmonary pathological changes observed in those were edema and congestion in all samples (16 cases) and hemorrhage in alveolar space or wall in 12 ones(75%). In this study a statistically significant correlation was seen between Aluminum Phosphide used dose and alveolar hemorrhage (p=0.003).

In our study hepatic changes were observed in 9 bodies (56.25%), including congestion in 9 cases (56.25%), micro vesicular steatosis and lobular necrosis, each in 4 cases (25%), hydropic and vacuolar degeneration of hepatocytes in 3 cases (18.75%), micro and macro vesicular steatosis (diffused) only in one. In this study liver changes were only observed in cadavers who expired after at least 2.5 hours, and any changes were not observable if they expired less than 2.5 hours.

Considering non-specific pathological changes caused by Aluminum Phosphide poisoning it seems that in the suspicious dead from this type of poisoning, history and physical examination before death or positive chemical tests indicating phosphine in the blood, respiration, or digestive secretions of these patients (16),(21) is more helpful than pathological findings in diagnose and in the absence of pathologic changes at autopsy and even negative silver nitrate test on biological samples of the bodies (9), Aluminum Phosphide poisoning may also be confirmed according to the history, physical examination and para clinical findings. More future studies in this subject are necessary.

Conflict of interest

None

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