Cardiac involvement in cholinesterase poisoning.

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Introduction: Electrocardiographic (ECG) changes have been noticed in those patients who die of acute anticholinesterase poisoning and vary from non-specific changes to fatal ventricular arrythmias. Autopsy studies have confirmed acute toxic myocarditis and myocardial necrosis on histopathology. **Aims and Objectives:** The present study was undertaken to evaluate various cardiac effects in patients with acute anticholinesterase poisoning including electrocardiographic and echocardiographic changes and to correlate these changes with histopathological changes of the heart at autopsy. **Patients and Methods:** 44 patients with acute anticholinesterase poisoning occuring between January 1st 2006 and June 2007 were included in the study. The diagnosis of anticholinesterase poisoning was based on history of ingestion or accidental exposure, clinical features and estimation of butyryl cholinesterase enzyme activity in plasma. Complete clinical profile of the patients was noted and ECG recorded at the time of admission. Haemodynamic parameters were monitored closely. Patients with acute organophosphorous poisoning were treated with atropine and 2-PAM (Pralidoxime) whereas those with carbamate poisoning were managed with atropine only. Patients were managed with other supportive measures like mechanical ventilation, care of secretions, intravenous fluids and inotropes as needed. **Observations:** 76 patients presented with acute anticholinestersase poisoning and 44 were included in the study (58%). 66% were males and 34% females. The mean age was 26.7 (±9.6) years. In 39% patients the compound was unknown. Carbamate was identified 18% patients. Among the organophosphates, chlorpyrifos was the most common poisoning, identified in 11% cases. In 82% patients the route of exposure was by ingestion. The circumstance of poisoning was with suicidal intent in 48% patients. Tachycardia was observed in 66% and 20% presented with hypotension. Baseline abnormal electrocardiogram was observed in 84% patients. Sinus tachycardia was the most common abnormality noted in 66% patients on ECG. Echocardiography could be carried out in only 84% patients and abnormalities were present in 27% patients. Mild valvular abnormalities and left ventricular diastolic dysfunction (mild) were each seen in 13.5% patients. There were 13 deaths in the study group. On autopsy, myocardial blotching and discolouration were noted in 12 patients (92.2%). All 13 patients had interstitial oedema and vascular congestion of varying degrees. Interstitial inflammation was seen in 8 patients (61.5%). Thrombus was noted in 6 patients (46.1%) and pericarditis in 4 patients (30.8%). Patchy myocarditis and focal interstitial fibrosis were each noted in 15.3% patients. ECG abnormalities were predominantly seen in patients with interstitial edema and vascular congestion but none of the ECG abnormalities correlated with histopathological findings. **Conclusions:** Cardiac abnormalities on ECG and echocardiography are common in patients with acute anticholinesterase poisoning but do not correlate very well with histopathological changes on autopsy.