Abstract

Drug misuse is a common and increasing problem in many countries and there is a high mortality among drug-abusers. In general, heroin is the substance that most frequently causes fatalities, and furthermore, the emergency wards in the healthcare system are frequently used by people suffering from heroin overdose.

The acute cause of death from heroin use is not adequately explained. Heroin-related deaths often occur immediately after heroin administration and the heroin metabolite concentrations detected during autopsies are low, if not negative. It is believed that some of these deaths can be explained as being caused by the ability of heroin to easily penetrate the blood-brain barrier and to produce depressing effects on the brainstem respiratory centres. Fatal non-cardiogenic pulmonary edema related to heroin use is described. This evidence can be explained on the basis of allergic or anaphylactoid reaction due to mast-cell degranulation. Tryptase, a neutral protease of human mast-cells, is a potentially important indicator of mast-cell involvement in anaphylactic events. The aim of this study is to show that elevated concentrations of tryptase in post-mortem liquor pericardii and high pulmonary distribution of mast-cells are associated with many heroin-related deaths.

Keywords: Heroin, Tryptase, Mast-cells, Deaths