Inner organ damages after acute radioactive incorporation in man

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There are some difficulties in making early diagnosis on acute radioactive poisoning. Clinical disorders from a poison in November 2006 in London has not given an opportunity to doctors to reveal radiation as the reason of the acute injury before the death. The report purpose is to give more diagnostic possibilities to reveal early signs of acute radioactive poisoning. It provides an evaluation of clinical observation data on a difference of clinical symptoms after internal or external exposure, activities of some radioactive isotopes that are able to cause ARS with bone marrow failure or damages to different organs and tissues. The report contains descriptions of some clinical cases of radioactive poisonings. Prodromal responses after acute internal expose are significant only in cases of the following early death but are not typical for the most clinical cases of internal exposure. Lethal gastrointestinal or cutaneous damages are not characteristic. Early radiation vasculitis (blood vessel endotheliitis) sings: bloody rash on the trunk, blood in the urine, hemorrhages in the skin and mucous membranes at blood platelet count in excess of 40 x 109 l-1. Death from lung radiation injury could be expected in all individuals from as little as 7 MBq of inhaled alpha emitter with energy of about 5 MeV and an effective half-life greater than 100 days. Death from severe bone marrow syndrome for the first month or death from liver insufficiency for the following 6 months is typical after ingestion or injection of radioactive materials at lethal doses. Hemolytic sings after acute exposure should be confirmed by the following clinical investigations. It is known the erythrocyte hemolysis and the following hemoglobin decay is a significant source of the endogenous CO that release from the hem. So estimation of CO and methhemoglobin in the blood is a way for revealing of the higher erythrocyte destroy. If hemolytic syndrome is characteristic for early acute radiation injuries, CO and methhemoglobin investigations in the blood are very important as a new advanced method for early diagnosis of severe acute radiation syndrome.

Article published by EDP Sciences and available at http://www.radioprotection.org or http://dx.doi.org/10.1051/radiopro:2008547