

Importance of Injury Signs and Indices in Prehospital Triage of Nonuniformly Irradiated Patients

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In radiation accidents, people usually are exposed to general, nonuniform irradiation. In the Russian State Register of Radiation Accidents for 1950–1992, 119 cases of acute radiation sickness of uniform irradiation, 193 cases of acute radiation sickness from nonuniform irradiation, and 159 cases of severe, mainly local radiation injuries were registered. Clinics of injury in nonuniform irradiation may differ considerably from classical forms of acute radiation sickness seen with uniform irradiation. It impedes prognosis of injury severity, and thus, may influence the character and volume of medical-evacuation measures. In this connection, in the prehospital triage of the injured, it is necessary to take into account the prognostic importance of the signs of an injury from nonuniform exposure.

Study of absorbed dose distribution in a human body in typical situations showed that more often, it would be different variants of nonuniform irradiation with 2–5 times differences of dose. Depending on geometry of the irradiation, clinical signs of such injuries will vary considerably. The most important characteristic are (1) injuries with mostly head irradiation, when clinics of radiation sickness will be determined by oropharyngeal and in very high doses by cerebral syndromes; and (2) injuries with mostly abdomen irradiation with signs of modified intestinal syndrome. Some intermediate forms are possible with relatively small levels of nonuniform irradiation (dose fall off up to 3). In such cases, the signs of the corresponding syndromes will be expressed in vague form.

The triage of the injured in nonuniform irradiation must be carried out in accordance with the same process as for the injured in uniform irradiation. However, while estimating prognosis and establishing the evacuation priority in nonuniform irradiation, the relatively more favourable process of these forms of radiation pathologies must be taken into consideration. Signs of hemogenesis depression may be expressed in less degree, and may not correspond to the whole degree of severity of disease than should be expected from general ideas. During the primary reaction, the comparison of the disease symptoms with the dosimeter data and data on the body position during irradiation may be used to estimate the dose and its distribution. It also is necessary to compare the character and degree of local and general signs of an injury. Thus, distinct oropharyngeal syndrome in presence of moderate dyspeptic disorders indicates to the sharply nonuniform irradiation with prevailing head irradiation. In moderate nonuniform irradiation ("intermediate forms"), clinical symptoms and the main laws of the disease process are close to the classical form of acute radiation sickness, caused by uniform irradiation. However, even in this case, correlation between expressed "classical" signs of acute radiation sickness (primary reaction, radiation bone marrow hypoplasia, etc.) and local signs reflect the morphological and functional changes of other critical bodies.

Key words: clinical signs; irradiation, non-uniform; irradiation, uniform; radiation sickness; syndromes; triage

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Volunteers: An Essential Component

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2001 is the International Year of the Volunteer. In any modern emergency response system, there always will be an incident in which the supply of emergency services and the demand do not match. No country can afford to have every emergency service on standby and reach every citizen within three minutes. Self-help and volunteers are essential in all societies, not just in the frequently televised disasters such as earthquakes or floods.

Professor E. L. Quarantelli of Chicago is an accepted master of recording human behaviour in disasters, and his 1960s model is readily extrapolated to more mundane emergency situations.¹ In Australia, volunteers are an integral part of responses: they are used both in ordinary emergencies and disasters. The medical and ambulance emergency services routinely use volunteers from community emergency response teams (CERT), Red Cross, St. John, Surf Life Saving, Hatzolah, etc. through a coordinated central dispatch system.

The Australian prototype for volunteering is the rural fire services, each one is built around a local community, with state and regional levels of salaried staff providing infrastructure services, education, certification, or higher level coordination in very major incidents. In larger towns (population $\geq 25,000$), there are full-time salaried, ambulance paramedics, but smaller townships may rely on paid casual or unpaid volunteers who have a similar training, but usually, lower level protocols. Using the Quarantelli template, when an incident occurs, firstly there is self-help by the victims or bystanders. Next, the professional services are alerted, and in rural and remote areas, they may use trained volunteers from ambulance, first aid, nursing, or medical resources as first or second line response. In a major event, the on-scene supervisor coordinates the volunteers to integrate them in tasks that are both safe and within their range of skill and fitness. Where the involvement may be prolonged, the sequence always must involve some form of supervision during every phase: assessing, briefing, equipping, deploying, communicating, reporting, debriefing, and stand down. Volunteers should not be left alone to 'muddle on'. Some volunteers may be exhausted or simply grateful to be relieved of their task and return to their families, others help for longer, then leave the scene to continue their normal routines.

By supporting volunteers, a skilled supervisor assists in rehabilitation of the affected individual and the whole community. Professionals arriving at the scene must recognise the part the volunteers have played prior to the arrival of the "authorities". Simple courtesies such as taking a hand-over, exactly as professionals do when taking over from a