Radiation Emergency Medical Preparedness and Network in Germany

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The early diagnosis of the acute radiation syndrome has to be developed on the basis of early clinical signs and symptoms of the individual patient. A systematic classification of clinical symptoms has been established by the METREPOL system. This triage system, based on clinical response categories of different organ systems, such as the hematopoietic, the gastrointestinal, the neurovascular and the cutaneous system easily allows an early triage of radiation accident patients.

Patients with acute radiation syndrome require most intensive medical care within a multidisciplinary team of medical doctors. The international resources for a state of the art medical treatment of heavily radiation exposed patients with ARS nevertheless are limited. Therefore several facts, such as the need for a close collaboration in this special field at an international level, the identification and development of common treatment standards and the sharing of common resources are of utmost importance.

In case of combined injuries (e.g. radiological and trauma) there is the need for an early surgical treatment for the additional trauma. The definitive medical treatment has to be planned afterwards.

Therefore, the higher the number of affected patients in a case of a radiological emergency is, the more the limitation of available infrastructural and therapeutic resources (such as growth factors, trained doctors etc.) becomes a predominant aspect and triage will be a key issue to handle this problem.

Concerning the pathogenesis of radiation injuries new aspects and concepts such as the radiation-induced multi-organ involvement and failure gain more and more attention. Moreover the role of specific organs other than the hematopoietic system is currently elucidated and these new findings strikingly influence medical handling of radiation victims.

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