

Health Risk Management after the Nuclear Power Plant Accident: how to apply the lessons learned from Chernobyl and Fukushima to narrow research gaps?

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Abstract

Medical preparedness and response against nuclear power plant (NPP) accidents are considerably discussed and implemented targeting acute phase countermeasures. During the post-crisis, however, there is a similar long-standing difficulty of psycho-mental, social, economic and political impacts between the two NPP accidents: Chernobyl and Fukushima. One of the confusions and predicaments for medical and health professionals is the issue of uncertainty of thyroid cancer risk and how to communicate with the public and various stakeholders, including media, beyond dose estimates. Especially the fear of the second coming Chernobyl exaggerates wrong interpretation such as an increased risk of radiation-associated childhood thyroid cancer in Japan.

The research gap such as relationship between statistical risk group and individual risk perception after the NPP accident should be overcome in cooperation between the stakeholders and health professionals. The large-scale health examination surveys in Fukushima were a specific response to initial radiation exposure and to mental traumas caused by the accident and evacuation. But because of the difficulty in obtaining reliable dose estimates shortly after the accident, the involvement of stakeholders failed at the initial stage of survey implementation, especially with regard thyroid ultrasound examination.

Unfortunately, a high prevalence of childhood and adolescent thyroid cancers detected by a mass screening aggravates radiation fear and anxiety, and keeps the local residents in indeterminate and uncertain situation having been evacuated but not relocated. It is, therefore, critically important for medical professionals to explain the current situation of thyroid diseases to the public correctly, on a basis of understanding the baseline prevalence of thyroid pathology including childhood and adolescent thyroid cancers as a mass screening effect but not as epidemic. The accurate interpretation of the high rate of thyroid diseases in Fukushima is now a key element of psychosocial well-being of individuals and communities, and also of their resilience. Therefore, at the standpoint of thyroid cancer risk, sound radiation risk education for the public is currently challenged, and medical and health professionals are uniquely positioned to identify and provide insight into what would be the best to do to meet Fukushima residents' specific needs during the chronic recovery phase after NPP accident. Here, the current condition of Fukushima and the issues to be solved will be introduced to narrow the gap between the reality and academic research, including a necessity of sensible education literacy for "Radiation and Health".