

Prodromal Phase of Acute Radiation Syndrome and Exposure Doses

Prodromal phase and exposure dose

Symptom	Mild (1-2 Gy)	Moderate (2-4 Gy)	Severe (4-6 Gy)	Very severe (6-8 Gy)	Lethal (≥ 8 Gy)
Vomiting	2 hours or later after exposure (Rate of incidence) Up to 50%	1 to 2 hours 70 to 90%	Within 1 hour 100%	Within 30 minutes 100%	Within 10 minutes 100%
Diarrhea	None	None	Moderate	Severe	Severe
Headache	Very mild	Mild	Moderate	Severe	Severe
Consciousness	Unaffected	Unaffected	Unaffected	Affected	Loss of consciousness
Body temperature	Normal	Slight fever	Fever	High fever	High fever

Gy: Grays

Source: Prepared based on IAEA Safety Reports Series No.2 "Diagnosis and Treatment of Radiation Injuries" (1998)

From prodromal symptoms that appear within 48 hours after the exposure, exposure doses can roughly be estimated in the case of acute exposure. Exposure to radiation of 1 to 2 Gy may cause loss of appetite, nausea and vomiting. In addition, very mild headache appears. Exposure to radiation of 2 to 4 Gy may cause vomiting, mild headache or slight fever (1 to 3 hours, 10 to 80% incidence). Exposure of 4 to 6 Gy causes 100% incidence of vomiting within one hour after exposure and also causes moderate diarrhea and headache as well as 80 to 100% incidence of fever. Exposure of 6 to 8 Gy causes 100% incidence of vomiting within 30 minutes and also causes severe diarrhea/headache as well as 100% incidence of high fever. Furthermore, disturbance of consciousness may appear. Exposure to radiation exceeding 8 Gy causes 100% incidence of vomiting within 10 minutes and causes symptoms such as severe diarrhea/headache, high fever and loss of consciousness.

Included in this reference material on March 31, 2021