



RADIATION FROM CESIUM-137 (Cs-137)

(*Treatment the same for thallium and rubidium)

Agent Information:

Cesium-137 (Cs-137) is a radioisotope and unstable chemical. Its radioactivity is measured by the number of atoms disintegrating per unit time. A Cs-137 atom emits radiation in the form of medium energy gamma rays, and to a lesser extent, high-energy beta particles, which disrupt molecules in cells and deposits energy in tissues, causing damage. Cs-137 is used in medical therapy for oncology, industrial radiography, radiation gauges, food irradiators and soil testing. It is also a potential plume component following a nuclear power plant incident.

Signs and Symptoms:

Very large doses of ionizing radiation cause observable health effects: hair loss, skin burns, nausea, gastrointestinal distress or death (Acute Radiation Syndrome). Long term health risks, including increased cancer risk, depend on the function of the specific radioisotope; and the route, magnitude and duration of exposure.

Route of Exposure:

Significant external dose results from prolonged, close proximity to a Cs-137 source, or being immersed in a plume of airborne radioisotopes from a nuclear power plant release. External exposure stops when the person leaves the impacted area and is decontaminated. Inhalation and ingestion are the most likely routes for internal contamination from Cs-137. Internal exposure continues until the radioactive material is flushed from the body by natural processes, or when it decays. When a person inhales or ingests a radioisotope, it is distributed to different organs and stays there for days, months or years until it decays or is excreted.

Protective Measures:

Emergency medical care to save lives is the first priority. Effective patient decontamination prevents exposure to other patients and staff. Limit the amount of exposure time to the radioactive source. They should avoid direct contact, maintain distance, and use shielding or respiratory protection. Deceased victims from a radiological event may be contaminated with radioactive material (internal and/or external).

Lab Samples Requested for Evaluation:

CBC with absolute lymphocyte count. Repeat measurements for at least 48 hours.

Prophylaxis:

Appropriate PPE to avoid secondary contamination.

Treatment:

Treatment is supportive care and decontamination. Reducing internal dose is indicated for known uptake of cesium, thallium and rubidium radioisotopes. Prussian blue can be administered to block absorption of these radioisotopes from the GI tract, and prevent recycling. Expert guidance on medical treatment is available from REAC/TS at: 1-865-576-1005 (24/7 coverage).

Reporting:

Immediately report suspect cases to Delaware's Division of Public Health, Epidemiology Branch: 1-888-295-5156 (24/7 coverage).

Contact Information:

Delaware Division of Public Health: 1-888-295-5156. For more information on forms of acute radiation syndrome, go to:
<http://www.bt.cdc.gov/radiation/arsphysicianfactsheet.asp>.

24/7 Emergency Contact Number: 1-888-295-5156

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