



RADIATION SAFETY FOR PREGNANT WOMEN

RADIATIONS THE BIGGEST THREAT TO MANKIND

Unborn child of a pregnant employee (radiology technologist) is at high risk. She must comprehend potential hazards of ionizing radiations around her.

FETUS EFFECT:

Exposure Magnitude:

NCRP recommends fetal dose limit up to 5.0 mSv during pregnancy

ICRP recommends < 1.0 mSv total fetal exposure during pregnancy.

These limits are manageable with the proper precautions at workplace.

Time of Pregnancy:

Time interval (recommended 6 months) between radiation exposure & conception plays significant protective role.

Radiation Risks Rises:

In early fetal period
During organogenesis

Threshold for Malformations:

100-200 mGy (Malformations)

100 mGy (Mental Retardation): Risk coefficient is 0.4 per Sv

1mSv exposure is safe for a fetus.

RISK PHASES:

Time of Radiation Vs Effect:

2-3 weeks: Most embryos get aborted

4-11 weeks: Severe abnormalities in organs

11-16 weeks: Mental retardation and cramping

16-25 weeks: Mild cerebral retardation & microcephaly

Above 30 weeks: Functional disabilities in later life

International Commission on Radiological Protection. (2003). Biological Effects After Prenatal Irradiation (Embryo and Fetus). New York: Elsevier Science, Inc.

Radionuclide Exposure of the Embryo/Fetus. (1998). Maryland: National Council on Radiation Protection and Measurements



SHIELDING TYPES:

Factors Involved:

Time

Distance

Shielding

Contamination Control

PROTECTIVE MEASURES:

Alpha Rays: No shielding

Beta Rays: None or Plexiglas

X/Gamma Rays: Lead (thick or thin)

Neutrons Concrete, paraffin

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