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Chapter 1 : Contribution of maternal radionuclide burdens to prenatal radiation doses - Digital Library

@article{osti_, title = {Contribution of maternal radionuclide burdens to prenatal radiation doses}, author = {Sikov, M.R. and Hui, T.E.}, abstractNote = {This report describes approaches to calculating and expressing radiation doses to the embryo/fetus from internal radionuclides. Information was obtained for selected, occupationally.

Immediate access to this article To see the full article, log in or purchase access. Toppenberg graduated from Loma Linda Calif. Address correspondence to D. Figure 1 is based on data derived from references 4 through 8. Effects of therapeutic, diagnostic, and environmental agents. Creasy RK, Resnik R, eds. The effect of embryonic and fetal exposure to x-ray, microwaves, and ultrasound: Scientific view of low-level radiation risks. Radiation exposure in pregnancy. Current Problems in Radiology. Year Book Medical, National Council on Radiation Protection and Measurements. Medical radiation exposure of pregnant and potentially pregnant women. Guidelines for diagnostic imaging during pregnancy. ACOG Committee opinion no. Safety risk of diagnostic radiology exposures. American College of Radiology. American College of Radiology, Mental retardation following in utero exposure to the atomic bombs of Hiroshima and Nagasaki. Perinatal loss and neurological abnormalities among children of the atomic bomb: Nagasaki and Hiroshima revisited, to Otake M, Schull WJ. In utero exposure to A-bomb radiation and mental retardation: Ionizing and nonionizing radiations. Occupational and environmental reproductive hazards: Epidemiological conclusions from radiation toxicity studies. Late effects of radiation. Health effects of exposure to low levels of ionizing radiation: National Academy Press, Teratology and drug use during pregnancy and lactation. Guidelines for perinatal care. Elk Grove Village, Ill.: Exposure to ionizing radiation during pregnancy: The victims of Chernobyl in Greece:

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procedures produce fetal radiation doses below 50 mSv 5, millirem. The National Council on Radiation Protection and Measurements and the American College of Obstetricians and Gynecologists agree that the potential health risks to a fetus are not increased from most standard medical tests with a radiation dose below 50 mSv 9. Potential health risks may increase for combinations of several tests that result in radiation doses that exceed 50 mSv, depending on the dose and on the stage of pregnancy 9. Table 1 Open in a separate window C. Actions and Precautions that Could Reduce Radiation Exposure to the Unborn Child In females of child-bearing age, preprocedural questioning and testing should be made to determine who is, or could be, pregnant, prior to radiation exposure. A missed period in a regularly menstruating woman should be considered due to pregnancy, until proven otherwise. For most, but not all diagnostic imaging studies, fetal dose and dose in general can be reduced by a reduction in administered activity e. Due to the fact that the some tracers are metabolized and excreted by the kidneys, and thus accumulate in the bladder, an effective method for reducing absorbed radiation dose to the fetus is to catheterize the bladder with simultaneous provision of intravenous hydration during the procedure. Nuclear medicine physicians should be aware that some radionuclides cross the placenta and pose increased fetal risks. An important example is I The fetal thyroid accumulates iodine after about 10 weeks of gestational age. High fetal thyroid doses from radioiodine can result in permanent hypothyroidism. If pregnancy is discovered within 12 h of radio-iodine administration, prompt oral administration of stable potassium iodine mg to the mother can reduce fetal thyroid dose. This may need to be repeated several times 8. The fetal radiation doses were assessed and found that the doses were significantly below the threshold for deterministic effects of radiation exposure to the fetus, and all patients ultimately delivered healthy infants without visible abnormalities The patient was counseled about radiation exposure and elected to have a therapeutic abortion than underwent chemotherapy after the scan. This conclusion was shared by Ponto 13 who performed fetal dosimetry calculations related to the studies described by Marcus et al. To minimize fetal absorbed dose, tracer injection was reduced by half and imaging time was doubled. It was concluded that the maximal fetal doses during breast surgery involving TSC for SLN mapping are small and well below levels associated with risk concerns. At the administered activity levels 0. After obtaining informed consent, a gastrointestinal bleeding study was performed in a pregnant patient during the 6 months of pregnancy who presented with hematemesis and dark blood in stool at our institution Figure 1. An example of the informed consent document is provided. Bleeding scan showed faint tracer accumulation in the left upper quadrant questionable for a GI bleed which prompted an angiography. The angiogram showed a gastrosplenic arteriovenous malformation AVM , and the patient therefore underwent interventional embolization of the AVM. After her condition stabilized, she was discharged from the hospital. The radiation dose to the fetus for a Tcm RBC-in vitro scan with an administered dose of 20 mCi, was calculated as 2.

Chapter 3 : RMS - 15A NCAC 11 [Dose to an Embryo/Fetus] FAQ

Contribution of maternal radionuclide burdens to prenatal radiation doses: relationships between annual limits on intake and prenatal doses.

Chapter 4 : Fetal and Maternal Absorbed Dose Estimates for Positron-Emitting Molecular Imaging Probes

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Contribution of Maternal Radionuclide Burdens to Prenatal Radiation Doses: Relationships Between Annual Limits on Intake and Prenatal Doses. (Revision 1, Addendum 1). (Revision 1, Addendum 1). Sikov MR; Hui TE.