Procedure Information Sheet Radiation Safety with Regard to X-Ray

Visit No.: Dept.:

Name: Sex/Age:

Doc. No.: Adm. Date:

Attn. Dr.:

Patient No.: PN

Please fill in / affix patient's label

Introduction

X-ray is a form of ionizing radiation. It can penetrate human body to produce image of the anatomy and pathological changes, they are particularly useful for medical imaging.

What are the health effects of radiation on human?

Lives on earth have always been exposed to a certain level of natural radiation. Actually, on average, an individual receives about 2.0 to 2.5mSv a year from natural background radiation. Although radiation may cause damages to body cells and tissues, health effects are insignificant unless the dose of radiation is large. The effects depend on the intensity of the radiation, the length of the exposure and the type of body cell exposed.

A single large dose of 10,000 mSv or more can be fatal unless good medical attention is available. Besides, exposure to radiation can increase the risks of cancers to the exposed individuals and genetic defects to their offspring.

Are X-ray examinations in diagnostic radiology safe?

The effective doses of the majority of X-ray examinations are very low, e.g. one receives about 0.02 to 0.04 mSv for a chest X-ray examination. These examinations are generally considered safe. X-Ray examinations are performed by professionals like radiologist and radiographer who have proper training in radiation protection and medical imaging techniques. There are also explicit guidelines on medical imaging. The benefits of the X-Ray examination, if performed properly, far outweigh the associated risks.

Can X-ray examinations be taken during pregnancy?

The actual risk of radiation to your fetus depends on the gestational age and the radiation dose received by the fetus. The radiation dose varies according to individual examination. Our radiographer will keep the radiation dose as low as possible.

Exposure of the embryo in the first three weeks following conception is not likely to result in adverse effects in the liveborn child. Plain X-ray examinations of area remote from the fetus, such as the chest, skull of extremities, can be done safely at any time during pregnancy, provided with proper radiation protection measures.

Nevertheless, X-ray examinations causing direct exposures to the abdomen or pelvis of women likely to be pregnant should be avoided unless there are strong clinical indications. Theoretically, very high dose of radiation to fetus can cause fetal death (miscarriage), malformation, growth retardation or impairment of mental development. In practice, the radiation dose to fetus that normally results from diagnostic radiological examination is unlikely to cause these harms. Moreover, Radiation exposure to the fetus may slightly increase the possibility of cancer later in the child's life. However, the risk of radiation induced hereditary disease in the descendants of the fetus is very small.

What are "28-day rule" and "10-day rule"?

When a female patient of child bearing age requires an x-ray examination involving direct irradiation of the abdomen or pelvis and if she cannot exclude the possibility of pregnancy, consideration should be given to postpone the examination by applying the "28-day rule" or the "10-day rule", X-ray examinations

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involving direct irradiation of the abdomen or pelvis, but not classified as high dose procedures, should be done within 28 days from the onset of her menstruation. If the X-ray examination is a high dose procedure like Barium Enema, the examination should only be performed within 10 days from the onset of her menstruation.

Before the Procedure

1. Please tell our staff about the date of your last menstrual period (LMP) if you are a female patient aged between 10 to 60 years old.
2. Please tell our staff before the exam if you are pregnant.
3. No contraceptive method is 100% effective. If you have any chance of being pregnant, please tell our nurse or radiographer before the exam.
4. You may be offered a urine pregnancy test if necessary. However, please note that urine pregnancy test **cannot** exclude very early pregnancy.
5. We will assess your likelihood of being pregnant, based on the available information. If you are pregnant or if pregnancy cannot be excluded in you, we will re-assess the potential risk and benefit of performing this radiological examination to you and your fetus:
   - If the benefit of performing this radiological exam is greater than the risk, we may continue with this exam if you agree. It is your right to decide whether you want to continue with this exam.
   - If the risk of performing this radiological exam is greater than the benefit, we may consider to arrange alternative investigations which do not use radiation, or to reschedule this exam.

After the Procedure

After the examination, in case you found that you might have already been pregnant on the date of this exam, please consult your attending doctor for advice as soon as possible.

Reference

1. International Commission on Radiological Protection: ICRP Publication 60.
2. Guidance Notes for the Protection Exposure in Diagnostic Radiology (2019) Radiation Health Division, Department of Health
3. Smart Patient (Website: http://www21.ha.org.hk)

Disclaimer

The information provided in this information sheet is intended for general reference purpose only. The risks and complications above are not exhaustive. Please consult your doctor for further details.

I acknowledge that I have understood the above information and was given opportunity to ask questions concerning my procedure.

Name of Patient / Relative	Signature	Relationship (If any)	Date