

**Purpose:** To compare the radiation-induced cancer risks per unit effective dose for five types of body CT scans.

**Method and Materials:** CT examinations investigated were chest, abdominal, pelvic, abdomen/pelvis and chest/abdomen/pelvis. Effective doses and organ doses were obtained using ImPACT CT Patient Dosimetry Calculator (version 1.0). Organ doses were converted into gender and age-dependent patient carcinogenic risks using data in BEIR VII. Values of cancer incidence risk per unit effective dose (mSv) were obtained for males and females ranging from 20 to 80 year old.

**Results:** For males, the highest cancer risk was 14 per 100,000 people per mSv for 20 year olds undergoing pelvic CT, and the lowest risk was 1.2 per 100,000 people per mSv for 80 year olds undergoing chest CT. For females, the highest cancer risk was 17 per 100,000 people per mSv for 20 year olds undergoing chest CT, and the lowest risk was 1.4 per 100,000 people per mSv for 80 year olds undergoing abdominal CT. The age-averaged value ( $\pm$  Standard Deviation) of the ratio of the highest to lowest risk per mSv for males and females were  $2.8 \pm 0.2$  and  $2.2 \pm 0.2$ , respectively. The average carcinogenic risk for females per mSv was about 23% higher than that for males. Increasing the patient age from 20 to 80 reduced the radiation risk by nearly a factor of five for males, and nearly a factor of six for females.

**Conclusion:** For the same effective doses in body CT, the risk to any individual patient can vary by up to 300%. Patient age is much more important for determining patient risk than patient sex.