

Non-Contrast CT Urogram: An Audit On Patient's Radiation Dose

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Purpose of Study:

Non-contrast CT urogram (CTU) is fast becoming the imaging of choice in urolithiasis. Repeated CTs raise concerns of excessive radiation exposure and potential radiation-related cancer risk. The American College of Radiology (ACR) Appropriateness Criteria considers low-dose CTU as

Materials and Method:

36 patients between 17-75 years were scanned in May 2017, with a 16 slice MSCT scanner using 120 kVp tube potential, automated tube current modulation, slice width of 1mm and iterative reconstruction algorithm. Dose Length Product (DLP) was recorded and Effective Dose (ED) was computed using a conversion factor of $0.015\text{mSv}(\text{mGy}\cdot\text{cm})^{-1}$. The results were then compared with established standards. The National Diagnostic Reference Level (DRL) of abdominal CT is $450\text{mGy}\cdot\text{cm}$. Low dose scans were taken as 10mSv .

Results:

The mean effective dose is 7.2mSv , ranging from 3.8 to 18.4mSv . No patient received low dose (10mSv). The mean DLP is $418\text{mGy}\cdot\text{cm}$, ranging from 250 to $1226\text{mGy}\cdot\text{cm}$. Thirteen cases (36%) exceeded the national DRL of $450\text{mGy}\cdot\text{cm}$.

Conclusion:

From our audit, CTU is a high dose study with more than a third exceeding the national DRL of CT abdomen. There is an urgent need for a standardized low dose protocol nationwide with justification of this increasingly used study.