

## **ABSTRACT**

*In this research we have measured CTDI value with pitch variation using CT Dose Profiler on head phantom. The purpose of this study was to get the value of CTDI using CT Dose Profiler that serves as the parameters of dose parameters raised by the patient, to compare the values of CTDI<sub>vol</sub> obtained in the five laying of position of CT Dose Profiler, and to analyze the effect of pitch variation on CTDI value on CT Dose Profiler. In this research will be done with some parameters pitch variation is 0,562, 0,938, 1,375, 1,750 according CT Scan used. The fixed parameters used are 120 kV, 200 mAs, 10 mm width of collimation, scan length 150 mm, tube rotation 0.50 s. This research was conducted at Kensaras hospital using CT Scan GE model of Optima CT580 16 slice. The results showed that if the pitch gets bigger, the dose get smaller (< 25 mGy) . The highest dose of 55,36 mGy on a pitch variation of 0,562 at position B, and lowest dose of 11,9 mGy at position C. The effect of pitch variation on CTDI value is when pitch is >1 then the acceptable result is low dose (< 25 mGy), there is some loss of information due to lack of dose, the time to scan become faster, the distance between the slices will be wider. When the pitch < 1, then the high dose (> 50 mGy), it takes longer to scan, the distance between the slices will be narrow. If the movement of pitch 1 on the table is 1 cm (10mm) per second, the speed of rotation of the tube one round per second, and if the thickness of the slice is 1 cm (10mm).*

**Key Words :** CTDI, CTDI<sub>vol</sub>, pitch, CT Dose Profiler