

การตรวจวัดปริมาณรังสีที่เลนส์ตาและต่อมไทรอยด์จากการตรวจซีทีสมอง
และปริมาณรังสีโดยรอบภายในห้องซีที: การศึกษาในหุ่นจำลอง

The Measurement Radiation Doses to the Lens of Eye and Thyroid
Gland from Computed Tomography Brain Scans and Radiation Dose
Around in CT Scan Room: Phantom Study

ช่วงเวลาดำเนินการ ปี พ.ศ. 2562

ผู้รับผิดชอบ ดร. วิทิต ผึ้งกัน
Email: vithit.p@oap.go.th

ตำแหน่ง รักษาการผู้เชี่ยวชาญเฉพาะด้านการประเมินค่ากัมมันตภาพรังสี

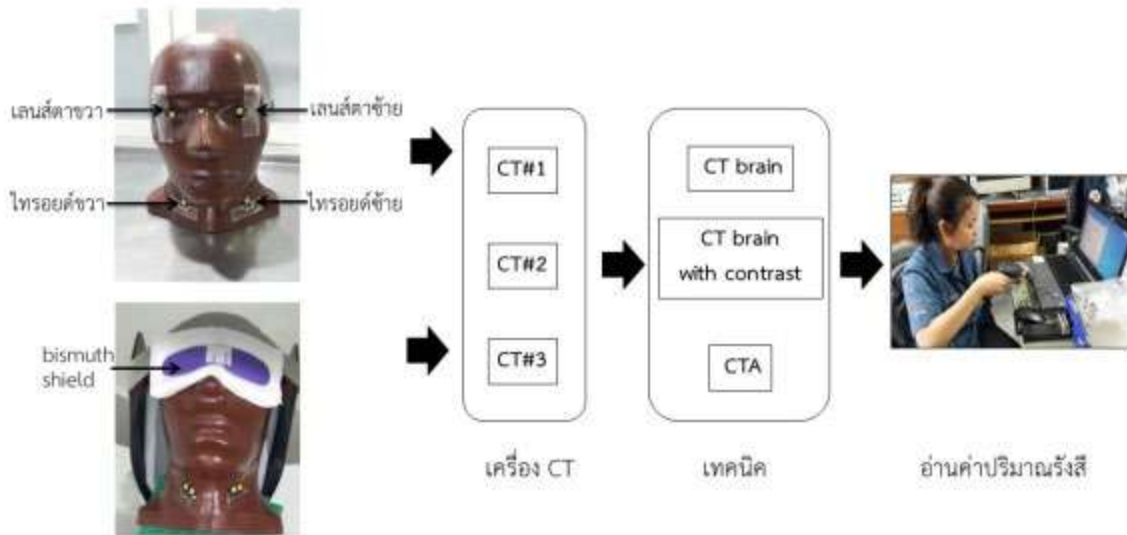
รายละเอียดสรุป

Background and Objective: This study aimed to measure radiation dose to lens of eye and thyroid gland from three different computed tomography (CT) brain scanners, including of measuring the radiation dose with and without bismuth radiation shield. Moreover, the scatter radiation dose in the CT rooms was also measured.

Methods: Optically stimulated luminescence (OSL) dosimeters were placed on the phantom to measure the skin dose at eye lens and thyroid gland. The OSL dosimeters were also placed on the wall, door, lead glass inside and outside the CT rooms to measure the radiation dose in the supervised and controlled area.

Results: The radiation equivalent doses from the three CT scanners were significantly different. The use of bismuth eye shield could reduce the amount of radiation on the eye lens by 27 - 48 %. The radiation dose in the supervised area was within the relevant annual dose limit. However, there were two locations in the controlled area where radiation dose exceeded the dose limit. The investigation must be performed to reduce the radiation dose within the regulatory dose limits.

Conclusions: Radiographers should carefully adjust the exposure techniques in order to optimise the radiation doses, especially in pediatric patients. The bismuth radiation shield helps to reduce the scattered radiation. The efficiency of lead door, wall and lead glass must be routinely checked for radiation monitoring.



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