Overuse of Computed Tomography and the Onslaught of Incidental Findings

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While computed tomography (CT) certainly can be beneficial when used appropriately, CT examinations are sometimes performed without sound medical justification. There are many reasons for overutilization: A clinician may order scans because he or she lacks knowledge or support regarding the appropriate application of diagnostic imaging, because of patient demand, or due to intolerance of diagnostic uncertainty. Technical advances have also expanded the clinical applications of imaging, even when there is no evidence base for such uses. Some physicians order imaging tests because they are practicing defensive medicine, which is believed to account for up to 1 in 5 CT examinations [1]. Also, up to 1 in 5 examinations are duplicates of previous examinations [2], which are repeated either because the earlier scan is inaccessible or because the physician is unaware it had been performed. Imaging may be used as a surrogate for physical examination, particularly in the emergency department, or imaging may be motivated by self-referral or by radiologists’ recommendations for repeat studies. Finally, sometimes scans are ordered because of a mindless repetition of established routine—because “that’s the way we do it here” [3, 4].

In addition to subjecting patients to the personal health risks associated with excess exposure to radiation, unnecessary diagnostic imaging often reveals incidental findings that may be at least as troubling to both the physician and the patient as were the events that prompted the initial imaging scan [5, 6]. Up to 50% of patients, or more, may have incidental findings identified by CT [7]. A chest radiologist lamented this problem in a recent editorial:

I know radiologists who have never seen a normal CT exam. They dictate 2-page reports describing in excruciating detail every dot in the lung bases, liver, spleen and kidney; every top normal lymph node is measured, every benign ovarian cyst is described, every hedge is sat upon. To make matters worse, each of these heroic poems ends with recommendations for further imaging to include ultrasound (US) of the pelvis, US of the kidneys, magnetic resonance imaging of the pelvis, CT of the full chest, and repeat studies with additional contrast or thin-section evaluations of specific organs for the “ditzels” described. What is a well-meaning clinician to do with such generally worthless information? [5]

Even radiology providers are not immune from costly and anxiety-provoking mishaps. One radiology chairman related how a CT colonography led to his being diagnosed with a renal lesion, a hepatic mass, and multiple noncalcified lung nodules. All of these findings were eventually found to be benign, but he ended up spending more than $50,000 on a diagnostic work-up and spent 5 weeks recovering from surgical intervention [8].

To summarize, CT is an extremely valuable diagnostic tool in the appropriate clinical setting, and it should be a protected resource in medicine. Overutilization exposes patients to the health risks of radiation and to the common occurrence of incidental findings, spawning further testing, intervention, potential complications, psychological stress, and cost. NCMJ

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References

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