Replacing post chest tube removal chest x-rays with clinical assessment in post-operative thoracic surgery patients, a single-centre prospective study

Objective: Thoracic surgery patients undergo several Chest X-rays (CXRs) postoperatively. The clinical value of post Chest Tube (CT) removal CXR is questionable. Our objective was to assess the impact of replacing post CT removal CXRs with clinical observation on patient-related outcomes including the need for interventions and length of stay (LOS).

Methods: This was a prospective single institution study of thoracic surgery patients treated at a community hospital in Canada from March 2022 to April 2023. All adult patients undergoing elective lung resection (lobectomy, segmentectomy, wedge resection) were included in the study. Post CT removal CXR was replaced with clinical observation for two hours post CT removal in those meeting the inclusion criteria. Patients with any concerning clinical symptoms such as respiratory symptoms, subcutaneous emphysema, or hemodynamic status changes were assessed with a CXR. All patients were followed in clinic 2-3 weeks after discharge for routine postoperative visit.

Results: A total of 253 patients were included in the study. The mean age was 66 years (IQR 59-74). Fifty-seven percent (n=145) were females. The most common procedure was lobectomy (n=156, 62%), followed by wedge resection (n=83, 33%). Of all patients, 186 (73%) were clinically observed after their CT removal and 67 (27%) underwent a CXR post CT removal. The most common reason for obtaining a post CT removal CXR was lack of awareness of the study by the new team members that resulted in 50 (75%) post CT removal CXRs. Seventeen patients (7%) developed clinical symptoms or hemodynamic changes post CT removal that resulted in a CXR. No patients in either group required any interventions post CT removal. All patients were followed in clinic 2-3 weeks postoperatively. None of the patients in either group had experienced any adverse events post discharge. The average length of stay for patients monitored clinically was 2.3 days in comparison to 4.1 days in those who had a post CT removal CXR (p= 0.05).

Conclusions: Post CT removal CXR can be successfully eliminated and be safely replaced with clinical observation in patients undergoing elective lung resection. Patients who require any interventions post CT removal can be identified clinically prior to obtaining a CXR. Patients who are observed clinically post CT removal tend to have a shorter length of stay. This change in practice will require culture change and education amongst all those

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