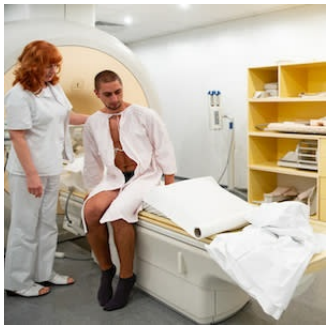
HealthManagement
Promoting Management and Leadership

Impact of COVID-19 on Inpatient Imaging Utilisation



The COVID-19 pandemic has impacted the world in a way that is unprecedented in modern history. Health care institutions around the world have been struggling with how best to respond to patient volumes using existing resources and personnel. One coping strategy adopted by hospitals was to cancel or postpone elective/non-urgent appointments and procedures.

The purpose of this study was to see how the pandemic affected radiology practices in terms of inpatient volumes and imaging modalities. Inpatient imaging cases were retrospectively reviewed from January 1 to April 18, 2020, at an integrated and large health care system and compared to the same period in 2019.
The number of cases from week 1 to 16 for 2019 and 2020 was classified by types of imaging modality (such as ultrasound, radiography, CT) and CPT-codes. Cases in the CPT-code category were subclassified by anatomic regions such as head, abdomen/pelvis, etc.

Data were analysed to see case volumes from week 1-9 and week 10-16 representing pre and post COVID-19 periods, respectively. Post COVID-19 data was further analysed to see differences between weeks 10-13 and weeks 14-16, referred to as early post-COVID-19 and late post-COVID-19, respectively.

Using a combination of statistical techniques, data analysis showed that compared to 2019, there were 7.4% fewer exams done in 2020 (162,470 vs. 175,511 exams). Compared to 2019, the decline in the number of cases during week 10-16, 2020, was 13.6%. This decline became more pronounced at 16.6% during week 10-13 and decreased to 9.6% during week 14-16 and to 4% by the sixteenth week of 2020.

Analysis by type of imaging modality also showed a significant decrease in MRI (-175, p=0.012),
CT (-264.3, p=0.035), interventional radiology (-106.4, p=0.002) and nuclear medicine (-59.7, p=0.001).
For weeks 10-13, the number of imaging cases decreased in all types of modalities but bounced up again during weeks 14-16 with the exception of nuclear medicine. There was no such change observed during the same period in 2019.

During week 10-16 in 2020, there was a decline in cases across all modalities except radiography, which saw a slight, but statistically insignificant, increase. Compared to 2019, weeks 14-16 in 2020, when analysed by CPT-coded groups, case volume decreased except CTA chest (+96.7, p=0.176), which saw a slight but statistically insignificant increase.

The decline can be explained by the fact that all elective procedures were postponed. The decline could also be because of guidelines recommended by radiology departments to minimise cross-sectional imaging, interventional radiology, and ultrasound to reduce COVID-19 spread to staff and patients.

There was an increase (week 14-16) in cases of chest CTA /radiography and Ultrasound Venous Duplex. This can be explained by the fact that these are the very tests used to diagnose pulmonary embolism and venous thromboembolism, of which there is a high probability in COVID-19 patients, manifested by patients having higher levels of D-dimer and fibrinogen.

The study gives unique insights on the changes in pattern and volume of cases by imaging modality and can serve as a great resource for leaders planning resources and personnel to deal with a resurgence of COVID-19 cases.

Source: JACR
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