During The COVID-19 Pandemic, The Radiology Department's Infection Control And Radiation Safety Procedures

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Abstract:

To protect patients and stop the COVID-19 virus from spreading further, radiology staff members need to be well-versed in radiation protection and infection control procedures. This study examined how well radiation protection and infection control protocols were followed during COVID-19 mobile radiography.

Techniques: From September to December 2021, an online survey was used for a cross-sectional study. During mobile radiography for COVID-19 patients in the study, information on demographics, radiation protection compliance, and infection control practices were gathered. a representative sample of radiologists employed by COVID-19 centers in the United Arab Emirates. In conclusion, it is advised to provide ongoing direction, instruction, and monitoring in order to improve adherence to infection control and radiation protection regulations. To close the practice and knowledge gap, professional associations and educational institutions must work together to offer radiology practitioners structured training programs.

Keywords: Radiology department, COVID-19, Infection.

Introduction

On the front lines of the battle against COVID-19 are radiology professionals. However, the majority of them lack experience dealing with COVID-19 patients. Furthermore, the risk of hospital cross- infection in the radiology department is increased by the use of nonstandard preventative techniques during radiological investigations. After being discovered in Wuhan, Hubei province, in late December 2019, the COVID-19 outbreak swiftly spread

throughout China and the rest of the world by March 2020. Radiology personnel are at high risk of occupational exposure to the disease because they have close contact with both suspected and confirmed patients (European, 2019).

In order to diagnose and treat COVID-19 cases, radiological testing is essential. The best imaging methods for COVID-19 screening and diagnosis are computed tomography (CT) and chest X-rays. To avoid hospital cross-infection from radiological studies, standard infection prevention procedures should be closely adhered to. To lower the risk of infection among employees, guests, and patients, comprehensive infection control protocols were created globally for radiology professionals to disinfect equipment, auxiliary instruments, and the workplace (Sohrabi, 2020).

Challenges and optimisation strategies in radiology service during the COVID-19 :

Rapid and precise diagnostic techniques were required during the COVID-19 pandemic. It has been established that medical imaging, including computed tomography and chest radiography, is crucial in the fight against COVID-19. During medical imaging investigations, patients, professionals, and public safety are all very important. As the pandemic continues, medical imaging professionals need to acquire the skills and knowledge necessary to guarantee patient safety and current information. There have been numerous studies and publications that highlight patient safety in medical imaging during the COVID-19 pandemic, as well as the difficulties and optimization techniques in radiology services. However, no studies have looked into the practice during mobile radiography. During the COVID-19 pandemic, mobile radiography usage increased, necessitating greater attention to patient and occupational doses. In order to guarantee patient safety and radiation protection during medical imaging procedures during COVID-19 cases, the International Society of Radiographers and Radiologic Technologists (ISRRT) published a response paper in April 2020 (Nguyen, 2020).

Infection Control:

PPE for infection control is based on the activity's exposure risk and the virus's dynamic of transmission, taking into account the three ways that diseases can spread: contact, droplet, and aerosol. Therefore, depending on the procedures being performed, appropriate personal protective equipment (PPE) for droplets is required to reduce the spread of COVID-19. This includes eye

protection, such as goggles or a face shield and a facemask. The imaging room and equipment are part of the infection prevention measures used during mobile radiography. Cleaning and decontamination must be done on a regular basis (Abuzaid, 2019).

Results :

This study demonstrated high to moderate adherence to infection control procedures. Seventy percent of the participants always answered, and fourteen percent answered most of the time, indicating good adherence to PPE during mobile radiography. Other studies, however, have not demonstrated 100% adherence during COVID-19 cases.The 2% of employees who said they had never used personal protective equipment (PPE) could be explained by either inadequate PPE or bad practices. With 66% of the employees responding "always," 24% "most of the time," 9% "sometimes," and just 1% "never," hand hygiene adherence was up to the international standard and accepted. Knowledge and risk awareness may be linked to better performance and adherence to hand hygiene as opposed to PPE adherence (ISRRT, 2020).

Just 24% of respondents claimed to have received incentives during the pandemic, and only 50% of those surveyed claimed to have received assistance from the radiology department. During the pandemic, many healthcare systems around the world modified their provider payment systems. The processes of employee support and motivation have a big impact on the economy and society (Bryant, 2018).

Recommendations:

The practice of radiographers during mobile radiography was the main focus of this study. Some limitations are acknowledged.

First, during the COVID-19 period, we did not fully gather information on radiation and occupational dose.

Second, we only looked into the radiographer's practice; however, mobile radiography is used by many medical professionals, including radiologists and nurses.

We intend to gather qualitative data, target a wider population, and involve other professionals in future research.

Conclusion:

In a unique pandemic, providing medical imaging services is extremely difficult. Despite the crisis, healthcare is still being provided, and the standard and safety of care are becoming more and more important given the critical role that medical imaging services play in the ongoing fight against COVID-19. In order to achieve its objective of total COVID- 19 eradication, the current study emphasizes the current degree of radiographer adherence to patient safety during COVID-19, which still has space for improvement. In order to diagnose and monitor COVID- 19 patients, mobile radiography exams are crucial. Therefore, in order to protect patients and stop the virus from spreading further, radiology staff members need to be well-versed in radiation protection and infection control procedures and adhere to them. Appropriate radiation protection measures are among the most important infection control and prevention strategies, according to ALARA and infection control practices like hand hygiene and personal protective equipment. To guarantee greater compliance and, consequently, a lower rate of cross- infection and likely fatalities, ongoing supervision, training, and follow- up are advised. To achieve the highest level of patient safety during mobile radiography, the health organization should invest in a range of COVID-19 prevention initiatives, including health education, raising community awareness, implementing artificial intelligence applications, and improving its preventative procedures.

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