Obesity in Medical Imaging

INTRODUCTION

Nearly 300 million American people in the US are overweight or obese. This population is expected to grow by more than 50% by 2030 (Farrell, 2016). Adjustments need to be made in three areas to better serve this population of patients in radiography. Radiation dose, patient care, and equipment limitations are challenges that both the radiographer and patient face today.

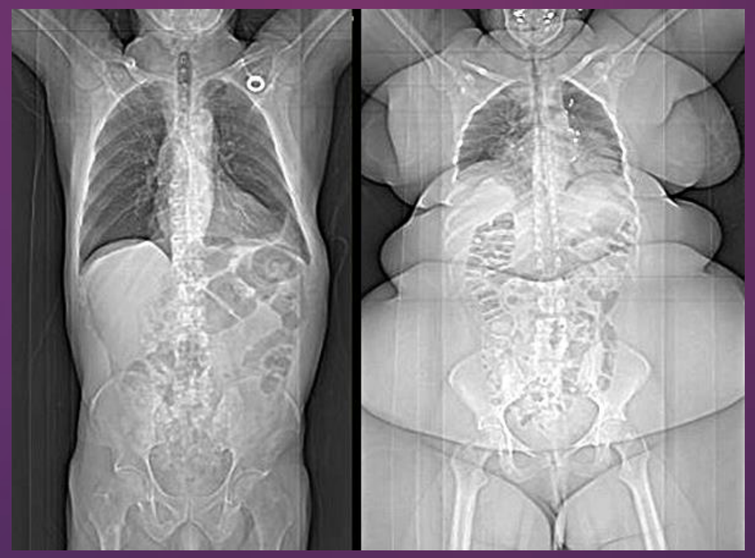
DOSE CONSIDERATIONS

Obese patients attenuate x-rays differently than sthenic patients due to the excess adipose tissue in their bodies. The current strategy to get diagnostic images is to increase technical factors which increases patient dose as well (Farrell, 2016). High-sensitivity cadmium zinc telluride (CZT) solid state detectors could help with better detector sensitivity (Farrell, 2016). Thicker adipose tissue makes finding landmarks harder and repeat images more likely (Le, 2015). The current teaching standards are no longer representative of all patients and there should be more curriculum centered around imaging the obese population specifically (Le, 2015).

PATIENT CARE/BIAS

Weight stigmatization and bias negatively affect the care for obese patients (Le, 2015). Patients who experience stigmatization and bias are at a significantly higher risk for developing other health issues (Kyle, 2016). Weight discrimination has increased by over 66% in America and is equivocal to racial discrimination (Crooke, 2016). A zero tolerance policy should be implemented in every department to avoid perpetuating the negative outcomes that accompany bias.

Open Bore MRI Scanner at Massachusetts General Hospital



A comparison of sthenic and obese patient scans

EQUIPMENT LIMITATIONS

Most x-ray equipment is in use for 10 years before it is replaced and cannot keep up with the increasing occurrence of obese patients (Meredith, 2017). Some CT tables can hold up to 680 lbs and there are MRI tables that can hold up to 550 lbs (Uppot, 2014). There are many patients who exceed even those weight ranges and therefore cannot receive those types of exams. Most modern CT scanners have a reconstructed view of 50 cm so even if the patient can fit in the gantry, the resulting image may not be accurate (Meredith, 2017). Open bore scanners are an option but decrease the quality of the images and are expensive (Boas, 2018).

Conclusion

Overall patient care and satisfaction will increase if changes are made in the three areas discussed. These patients deserve the same standard of care and to be treated with dignity like any other patient. With obesity reaching epidemic proportions in the western world, it is important that radiology workers make improvements a priority (Aweidah, 2016).

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