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Establishing National Diagnostic Reference Levels (NDRLs) for Nuclear Medicine in Saudi Arabia

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Introduction:

The Saudi Food & Drug Authority (SFDA) has led the first governmental initiative to establish the Saudi National Diagnostic Reference Levels (NDRLs) in the Kingdom of Saudi Arabia. This is to promote dose optimization in alignment with international guidance as well as the SFDA strategic objectives. The SFDA previously published the Saudi NDRLs for various imaging modalities, including CT, general X-ray, and mammography. Now, the SFDA is extending the Saudi NDRLs to include nuclear medicine. The SFDA has established the NDRLs in nuclear medicine for commonly performed protocols, which include bone imaging, myocardial perfusion imaging, thyroid imaging, renal imaging, and tumor imaging. This will maximize diagnostic effectiveness while minimizing unnecessary radiation exposure in nuclear medicine.

Methods:

To develop these reference levels, the SFDA collaborated with leading hospitals across the Kingdom to collect real data on commonly performed nuclear medicine procedures. Administered activities were gathered for key protocols such as bone scans, myocardial perfusion imaging, thyroid imaging, renal scans, and tumor imaging. The NDRLs were set as the 75th percentile of the hospitals' median dose distribution.

Results:

The result showed considerable variation in the administered doses across all participating hospitals, highlighting the value of establishing national reference levels. The resulting Saudi NDRLs provide a localized benchmark that supports dose optimization while considering regional clinical practices.

Conclusion:

This extension to the Saudi NDRLs advocates for dose optimization in nuclear medicine. In the future, the SFDA will consider establishing NDRLs for additional imaging modalities. This will significantly advance the regulatory framework for medical imaging in the kingdom, promoting continuous quality improvement and national standards for radiation safety and medical imaging.

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