

The Importance of DEXA Scans for Bone Health

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DESCRIPTION

Osteoporosis is a widespread condition characterized by decreased bone density and increased fracture risk, particularly affecting the elderly population. Early detection and treatment are important for preventing fractures and improving the quality of life. Dual-Energy X-ray Absorptiometry (DEXA or DXA) has emerged as the gold standard for diagnosing osteoporosis. This article explores the feasibility of osteoporosis screening by DEXA, highlighting its accuracy, accessibility, and cost-effectiveness. Osteoporosis is often termed a "silent disease" because it progresses without symptoms until a fracture occurs. It primarily affects postmenopausal women and older men, leading to significant morbidity and mortality. The most common fracture sites are the hip, spine, and wrist. Early detection through screening is vital to manage and mitigate the risks associated with osteoporosis.

DEXA and its reliability

DEXA is a non-invasive imaging technique used to measure Bone Mineral Density (BMD). It involves passing two X-ray beams at different energy levels through the bone and measuring the absorption of each beam by bone tissue. The difference in absorption rates helps calculate bone density. DEXA scans are typically performed on the hip and spine, where fractures are most prevalent in osteoporotic patients. DEXA is highly accurate and reliable for measuring BMD. It has become the preferred method for diagnosing osteoporosis due to its precision and ability to detect even small changes in bone density. Studies have shown that DEXA provides consistent and reproducible results, making it an excellent tool for both initial screening and monitoring the effectiveness of osteoporosis treatments.

Advantages and cost-effectiveness of DEXA for osteoporosis screening

DEXA is known for its precision and accuracy, allowing for early detection of osteoporosis before fractures occur. The procedure is quick, painless, and non-invasive, involving minimal radiation exposure compared to other imaging techniques. DEXA can

predict fracture risk, helping healthcare providers tailor preventive and therapeutic interventions for patients at high risk. It is effective in monitoring the efficacy of osteoporosis treatments by tracking changes in BMD over time. Many hospitals and clinics are equipped with DEXA machines, making the test widely accessible to patients. Cost is a significant consideration in the feasibility of widespread osteoporosis screening. DEXA is relatively cost-effective, especially when considering the long-term costs associated with osteoporotic fractures, such as hospitalizations, surgeries, and rehabilitation. By enabling early detection and intervention, DEXA can reduce these long-term healthcare costs significantly. Health insurance policies often cover DEXA scans for individuals at risk, further enhancing its feasibility as a screening tool. However, the initial cost of the equipment and training healthcare professionals to interpret the results accurately can be a barrier in some settings.

Screening recommendations and guidelines

Several health organizations, including the World Health Organization (WHO) and the National Osteoporosis Foundation (NOF), have established guidelines for osteoporosis screening using DEXA. Generally, it is recommended for women aged 65 and older, men aged 70 and older, postmenopausal women and men over 50 with risk factors (e.g., family history of osteoporosis, low body weight, smoking, excessive alcohol consumption), individuals who have experienced fractures after the age of 50. Following these guidelines can help identify at-risk individuals and provide timely intervention. Despite its advantages, there are challenges to the widespread implementation of DEXA screening, which include limited availability of DEXA machines in rural and underserved areas can hinder widespread screening. Proper training for healthcare providers is essential to ensure accurate interpretation of DEXA results. Increasing awareness about osteoporosis and the benefits of early screening is important for encouraging individuals to undergo DEXA scans.

CONCLUSION

Screening for osteoporosis using Dual-Energy X-ray Absorptiometry

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(DEXA) is highly feasible, given its accuracy, reliability, and cost-effectiveness. While there are challenges to be addressed, such as improving access and increasing patient awareness, DEXA remains the gold standard for early detection and management

of osteoporosis. By adhering to screening guidelines and promoting widespread use of DEXA, healthcare providers can significantly reduce the burden of osteoporosis and enhance the quality of life for many individuals at risk.