



An audit: A silent disease osteoporosis

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1. Introduction

Osteoporosis: The silent disease

A silent disease - does not have any typical symptoms and you may not even know you have the disease until you break a bone. Characterized by low bone mass and micro architectural deterioration of bone tissue, leading to enhanced bone fragility and fracture risk.

The menace of osteoporosis

Fragility fractures as we grow older affects spine, hip, distal femur, wrist, shoulder



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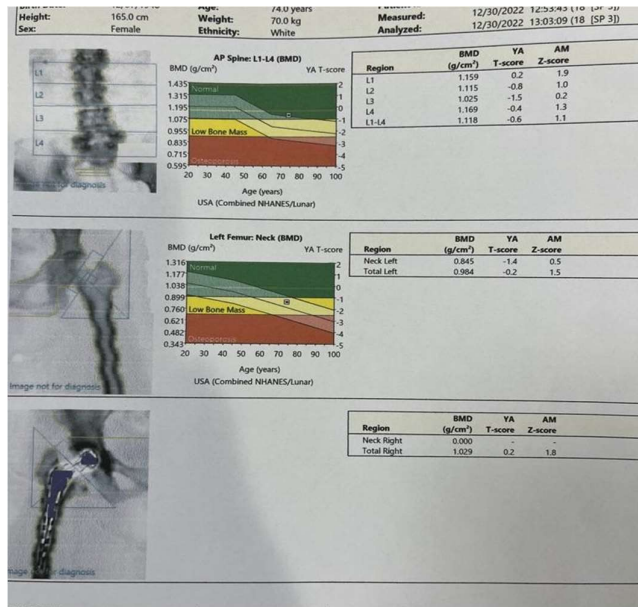
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The chances of a second fracture are high once there is one fracture

Can we diagnose this silent disease prior to it hitting us with a fracture?

Dual energy X-ray absorptiometry:

1. Most effective (gold standard) technique used to measure Bone Mineral Density (BMD).
2. Measures the density or thickness of bones and amount of calcium in the specific area of bone.
3. DEXA Scan at Kauvery is only one such facility in Trichy
4. It was installed at Cantonment in the year - 2021
5. It has now been shifted to Maa Kauvery



Interpretation

T-score: compare results to a healthy young adult.

Z-score: compare results to a person of the same gender and age as yourself.

1. Normal bone density: > -1.0
2. Osteopenia: -1 to -2.5
3. Osteoporosis: < -2.5

2. Materials and Methods

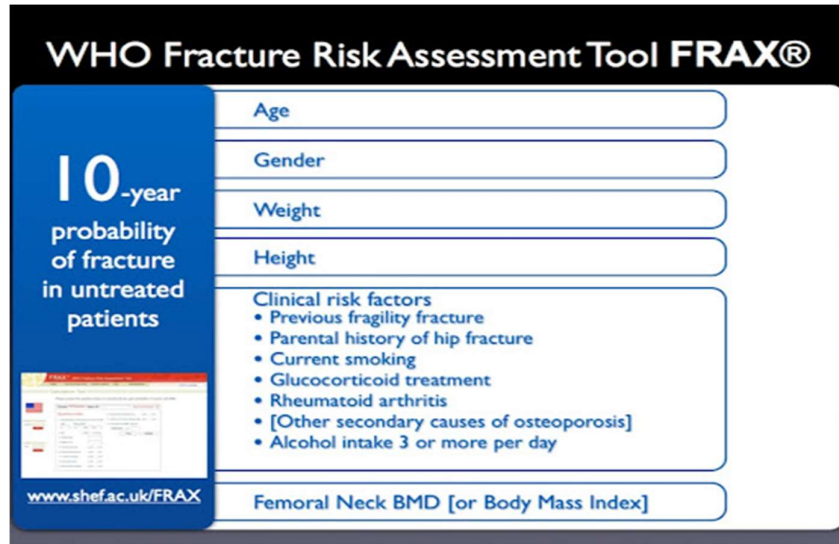
Who should undergo?

1. All women above the age of 65 and males over 70 years.
2. Estrogen deficiency
3. Individuals who develop wrist, hip, spine or proximal humerus fractures with minimal or no trauma.
4. Medications affecting the bone metabolism like glucocorticoids, anti-epileptics, chronic heparin or warfarin therapy.
5. Patients receiving radiation or chemotherapy for malignancies.
6. Chronic distress patients

Limitations of DEXA scan

It cannot predict who will experience a fracture but can provide a relative risk and it is used to determine whether treatment is required

FRAX tool should be used to predict fracture risk along with the DEXA data



3. Results

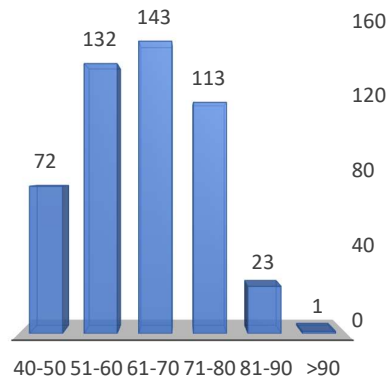
We audited the patients who underwent DEXA scan at our hospital.

Totally, there was 485 patients

1. Males = 93
2. Females = 392

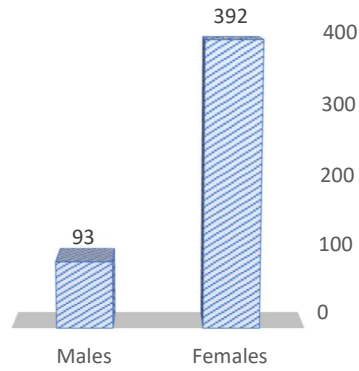
normal > osteoporosis > osteopenia

Patients who had DEXA scan done



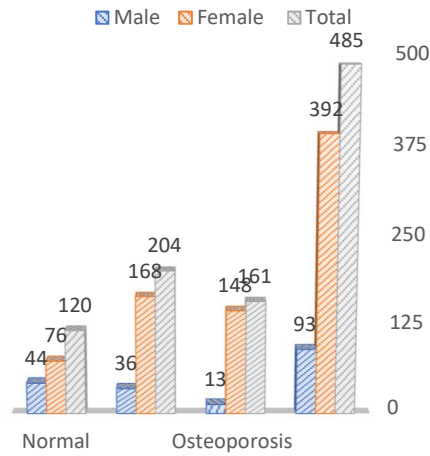
Inference

Aged 40 and above has been the age pattern of population undergoing DEXA Scan
 50 to 80 is the major group undergoing DEXA Scan
 24 patients above the age of 80 had DEXA scan! Need to study why?
 Gender distribution of those who had scans

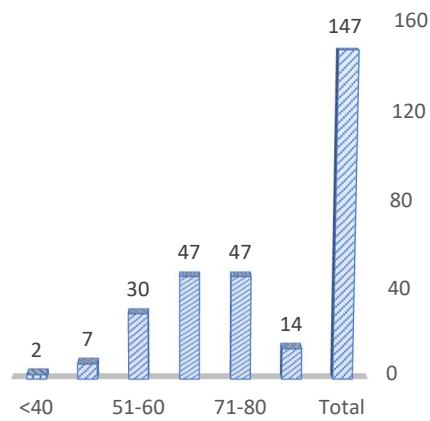


19% who had Scans were males i.e., one in five scanned
 81% who had scans were females i.e., four out of scanned

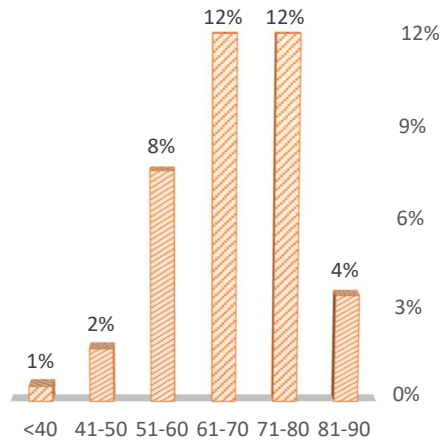
Gender vs Osteopenia and Osteoporosis



Females and Osteoporosis

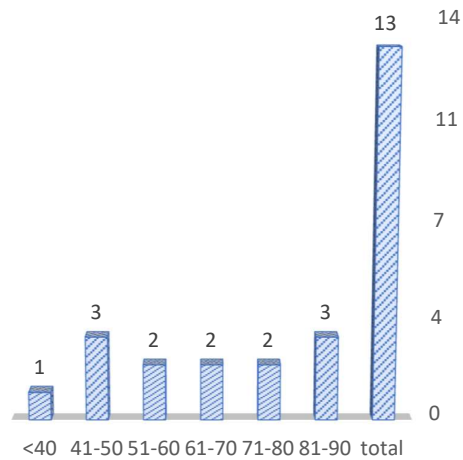


Females at different age and osteoporosis

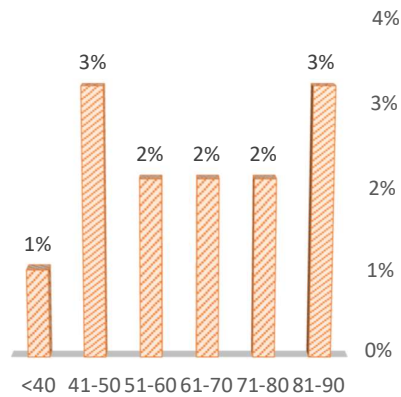


147 out of 392 were diagnosed to have Osteoporosis. i.e. 37.5% were diseased. Most of the females had osteoporosis above the age of 50

Males and Osteoporosis



Males at different age with osteoporosis



13 out of 93 males were diagnosed with osteoporosis, i.e. 14% had osteoporosis.

However, the numbers are small to make valid conclusion.

Inference

Males and DEXA scan

1. Males had younger group with osteoporosis, though numbers are small
2. 13 males out of 93 scanned had Osteoporosis
3. 80 out of 93 males scanned did not have osteoporosis
4. 33 out of 93 males scanned were 50 and younger! Need to study why!
5. 25% of those who had DEXA scan had normal values
6. 42% of those who had DEXA scan had osteopenia
7. 33% of those who had DEXA scan had osteoporosis I.e one third
8. Osteopenia was more common than Osteoporosis

Summary of the findings in the audit and the scope for improvement

1. Females are referred more and appropriately? located at Maa Kauvery (Orthopaedics, Physicians treat large number of females above the age of 60)
2. 33 out of Males below the age of 50 had DEXA Scan? Appropriateness
3. Reason for the DEXA scan is not available, need referral reason documentation
4. Female health checkup for over 65 can include DEXA scan routinely
5. Information leaflets on osteoporosis and DEXA scan should be made available
6. With wider awareness, more population can be directed to DEXA for prevention of fractures
7. Implementation of FRAX tool to predict fracture risk

4. Conclusion

1. Patient education, advising DEXA to appropriate patients
2. All fragility fractures should have a follow-up DEXA scan to prevent further fractures
3. Future study will be possible if reason for referral for DEXA scan is captured
4. Including the DEXA as mandatory investigation in the master health check-up.
5. FRAX tool addition to reporting will be more beneficial than DEXA alone.