FRAX EFFICACY IN FRACTURE PREVENTION - (SCOOP)

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A major objective of fracture risk assessment is to enable the targeting of interventions to those at need and avoid unnecessary treatment in those at low risk of fracture. Historically, fracture risk assessment was largely based on the measurement of bone mineral density (BMD), since osteoporosis is defined operationally in terms of bone mass. Whereas BMD forms a central component in the assessment of risk, the accuracy of risk prediction is improved by taking into account other readily measured indices of fracture risk, particularly those that add information to that provided by BMD. Several risk prediction models have been developed, but the most widely used is FRAX®.

There are currently 68 FRAX models in 63 countries covering more than 80% of the world population. Whereas FRAX has traditionally been used for opportunistic case finding, the publication of thet MRC SCOOP trial (SCreening of Older wOmen for the Prevention of fractures) provides strong support for a screening strategy. This seven-centre pragmatic randomised controlled trial with 5-year follow-up, included 11,580 women aged 70-85 years, who were randomised to receive a care algorithm including FRAX and drug targeting (n=6,233) or usual primary care for osteoporosis based on opportunistic case-finding (n=6,250). Women were recruited from 100 UK general practices, and the principal outcome measures were major osteoporotic, hip and all fractures. Screening reduced the incidence of hip fractures (0·72, 0·59–0·89, p=0·002). The effect on hip fracture increased significantly with baseline FRAX hip fracture probability; for example, at the 10th percentile of baseline FRAX hip probability (2.6%), hip fractures were not significantly reduced (HR 0.93, 0.71 to 1.23) but at the 90th percentile (16.6%), there was a 33% reduction (HR 0.67, 0.53 to 0.84). The screening algorithm resulted in a pronounced increase in the use of anti-osteoporosis medication, and greater compliance with therapy, over the period of follow-up. These findings strongly support a systematic, community-based screening programme of fracture risk in older women. In addition, the strategy appears to be cost-effective.

The increasing efficacy on hip fracture with baseline FRAX hip fracture probability, noted in SCOOP and several intervention studies has implications for targeting treatments to high risk patients in that the dividend in terms of fractures saved is amplified. It also has implications for health economic assessment and conventional meta-analyses of interventions used in osteoporosis.

Despite the considerable costs of fragility fractures to society and individuals, the availability of fracture risk tools and effective treatments, community-based screening to prevent fragility fractures is currently not advocated in many countries, including the UK. The results of the SCOOP study suggests that FRAX can be used in a population-based screening strategy in elderly women.

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Materials and methods: We conducted a two-arm randomised controlled trial in women aged 70 to 85 years comparing a screening programme based upon the FRAX risk assessment tool with usual management in primary care. In the screening arm, licensed treatment was recommended in woman identified at high risk of hip fracture. The proportion of participants experiencing a fracture was compared over a five-year follow-up period.

Results: A total of 12 483 eligible women, identified in primary care, participated in the trial, with 6 233 randomised to the screening arm. In this arm, treatment was recommended in 828 women (14.4%) identified at high risk. Exposure to osteoporosis medication was higher by the end of the first year in the screening group compared to controls (15.3% vs 4.5%, respectively) with high treatment uptake (78.3% at 6 months) in the high risk subgroup. Despite a non-statistically significant reduction in individuals experiencing any fracture (RRR 7%, -3% to 15%, p=0.199), screening was associated with significant reduction in hip fracture (RRR 27%, 10%-41%, p=0.003). The incidence of major osteoporotic fractures, comprising hip, wrist, humerus and clinical vertebral fractures, was also significantly reduced.

Conclusions: A systematic, community-based screening programme of fracture risk using the FRAX tool in older women in the UK is feasible and effective in reducing hip fracture risk.

Screening based on FRAX fracture risk assessment reduces the incidence of hip fractures in older community-dwelling women – results from the SCOOP study in the UK.

KEYWORDS: Osteoporosis; FRAX; fracture prevention.