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Fragility Fractures – Clinician Summary

This guideline is about screening to prevent fragility fractures. This guideline is for primary care practitioners, defined as health professionals who provide accessible, continuous, comprehensive, coordinated care and who are the first contact in the health system.

Population

The target population is community-dwelling adults aged ≥ 40 years, not currently on pharmacotherapy to prevent fragility fractures.

Recommendation

We recommend risk assessment-first screening to prevent fragility fractures in females aged ≥ 65 years as follows (conditional recommendation, low-certainty evidence):

1. FRAX: Apply the Canadian clinical FRAX risk assessment tool (without BMD). Use the 10-year absolute risk of MOFs to facilitate shared decision-making about the possible benefits and harms of preventive pharmacotherapy.
2. BMD + FRAX: After this discussion, if preventive pharmacotherapy is considered, request BMD measurement using dual energy X-ray absorptiometry of the femoral neck. Then re-estimate fracture risk by adding the BMD T-score into FRAX.

We recommend against screening females aged 40-64 years and males ≥ 40 years to prevent fragility fractures (strong recommendation, very low-certainty evidence).

These recommendations apply to community-dwelling individuals not currently on pharmacotherapy to prevent fragility fractures.

Putting into Practice

Clinicians in primary care settings are advised:

- To be alert to changes in physical health related to fragility fracture r

- To screen females aged ≥ 65 years with a risk assessment-first approach:

    1. **FRAX:** Apply the Canadian clinical FRAX risk assessment tool (without BMD). Use the 10-year absolute risk of MOFs to facilitate shared decision-making about the possible benefits and harms of preventive pharmacotherapy.
    2. **BMD + FRAX**: After this discussion, if preventive pharmacotherapy is considered, request BMD measurement using dual energy X-ray absorptiometry of the femoral neck. Then re-estimate fracture risk by adding the BMD T-score into FRAX.
    - An interactive decision aid was developed to help patients consider the potential benefits and harms of preventive pharmacotherapy knowing their individual risk (prior to BMD).
- The Task force does not recommend screening females aged 40-64 years or males ≥ 40 years.
- To be aware of the importance of secondary prevention and manage patients accordingly.
- It is unknown how often rescreening eligible females should occur, however, rescreening within 8 years does not appear useful.
- Recommendations apply to community-dwelling individuals not currently on pharmacotherapy to prevent fragility fracture.

Screening males ≥65 years and females 50-64 years may be current practice in some jurisdictions. The Task Force suggests that jurisdictions reconsider the use of such practice. Additionally, a transition to risk assessment-first screening for females ≥ 65 years (where not currently performed) is recommended.

Clinical FRAX has the potential for use in rural/remote areas with limited BMD access as there was no meaningful difference in calibration compared to FRAX + BMD. However, no RCTs examined risk assessment-only screening and therefore it is unknown whether this practice would lead to similar outcomes to FRAX + BMD.

Burden of Illness

The annual rate of hip fracture among Canadians was 168 per 100,000 (age 65-79 years) and 1,045 per 100,000 (age 80+ years) in 2016. The annual rate for any type of fracture was 843

and 2,642 per 100,000 (ages 65-79 and 80+ years respectively). In comparison, there were 193 acute myocardial infarctions per 100,000 Canadians ≥20 years. Among Canadians ≥ 50 years, there were 131,443 fragility fractures associated with 64,884 acute care admissions and 983,074 hospitalized days in the 2010/2011 fiscal year. The cost of fragility fractures was estimated at $4.6 billion including acute, rehabilitation and long-term care as well as prescription drug cost, wage loss and home care. The cost of cardiovascular disease and cancer in Canada (2010) was estimated at $13 billion and $5.4 billion respectively.

Potential consequences of fragility fractures

- Disability
- Chronic pain
- Hospitalization and surgery
- Admission to long-term care
- Increased mortality
- Decreased quality of life
- Major deficits in mobility and self-care

Basis of Recommendation

Evidence

A meta-analysis found that, among “self-selected” females aged ≥ 65 years (i.e., willing to independently complete a risk assessment), risk assessment-first screening probably reduces hip fractures (6.2 fewer per 1,000 (95% confidence interval [CI] 2.8 to 9.0 fewer)). Screening also probably reduces all clinical fragility fractures (defined as a clinical fragility fracture or major osteoporotic fracture (5.9 fewer per 1,000 (95% CI 0.8 to 10.9 fewer)). These were re-estimated using Canadian fracture rates (10-year follow-up from 1995-2005) resulting in 4.0 fewer (95% CI 1.8 to 5.8 fewer) hip fractures and 11.9 fewer (95% CI 1.7 to 21.8 fewer) clinical fragility fractures per 1000 screened respectively.

In males aged ≥ 65 years, evidence was very uncertain for hip fractures and therefore did not establish a benefit. Evidence for females aged 45-54 years was very uncertain for hip and clinical fragility fractures and therefore did not establish a benefit. No randomized controlled

trials (RCTs) were found for females aged 55-64, males aged 40-64 years or on screening intervals.

Harms of screening include overdiagnosis (i.e., individuals correctly classified as high risk (labelled) but who would never have known this nor experienced a fracture and therefore are exposed to further assessments or preventive pharmacotherapy without any possible benefit) and adverse effects of treatment (e.g., reflux). Rare but serious harms of atypical femoral fracture and osteonecrosis of the jaw may also be increased.

Rationale

In the judgment of the task force, for females aged ≥ 65 years, the reduction in hip and clinical fragility fractures outweighs potential risks of overdiagnosis (of high-risk), non-serious adverse events (AEs) and rare serious AEs of potential medication. This recommendation is conditional due to low-certainty evidence and the indirectness of trial populations.

Risk assessment-first screening was recommended based on methods used in the RCTs, accuracy of Canadian FRAX and reported patient values. CAROC does not allow risk calculation without BMD and was not used in screening RCTs.

Shared decision-making was recommended based on patient acceptability and varying FRAX thresholds for BMD access in the trials. This allows patients to consider preventive pharmacotherapy once they understand their individual risk (prior to BMD). Decision aids outlining individual fracture risk and possible treatment effectiveness have been produced for this context https://frax.canadiantaskforce.ca/.

Evidence on benefits for females aged 40-64 years and males ≥ 65 years was very uncertain. There was no evidence for males aged 40-64 years. Existing Canadian guidance does not recommend BMD for females < 65 years (without elevated risk). Screening males is not standard practice in Canada with low participation despite a 2010 recommendation to screen those ≥ 65 years. Considering the risk of overdiagnosis (of being at “high-risk”) and small increased risk of AEs associated with treatment, we recommend against screening females 40-64 and males ≥ 40 years. These recommendations are strong because there was no direct evidence establishing a benefit (evidence was uncertain or indirect), there was low to moderate-certainty for harms and hence, and the task force places a high value on not expending

resources on interventions with no established benefit. This is consistent with the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach, where strong recommendations can be based on very low-certainty evidence if there is evidence of harm or high resource implications.

The views expressed herein do not necessarily represent the views of the Public Health Agency of Canada.