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PREVENTION. CARE. RECOVERY.
Te Kaporeihana Āwhina Hunga Whara

# ACC Review:

A DISTILLATION OF BEST PRACTICE REFLECTING ACC'S CURRENT POSITION

## Hip Fracture Prevention

### In people aged 65 years and over

- High fracture risk is assumed in women (≥70 years) and men (≥75 years) in institutional care or with significant cognitive impairment, and women ≥80 years and men ≥85 years living in the community
- Community based people at high risk of fracture include women aged 70-79 years (or ≥65 if BMD low) and men aged 75-84 years (or ≥70 if BMD low) with:

| Women | Men |
|---|---|
| One or more of: visual impairment (acuity 6/30 or worse), fracture in the previous year, frequent falling, type 2 diabetes (women only) | |
| Use of anticonvulsants, opioids (including propoxyphene containing pain medication), corticosteroids (>prednisone 5mg per day or equivalent), psychotropics, or class Ia antiarrhythmics | |
| Three or all of: personal or maternal history of fracture, smoking, low BMD (>65 years BMD 2SD's or >75 years 1SD below normal for age) | |
| A low BMD (>70 years BMD two standard deviations (SD), or >80 years one SD below normal for age), and history of: smoking; spine, hip or wrist fracture; stroke; or other reasons for immobility. | |

- The following strategies can reduce the incidence of hip fractures:
  - in frail women aged ≥80 years and men aged ≥85 years living in institutional care – vitamin $D_3$ and calcium supplementation, compliance with hip protectors
  - in community-based women aged ≥80 years and men aged ≥85 years fall – prevention programmes
  - in community-based women assessed as high risk aged <80 years – bisphosphonates

## Background

Effective early prevention of hip fracture can reduce the future burden of illness. A recent guideline on the prevention of hip fracture amongst people 65 years and over can help to achieve this goal.[1]

## Risk Assessment[1]

Until data is available to accurately describe an individual's 5-10 year absolute risk[2] an assessment of known risk factors should be undertaken. Studies indicate that women are at greatest risk, and that risk increases with age. Other risk factors include living in institutional care, significant cognitive impairment, some medications and medical conditions, personal history and life style factors, and low bone mineral density (BMD). At present the available evidence does not support the use of BMD measurement for population screening and there is only limited evidence that its use in selected 'at risk' individuals is effective in reducing the risk of future fracture. The simple calculated osteoporosis risk estimation (SCORE) and osteoporosis risk assessment instrument (ORAI) can assist in BMD assessment

### Assumed as high risk

Women and men aged ≥80 and ≥85 years living in the community and those aged ≥70 and ≥75 years living in institutional care or in the community with significant cognitive impairment are assumed to be high risk.

### Community based risk assessment

*Concurrent conditions & medications:* women ≥70 years and men ≥75 years with one or more of the following: visual acuity 0.2 (6/30), history of fall with fracture in the previous year, frequent falling, type 2 diabetes (evidence for women only). Use of any one of the following medications: anticonvulsants, opioids (including propoxyphene containing pain medication), corticosteroids (prednisone doses >5mg per day or equivalent), psychotropics, or class la antiarrhythmics.

*Personal history & life style factors:* women ≥70 years with any three or more of the following: smoking history, low body mass index, personal and/or maternal history of previous fracture. Men ≥75 years with any of the following: smoking history, low body mass index, history of spinal, hip or wrist fracture, or of stroke.

*Bone mineral density:* women ≥65 years and men ≥70 years with a BMD two standard deviations (SD) below normal for age (Z-score >-2.0). Women ≥75 years and men ≥80 years with a BMD one SD below normal for age (Z-score >-1.0). Other risk factors in addition to BMD should be considered in the decision to intervene.

## Fall Prevention Strategies[1]

Life style advice and visual acuity correction (if required) should be given. A fall risk assessment is recommended for individuals in the community with consideration of gait/balance, medications, lower limb joints, and neurological and cardiovascular assessment.

### Programmes

Falls in community-based women ≥80 years and men ≥85 years can be reduced by:

- a programme of muscle strengthening and balance training, individually prescribed by a trained health professional in primary health care settings (e.g. physiotherapists)
- multidisciplinary, multifactorial health / environment screening / intervention programmes
- assessment, advice and facilitation of home environment modification, by trained occupational therapists (as shown in experimental situations).

The programmes appear to have similar parameters of efficacy. It is estimated that for every three to ten people in a fall prevention programme one fall may be prevented.

### Medication

Daily supplementation with vitamin $D_3$ and calcium is effective in reducing hip fracture rates in high risk people in institutional care with an estimated one in every 25 people treated prevented from having a fracture. Treatment should also be considered in other high risk people who have sustained a hip fracture and/or on corticosteroid therapy.

The bisphosphonates (e.g. alendronate, etidronate) are effective in reducing hip and other fracture rates in high risk community-based women <80 years. The effectiveness in older women has not been confirmed. HRT may be effective in reducing fracture risk in women ≥65 years. However, the risks of HRT therapy may outweigh potential benefits and therefore it is not recommended as first line prevention.

(ACC contributes to the cost of pharmaceuticals required by claimants who have a personal injury accepted for cover. ACC would not generally fund preventative medications).

### Hip protectors

Provided that compliance is achieved, hip protectors reduce the incidence of fractures in older people in institutional care. Compliance is limited by the potential of the hip protectors to deteriorate rapidly and the higher level of staff support required by wearers. Although there is considerable uncertainty surrounding the cost-effectiveness of prevention strategies, there is some evidence to suggest that hip protectors may be less cost-effective than calcium and vitamin $D_3$ supplementation even though both approaches appear to have similar efficacy.

## ACC Initiatives

ACC is expanding the availability of two exercise based fall prevention programmes for older community dwelling adults.

- The Otago Exercise programme is a home delivered exercise programme administered by appropriate health care professionals to the 80+ age group.
- Modified, group based Tai Chi helps build confidence and has several other health benefits including affective improvement and social contact.

Further information about these programmes including regional availability can be obtained from the ACC website or an Injury Prevention Consultant.

Within institutions ACC is currently conducting a hip protector demonstration project. The aim of the project is to assess effectiveness and evaluate wearers compliance and satisfaction. ACC is also, in association with a large IPA, currently piloting a multifactorial fall risk screening process. The results from both initiatives are expected later this year.

## References & Grades of Recommendations


1. The full 2003 guideline "Prevention of Hip Fracture Amongst People Aged 65 Years and Over" can be obtained at www.nzgg.org.nz
2. Kanis JA, et al. Ten-year risk of osteoporotic fracture and effect of risk factors on screening strategies. Bone 2002;30:251-8