Physiotherapy Services in Osteoporosis Management

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Osteoporosis

“A condition of skeletal fragility due to decreased bone mass and to microarchitectural deterioration of bone tissue, with consequent increased risk of fracture (WHO, 1994)”

Burden of illness

- 51% of hip fracture in Asia by 2050
- Hip fracture increased by 30% in 30 years
- 50% of postmenopausal women and elderly men diagnosed as osteoporotic
- 30% of elderly women and 17% of elderly men had vertebral fracture

Osteoporosis in HK

- Over 0.4 million Hong Kong people are suffering from osteoporosis
- At least 10 elderly people fracture their hip per day due to osteoporosis
- Incidence rate of female are 3 times more than that of male
Common sites of osteoporotic fractures

Age specific incidence rates for hip, vertebral, and distal forearm fractures in men and women

Mortality and morbidity due to hip fracture is high

Vertebral Fracture:

- An important risk factor
- If one with a Hx of vertebral #:
  Future vertebral #: increase 4 X
  Other # (e.g. Hip) : increase 2 X
- Any prior # after age 50: RR 1.76 for further #
- Once got fracture, fracture risk increases
- Need to take active treatment to revert the situation
The incidence of falls in HK

- One in five elderly falls annually
- 40,000 elderly had falls and consulted A&E Dept
- 24.8% of fallers had fractures
- 72.2% had life threatening conditions e.g. head injuries
  (Leung & Chan, 2005)

Common Reasons of falls in HK

- Previous white collar employment
- Poor self-perceived health
- Dizziness
- Presence of CVA
- Difficulties in ADL
- BMI (20 – 24: i.e. normal to slightly obese)
- Slow gait velocity
- Non-practice of Morning Walk
- Use of local skin preparations such as analgesics balms or plasters
  (Ho, 2005)

The consequence of fall in an osteoporotic sufferer will be a fracture as an end result!!

What physiotherapists can help….

At the community
1. Early identification and prevention
   (Fall prevention/osteoporosis screening programs at community level)
2. Community Participation (video show)
   (Community exercise classes)
3. Patient education and empowerment
   (Health education)
Early identification and prevention

Community Participation

- Cooperation with Elderly Service Centres/NGO
- Self-help groups
- Use of outside hospital networks
- Innovative in teaching exercises: dance, free weight, theraband, fitball
- As technical and support persons
- Train-the-trainers

Encourage suitable hobbies

Weight Training at Community Centres
What physiotherapists can help….

• Pain Relief/ Pain Control
• Postural Correction
• Weight-bearing Exercises: High, medium, Low impact
• Reduce joint stiffness
• Increase muscle strength/ endurance
• Improve balance
• Prevent fall and fracture

Knowing the suitable and appropriate osteoporosis medications and working with the patients’ doctors

• For osteoporosis in the Spine only/ Hip only/ Spine & Hip
• For men & women/ or women only
• For effective pain relief in patient with osteoporosis
• The possible adverse effects or CI
• Drug compliance

Know your weight-bearing exercises

• High impact: skipping, stairs running, ball games
• Medium Impact: Hiking, Line dancing, Fast pace social dance
• Low impact: walking, Tai Chi, Slow pace social dance, Physical activities in standing position

Benefit of exercise

• Reduce the rate of bone loss
• Strengthen muscles
• Correct posture
• Improve quality of life
Design Exercise Programs

• Safety! Safety! Safety!
• Be practical and achievable
• Is supervision required or not?
• Progression: when and how?
• Is it simple to follow?

Before starting exercise

• Know their abilities
• Seek medical advice if appropriate
• Wear proper sports attire and shoes
• Select suitable venue
• Drink water
• Do exercise on a regular basis
• Exercise daily for 30 to 60 minutes
• The exercise programme should cover all types

Exercise programme

• Warm up
• Core exercise
• Cool down

Warm up
(Exercise to mobilize joints)

- Bend the neck sideways
- Turn the trunk to left & right
- Shoulder forward circles
- Arm backward circles
- Tiptoes circles
- Stepping (can hold on a chair)
Warm up
(Stretching exercise)

- Triceps
- Latissimus Dorsi
- Biceps & forearm muscles
- Hip flexors
- Hamstrings
- Calf

Core exercise
(Muscle strengthening exercise)

- Lift weight overhead
- Biceps curl with weight
- Wrist up and down
- Hold fist

Core exercise
(Muscle strengthening exercise)

- Step forward and raise both arms
- Knee extension in sitting
- Chair stand
- Raise thigh sideway

Core exercise
(Muscle strengthening exercise)

- Bend hip in standing
- Bring hip backward
- Bend knee in standing
- Lunge walking with weights
Weight bearing exercise and aerobic exercise

In general

- Walking, Brisk walking

Patients with poor physical fitness

- Tai Chi, Tai Chi sword

Balance training
(Walk 5 min. for each exercise)

Balance Training

Walk on toes
Walk on heels
Tandem walking
Fall prevention (I)

- Keep adequate lighting
- Tidy up wires
- Wear proper glasses
- Wear shoes with non-slippery sole

Fall prevention (II)

- Frequently used items should be stored easy accessibly
- Consult your doctor if feeling dizzy after taking drugs
- Install handrail and place a non-slippery mat
- Wear hip protector for patients with poor balance