

ASSESSMENT OF 30 MCQs

FPSC No : 83
MCQS ON OSTEOPOROSIS - 2019 UPDATE
Submission DEADLINE: 3 DECEMBER 2019, 12 NOON

INSTRUCTIONS

- To submit answers to the following multiple choice questions, you are required to log on to the College Online Portal (www.cfps2online.org)
- Attempt ALL the following multiple choice questions.
- There is only ONE correct answer for each question.
- The answers should be submitted to the College of Family Physicians Singapore via the College Online Portal before the submission deadline stated above.
- There will be NO further extension of the submission deadline

1. **We should consider a drug holiday if:**
 - A. A patient has been on bisphosphonates for five years even if they are still having high fracture risk
 - B. A patient has been on teriparatide for two years.
 - C. A patient has been on denosumab for five years and have low risk of fracture
 - D. A patient has been on Raloxifene for five years
 - E. A patient has been on alendronate for five years and fracture risk are low
2. **A patient should have their Bone Mineral Density tested using DXA if:**
 - A. She is 60 years and above with no risk factors
 - B. She is 63 years old with moderate risk on OSTA and no other risk factors
 - C. She is 58 years old and had menopause at 42 years old
 - D. She is 62 years old with no risk factors other than a fracture during a fall from bicycle when she was 18 years old
 - E. She is 55 years old and on hormone therapy for perimenopausal symptoms
3. **Which of the following patient has osteoporosis?**
 - A. A 62 years old woman with high risk on OSTA
 - B. A 60 years old woman with high risk of fracture on FRAX without BMD measurement
 - C. A 60 years old woman with T-score at spine -2.0 and T-score at hip=-2.2
 - D. A 60 years old woman with T-score at spine -2.8 and T-score -1.2
 - E. A 58 years old woman who had an avulsion fracture of right 5th metatarsal after an ankle sprain
4. **For effective reduction of fragility fractures, the most appropriate management should be:**
 - A. Treatment with Alendronate for five years
 - B. Confinement of patient to bed so she does not fall
 - C. Falls prevention with balance exercises
 - D. Adequate Vitamin D and calcium intake
 - E. Combination of medical treatment and falls prevention
5. **Which of the following medication has been shown to reduce the risk of vertebral, non- vertebral and hip fractures significantly?**
 - A. Alendronate
 - B. Teriparatide
 - C. Ibandronate
 - D. Raloxifene
 - E. Tibolone
6. **Which of the following scenario constitute fragility fracture?**
 - A. T5, T12 and L4 compression fracture after fall from height
 - B. Shaft of femur after road traffic accident
 - C. Distal Radius fracture after fall on outstretched hand
 - D. Distal fibula fracture after tackle during soccer
 - E. 3rd to 5th Metatarsal fractures after car wheel rolled over foot
7. **Which of the following is NOT a risk factor for osteoporosis?**
 - A. Ageing
 - B. Early Menopause
 - C. Smoking
 - D. Regular exercise
 - E. Diabetes Mellitus
8. **Which of the following test is NOT useful in the evaluation of secondary causes of osteoporosis?**
 - A. Full Blood Count
 - B. Corrected Calcium
 - C. 25-OH vitamin D
 - D. Spot urine calcium/creatinine ratio
 - E. Free T4

9. For a 75year old female patient, appropriate dietary advice would include

- A. Daily calcium intake of 800mg/day and Vit-D intake of 600IU/day
- B. Daily calcium intake of 1000mg/day and Vit-D intake of 600IU/day
- C. Daily calcium intake of 1200mg/day and Vit-D intake of 600IU/day
- D. Daily calcium intake of 1000mg/day and Vit-D intake of 800IU/day
- E. Daily calcium intake of 1200mg/day and Vit-D intake of 800IU/day

10. A 57 year old peri-menopausal patient presents to you after she slipped and fall and sustained a left IT fracture for which she undergone surgery. She has a past medical history of DM. Her weight is 70kg and her height is 160cm. Previous height on system was 162cm 3 years ago. She works as a cleaner. The next most appropriate step is:

- A. Calculate FRAX score
- B. Calculate OSTA score
- C. Perform DXA scan for patient
- D. Diagnose osteoporosis
- E. Perform a lumbar spine XR to look for compression fractures

11. Post-menopausal women with type 2 Diabetes have an increased risk of hip fracture compared to non-diabetic women by

- A. 10-20 percent
- B. Inadequate evidence to comment on risk of hip fractures in DM2 patients
- C. 40-70 percent
- D. Equal risk of hip fracture, no increased risk
- E. Increased risk of falls but not hip fracture

12. Which of these anti-diabetes medications adversely affects the risk of fracture in DM2 patients?

Metformin
Sulfonylurea
Thiazolidinediones
DPP4i
GLP1RA
SGLT2-I
Insulin

- A. All of the above
- B. Thiazolidinediones
- C. Sulfonylurea
- D. Insulin
- E. Thiazolidinediones, Sulfonylurea and Insulin the latter two through risk of hypoglycemia

13. What would your target HbA1C be in the management of DM2 patients at risk of fragility fracture?

- A. Higher HbA1C target (above 7.5 percent) as to avoid risk of hypoglycemia
- B. Stricter HbA1C target (less than 6.5 percent) to reduce risk of complications such as neuropathy and retinopathy
- C. Usual HbA1C target at 7.0 percent
- D. Individualised HbA1C target to balance need for good glycemic control for reduction of DM2 complications and risk of hypoglycemia on treatment
- E. Between 6.5-7.5 percent

14. A post-menopausal woman with type 2 DM came to you in clinic to discuss her risk of fragility fracture. Her BMD results show a T score of -2.0 at the femoral neck. What would your advice to her be?

- A. Reassurance, as her T score is in the osteopenic range according to the WHO criteria, she doesn't need any treatment with anti-osteoporosis drugs at the moment
- B. Advise her that as she hasn't had any fragility fractures, no treatment is needed at the moment
- C. Explanation that although her risk of fragility fracture with DM2 is elevated, her T score is in the low risk range and she doesn't need any treatment with anti-osteoporosis drugs
- D. Discuss management of her DM2 glycemic control to improve her bone health
- E. Explanation that as a patient with DM2, her T score may be paradoxically elevated despite her higher fracture risk. Her T score should be adjusted by 0.5 SD lower to -2.5. And hence she would need treatment with anti-osteoporosis drugs

15. Which of these anti-osteoporosis drugs can be used in the treatment of osteoporosis in suitable DM2 patients?

Oral Bisphosphonates e.g. Alendronate, risedronate
IV Zoledronic acid
S/c denosumab 60 mg six monthly
Teriparatide

- A. None of the above as there are no DM2 specific studies for osteoporosis treatment
- B. None of the above but recommend calcium and vitamin D intake
- C. Only denosumab as it is safer in patients with renal impairment, together with adequate calcium and vitamin D intake
- D. Only teriparatide as it is an anabolic agent to help with bone formation, together with adequate calcium and vitamin D intake
- E. Any of the above, together with adequate calcium and vitamin D intake

16. In cases where an osteoporotic fracture is suspected

but radiographs are normal, we should advise the patient to consider:

- A. Immobilise the limb/joint
- B. Repeat X-rays in another position
- C. Repeat X-rays seven to ten days later
- D. Perform further imaging for e.g. CT/MRI
- E. All of the above

17. Which of the following is not a recommended treatment for a patient with osteoporotic hip fracture?

- A. Concurrent management by an orthopaedic surgeon and geriatrician to optimize patient condition
- B. Timely surgery for treatment of fracture
- C. Immobilise patient with complete bed rest till fracture heals for undisplaced fractures
- D. Start treatment for underlying osteoporosis
- E. Early rehabilitation and mobilization of patient

18. For distal radius fractures:

- A. Tend to occur in the fit osteoporotic patient
- B. Can be treated with manipulation and casting in stable fractures
- C. Patients will be at higher risk of subsequent fractures
- D. None of the above
- E. All of the above

19. For vertebral compression fractures:

- A. Most patients will have severe pain
- B. Majority of patients are asymptomatic and have no pain
- C. Surgical treatment is standard of care
- D. Kyphoplasty gives better results than vertebroplasty
- E. Is usually due to trauma

20. For osteoporotic fractures:

- A. Surgical treatment is always preferred in view of poor bone healing
- B. Patients will have poor outcome regardless of the type of treatment
- C. Prevention and treatment of osteoporosis will not reduce the risk of fractures
- D. Newer implants designed for osteoporotic bone, for e.g. locking plates and screws, has improved the outcome of surgical treatment
- E. All types of hip fracture patients should have a total hip replacement surgery as soon as possible

21. Recommended first line tests to exclude secondary osteoporosis in an asymptomatic elderly patient would include all of the following, except:

- A. Serum creatinine
- B. Serum calcium
- C. Osteocalcin

- D. Thyroid stimulating hormone
- E. Spot urine calcium/creatinine ratio

22. A 55-year-old man, with bone mineral density T-score -3.2 over the lumbar spine, and T-score -2.8 over the Total Hip, and had previous Colle's fracture three years ago when he fell on outstretch hand. He does complain of some difficulty with libido but otherwise is coping well. The appropriate next step would be to:

- A. Start treatment with oral bisphosphonates
- B. Start testosterone replacement
- C. Check random free testosterone
- D. Check morning total testosterone
- E. Check bone turnover markers

23. A 48-year-old woman with epilepsy since young, has been seizure free for past five years while on sodium valproate. She had gone for a heel ultrasound test during a calcium supplement roadshow in the mall that suggested that she has osteoporosis. She is 1.50 m and 48 kg, and has some aches over her shoulders but otherwise fairly unremarkable clinical exam. You send her for formal bone mineral density testing (DXA) and it is T-score -2.2 over the lumbar spine and T-score -1.8 over the Total Hip. You would:

- A. Reassure her that she does not have osteoporosis and no further action is needed
- B. Stop the sodium valproate as it has negative impact on Bone Mineral Density and fracture risk
- C. Prescribe her elemental calcium 2000 mg per day to help retard bone loss
- D. Prescribe her with vitamin D3 1000 IU per day
- E. Encourage her to put on weight as low bodyweight is a risk factor for osteoporosis

24. A 62-year-old woman was diagnosed with osteoporosis T-score -2.6 over lumbar spine and T-score -2.2 over the Total Hip. She has Diabetes mellitus for past five years, HbA1c 7.5 percent on Jardiance 10 mg daily and Metformin 500 mg twice daily with mild retinopathy and her latest serum creatinine is 98 $\mu\text{mol/L}$, estimated eGFR 48 ml/min. Her calcium is 2.30 mmol/L (reference 2.10 to 2.60 mmol/L), her phosphate is 1.2 mmol/L (reference 0.80 mmol/L to 1.4 mmol/L), her albumin is 38 g/L and 25 hydroxyvitamin D is 28 mcg/L. You would:

- A. Optimize control of diabetes mellitus as it is a risk factor for osteoporosis
- B. Refer her to renal specialist as renal osteodystrophy cannot be excluded
- C. Consider starting her on SC denosumab, together with calcium/vitamin D supplements
- D. Avoid giving her vitamin D as her 25 hydroxyvitamin D level is already above 20 mcg/L
- E. Stop the SGLT-2 inhibitor Jardiance as it may reduce BMD and worsen osteoporosis

25. A 58-year-old man was diagnosed with osteopenia T-score -2.0 lumbar spine and T-score -2.2 over the Total Hip. He does have low back pain from time to time, but otherwise is ADL independent. His mother had a hip fracture at age 70 and he is worried about his fracture risk and wants to know how to improve his bone health. He is already taking calcium and vitamin D supplements. You decided to conduct basic evaluation and his full blood count, kidney, liver tests are all unremarkable. His corrected serum calcium and phosphate are normal. His 25 hydroxyvitamin D level is 35 mcg/L. However, when you performed a random spot urine calcium and spot urine creatinine (urine calcium and urine creatinine in mmol/L) and calculated the ratio, it exceeded the 0.6 cut-off.

You would:

- Diagnose idiopathic hypercalciuria and start patient on thiazide to reduce hypercalciuria
- Stop his calcium and vitamin D supplements and repeat the spot urine calcium and urine creatinine
- Stop his calcium and vitamin D supplements and do a 24-hour urine calcium and creatinine test
- Reassure patient that spot urine calcium and spot urine creatinine can be falsely high post-prandial and to repeat it in a fasting state
- Reassure patient that since he does not have osteoporosis, we can wait to repeat both the BMD and urine calcium in 1 year's time and trend the progress

26. What is the most important aspect in the management of glucocorticoid induced osteoporosis (GIOP)?

- Use the lowest dose of glucocorticoid for the shortest duration of time to control or treat the disease and consider steroid sparing agent when appropriate.
- Affordable BMD to allow early diagnosis and monitor treatment response
- Affordable effective GIOP therapy so that every patient can be treated
- Empower patient through health literacy improvement and self-management training
- Accessible and convenient care provided by family physician

27. GIOP is an important disease to prevent and treat because:

- GIOP is associated with other chronic diseases
- There is now medicine to treat GIOP
- Fractures may lead to loss of quality of life and death
- GIOP can lead to fracture
- GIOP can lead to falls due to glucocorticoid induced myopathy

28. Mdm TAL, was a 75-year-old retired seamstress who was on two years of prednisolone 5 mg a day for systemic lupus erythematosus treatment. She has a

previous history of L2 vertebra fracture. She has maternal history of hip fracture but no other risk factors for osteoporosis. Her weight was 56 kg and height were 156 cm. Her Hologic BMD measurement of neck of femur was 0.590 g/cm² (T score -2.2). Her FRAX score is

- Major osteoporotic 37, Hip fracture 24
- Major osteoporotic 53, Hip fracture 38
- Major osteoporotic 63, Hip fracture 49
- Major osteoporotic 31, Hip fracture 11
- Major osteoporotic 21, Hip fracture 7.7

29. Mdm TAL, was a 75-year-old retired seamstress who was on two years of prednisolone 5 mg a day for systemic lupus erythematosus treatment. She has a previous history of L2 vertebra fracture. She has maternal history of hip fracture but no other risk factors for osteoporosis. Her weight was 56 kg and height were 156 cm. Her Hologic BMD measurement of neck of femur was 0.590 g/cm² (T score -2.2). She would urgently need osteoporosis treatment because of her:

- OSTA moderate risk, osteopaenic on BMD, FRAX low risk
- OSTA high risk, osteoporotic on BMD, FRAX low risk
- OSTA moderate risk, osteoporotic on BMD, FRAX moderate risk
- OSTA high risk, osteoporotic on BMD, FRAX moderate risk
- OSTA high risk, osteopaenic on BMD, FRAX high risk

30. Mdm TAL, was a 75-year-old retired seamstress who was on two years of prednisolone 5 mg a day for systemic lupus erythematosus treatment. She has a previous history of L2 vertebra fracture. She has maternal history of hip fracture but no other risk factors for osteoporosis. Her weight was 56 kg and height were 156 cm. Her Hologic BMD measurement of neck of femur was 0.590 g/cm² (T score -2.2). She has chronic kidney disease stage 3 disease due to previous NSAIDs use. Which of the following GIOP treatment will be most appropriate for her?

- Oral bisphosphonates
- IV bisphosphonates
- Alfacalcidol
- Denosumab
- Teriparatide

FPSC 78 "Chronic Disease Management" Answers to 30 MCQs Assessment				
1. C	2. A	3. E	4. B	5. D
6. D	7. C	8. A	9. E	10. B
11. D	12. E	13. D	14. C	15. A
16. A	17. B	18. E	19. C	20. E
21. B	22. E	23. C	24. A	25. D
26. B	27. D	28. E	29. C	30. E