Quiz feedback:

Bones & Joints/CVD risk assessment

In BPJ 17 (October 2008) we covered several issues in relation to "bones and joints" including prevention of osteoporosis, symptomatic management of osteoarthritis and monitoring of disease modifying anti-rheumatic drugs (DMARDs) in rheumatoid arthritis.

We also covered the PHO performance indicator of "cardiovascular risk assessment".

GPs were invited to complete a quiz about the articles in the journal. Dr Rebecca Grainger and Dr Michael Crooke provide expert commentary on several key issues that were highlighted.

A full version of the quiz feedback can be found online at **www.bpac.org.nz** (search by Publication/CME Quiz feedbacks).

Bones and Joints

Osteoporosis

Who should receive calcium supplementation and what interactions are important (i.e. what drug/food combinations should be avoided)?

Total calcium intake of 1 g per day should be recommended for all patients taking bisphosphonates for osteoporosis or Paget's disease, due to the theoretical risk of mild hypocalcaemia. For most patients this is in the form of calcium supplements. However, recent data from the Auckland Calcium Study showed calcium supplementation was associated with an increased rate of myocardial infarction in elderly women, and other recent studies have also observed this trend. Therefore daily 1 g calcium supplements should be avoided in people over the age of 70 years and those with known coronary heart disease. An alternative in the over 70 age group is a 500 mg calcium supplement and increased dietary calcium to ensure total calcium intake of 1 g daily. Calcium supplements can continue to be used in younger women without coronary heart disease who wish to optimise bone health with supplemental calcium.

Calcium supplements can decrease the absorption of fluroquinone and tetracycline antibiotics, thyroxine and phenytoin. These agents should be taken one to two hours before or four hours after calcium supplements. Calcium supplements can potentially decrease levels of digoxin or increase risk of digoxin toxicity via hypercalcaemia. Thiazide diuretics can increase the risk of hypercalcaemia and hypercalciuria. Monitoring of electrolytes in patients

The questions and answers to the bones, joints foods and CVD risk assessment quiz are shown in the following table. The right hand column shows the percentage of GPs that selected each answer.

1.	Assessment of bone mineral density by DEXA scan is:	
	☐ The gold standard for diagnosing osteoporosis	96%
	☐ Indicated for all postmenopausal women	4%
	☐ Required for all people who have had an osteoporotic fracture	13%
	☐ Reported as a T score when compared to the young adult mean	85%
	☐ Required before treatment with a bisphosphonate can commence	9%
2.	Risk factors for generalised osteoporosis include:	
	☐ Crohn's disease	85%
	☐ Thyrotoxicosis	94%
	☐ Use of regular inhaled corticosteroids	24%
	☐ Diabetes	67%
	☐ Māori ethnicity	5%
3.	Core therapies for osteoarthritis include:	
	☐ Rest for reducing pain induced movement	7%
	☐ Weight reduction (if overweight)	98%
	☐ Using shock absorbing shoes	69%
	☐ Learning psychological strategies for coping	67%
	☐ Acupuncture	4%
4.	Recommended pharmacological treatments for osteoarthritis include:	
	☐ Topical NSAIDs	89%
	☐ Capsaicin cream	92%
	☐ Heat rub e.g. Deep Heat	23%
	☐ Oral NSAIDs	93%
	☐ Codeine	79%
5.	Disease modifying anti-rheumatic drugs (DMARDs):	
	☐ Should be initiated as soon as possible after diagnosis of rheumatoid arthritis	95%
	☐ Should not be tried unless all other pharmacological treatment has failed	2%
	☐ Should never be used in combination with each other	3%
	☐ Have an onset of action between two to six months	84%
	☐ Can be associated with blood dyscrasias	92%

6.	By what age should cardiovascular risk assessment begin for a European woman with no risk factors?	
	☐ 35 years	<1%
	☐ 45 years	6%
	☐ 55 years	93%
7.	For the woman above, what risk factors would indicate performing cardiovascular risk assessment earlier?	
	☐ Sedentary lifestyle	25%
	☐ Drinking >14 units alcohol per week	31%
	☐ Smoking	98%
	☐ Truncal obesity	91%
8.	What is the best approach for undertaking cardiovascular risk assessments?	
	☐ Scheduling a formal cardiovascular risk assessment with high risk patients	86%
	☐ Opportunistic risk assessment with eligible patients	83%
	☐ Building a picture over time by collecting details of risk factors over several consultations	39%
	☐ Only undertaking cardiovascular risk assessments when requested by patients	0%
9.	Which of the following statements about communicating cardiovascular risk are true?	
	☐ Understanding risk can be confusing for many people	91%
	☐ Crowd diagrams are the most powerful tool for communicating risk	15%
	☐ Analogies should be tailored to situations familiar to the patient	94%
	☐ At the first consultation it is best to outline all the changes a patient should make	7%
10.	Which of the following statements are true?	
	☐ Māori and Pacific men aged over 35 are at increased risk of CVD	97%
	☐ Māori and Pacific rates of assessment for CVD are low compared with European New Zealanders	62%
	☐ Māori and Pacific people are less motivated to make lifestyle changes	22%
	☐ Whānau can play an important role in healthcare decisions	97%

taking digoxin and thiazide diuretics should include serum calcium. Calcium reduces absorbance of bisphosphonates so these agents should never be taken at the same time.

There are some theoretical food interactions affecting dietary calcium absorption but these are unlikely to be of practical concern. Caffeine has a small effect on calcium absorption and can temporarily increase calcium excretion. The calcium deficit generated by one cup of brewed coffee is estimated to be 2–3 mg, which is easily offset by other sources of dietary calcium. Alcohol can potentially inhibit calcium absorption directly and indirectly by decreasing liver conversion of vitamin D to its active form. The amount of alcohol that has a measurable impact on calcium balance is unknown. It seems that minimising intake of caffeine containing beverages and alcohol may be prudent advice for people interested in optimising calcium intake.

Should all people at risk of deficiency be given regular vitamin D supplementation?

Vitamin D supplementation can be given to all individuals at risk of deficiency, without need for vitamin D testing. The vitamin D recommendation remains cholecalciferol (Cal-d-Forte) once daily for 10 days and then one monthly thereafter. This subject has been discussed in detail at; **www.bpac.org.nz keyword: vitamind**

The most common osteoporotic fracture sites are the spine, hip and wrist. However can fractures at other sites be classified as fragility fractures?

A fragility fracture is one that occurs with mechanical forces that would not ordinarily cause a fracture in a healthy young adult. Since osteoporosis is a systemic disease, fractures at other sites could be considered fragility fractures by this definition. Other sites might include humerus, ankle, pelvis and tibia. Any previous fragility fracture increases risk of subsequent fracture.

Is there any evidence of benefit for the use of hip protectors?

Hip protectors are undergarments with padding over the trochanters which disperse the impact of a fall. A recent Cochrane review of hip protectors, found a marginally statistically significant reduction in hip fracture incidence with hip protector use in individuals in residential care, but no decrease in community dwelling populations. Although safe and non-invasive, non-compliance over the long term limits the practical use of hip protectors.

Is the use of inhaled corticosteroids a risk factor for osteoporosis?

There is data that higher cumulative doses of inhaled corticosteroids are associated with loss in bone mineral density. Bone mineral density and osteoporosis prevention should be considered for patients who have reached a cumulative inhaled steroid dose of 5000 mg e.g. dose > 1 mg/day (beclomethasone 250 mcg four puffs per day) for greater than 14 years or cumulative equivalent.

Why is diabetes a risk factor for osteoporosis? Is this both type 1 and type 2 diabetes?

There is increased risk of osteoporotic fracture for women with both type 1 and type 2 diabetes. Women with type 1 diabetes are at risk of low bone mineral density, which is often worse because of the longer duration of diabetes. Type 2 diabetes is often associated with higher body mass, usually protective against loss of BMD, however microvascular disease affecting bone quality may contribute to the observed higher fracture rate in type 2 diabetes. People with diabetes are also at increased risk of falls due to peripheral and autonomic neuropathy, visual impairment from retinopathy or cataracts and hypoglycaemia.

Osteoarthritis

Although self management strategies for coping are very important, in practice this is an area that is often neglected in a consultation, due to lack of time and resources.

Although doctors may not have the time or training to assist their patients in self management strategies, there are community based organisations that can provide this support. Arthritis New Zealand has excellent information and resources for patients, provides support through arthritis educators and runs self-management courses in the community. More information can be found at: www.arthritis.org.nz

The vast majority of people with osteoarthritis are using supplements or alternative remedies.

When patients ask about complementary products, it could be suggested that they use a weekly symptom diary to assess efficacy. It is recommended they keep the diary for one month before and three months after starting an agent, perhaps rating on one to ten their symptoms and making a few notes about how they feel. Then after the three month trial, review the diary, take account of the cost of the agent and decide if the benefits justify continuing use.

Many patients with osteoarthritis avoid eating particular foods such as acidy tomatoes. Is there any basis to the claim that these foods exacerbate symptoms?

There is no good data to support the claim that certain foods exacerbate symptoms of osteoarthritis. The most important interaction between diet and osteoarthritis is that increased weight is a risk factor for onset and more rapid progression of osteoarthritis. Patients should follow standard nutritional guidelines to maintain a healthy body weight and if certain foods exacerbate their symptoms, avoid them.

Rheumatoid arthritis and DMARDs

What are the monitoring tests 6-TGN and 6-MMP useful for?

Measurement of 6-TGN and 6-MMP may assist dosing adjustment in patients, who have had a good therapeutic response to azathioprine, but develop haematological toxicity. These tests should be ordered after discussion with the treating specialist rheumatologist.

6-TGN (6-thioguanine nucleotides) and 6-MMP (6-methylmercaptopurine) are metabolites of azathioprine required for clinical effects (efficacy and toxicity). The metabolism of azathioprine is complex and patients have highly variable 6-TGN and 6-MMP concentrations for a given dose of azathioprine. Algorithms for optimisation of azathioprine dosing in inflammatory bowel disease using 6-TGN and 6-MMP levels have been developed but these are not yet available for rheumatic diseases.

Cardiovascular risk assessment

Can alcohol itself cause ischaemic heart disease or is the effect in combination with other risk factors?

Alcohol is not a risk factor for ischaemic heart disease. There is a dose related association with hypertension. Some studies indicate that moderate alcohol consumption decreases both risk of CVD events and overall cardiovascular mortality but much of the data is confounded. Heavier drinking, in excess of 14–18 drinks per week in women, is associated with increased mortality from other causes and there are similar data for men who take more than three to four drinks daily. The balance of risks and benefits of even light to moderate alcohol consumption are difficult to assess, as there is no long term trial data, and observational data has serious limitations.

Waist circumference seems to have a stronger correlation with cardiovascular risk than BMI. What waist measurement in males and females indicates risk?

Some studies have confirmed that both waist circumference and BMI are indicators of CVD risk but that when adjusted for BMI, waist circumference is a stronger predictor than BMI alone. In other studies the extra strength of waist circumference has been in predicting diabetes with no benefit over BMI in predicting CVD. Waist to hip ratio may be a more powerful indicator of obesity associated CVD risk than any other single measure of obesity. It is true that BMI may be confounded in some individuals but there are considerable practical difficulties in accurately measuring waist circumference in a standardised manner in routine practice. The New Zealand guidelines continue to indicate that BMI ≥ 30 or waist circumference ≥100 cm (men) or ≥90cm (women) should be considered as risk factors. These figures apply mainly to those of European descent.

Is there any evidence to support increased benefit in terms of CVD outcome, with formal organised clinics devoted to screening?

Most guidelines recommend opportunistic screening at a certain age as the minimum requirements but scheduling formal assessments with high risk patients should be a high yield activity. Building a picture over time may be very valuable, especially in younger patients who may have obvious risk factors, but who will not have very high current absolute risk. Using the concept of risk trajectory may be very useful in such individuals, as outlined in the second edition of the New Zealand Cardiovascular Guidelines Handbook (2009), now available online at **www.nzgg.org.nz**

There does not appear to be any data that proves the value of formal clinics devoted to screening, and such a study would be very difficult to complete.

Are rates of CVD assessment for Māori and Pacific peoples lower compared to other New Zealanders?

There is a wealth of data showing ethnic and socioeconomic disparities in the prevalence of cardiovascular disease in New Zealand, and recognised in the recommendation to begin screening ten years earlier in Māori and Pacific peoples. There seems to be no hard data on rates of assessment for risk in different ethnic groups but there is evidence that this earlier time of assessment is not being fully achieved.