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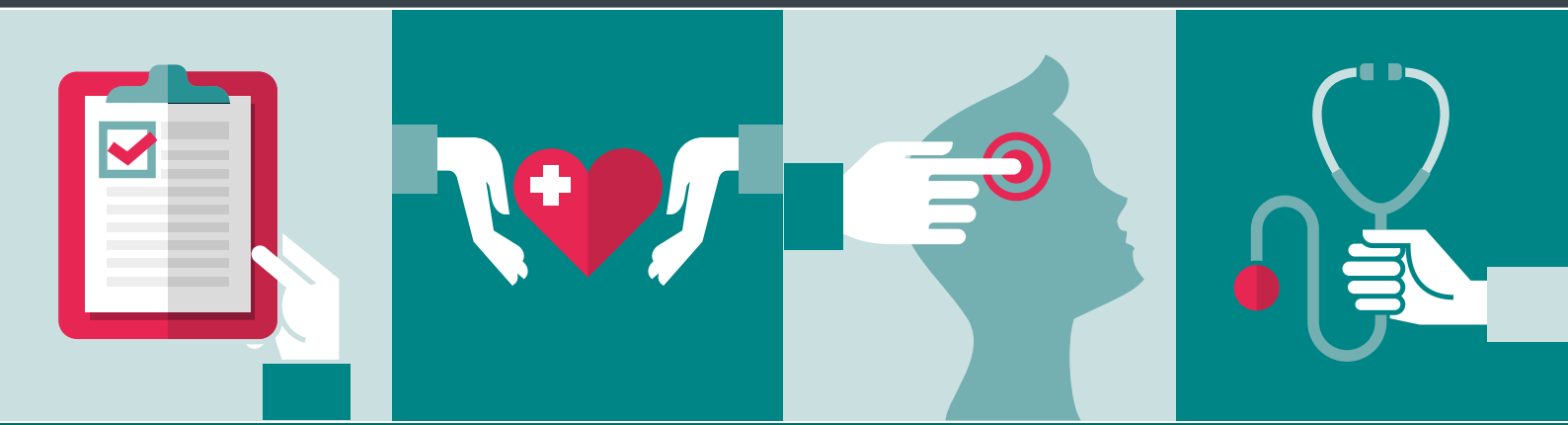
Independent learning program for GPs



Unit 517 June 2015

Stages of life: Midlife

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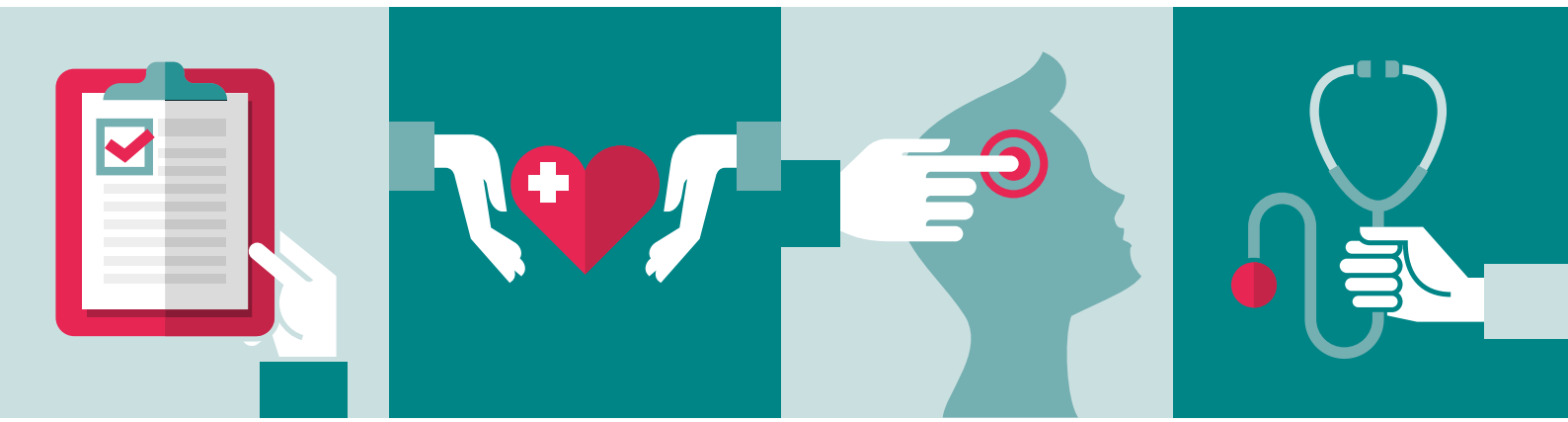

Stages of life: Midlife

Unit 517 June 2015

The five domains of general practice

- Communication skills and the patient-doctor relationship
- Applied professional knowledge and skills
- Population health and the context of general practice
- Professional and ethical role
- Organisational and legal dimensions

RACGP

Midlife can be a time of major life changes, which can have adverse effects on physical and mental wellbeing for many people. Menopause, for example, which generally occurs at the age of 45–55 years, can cause distressing symptoms for many women.[1] In addition to life changes, chronic diseases become more common in midlife[2] and patients aged 45–64 years represent more than one-quarter of the presentations to general practice.[2] Patients in this age group are more likely to rate their health as fair or poor, compared with those aged 25–44 years.[1] Cardiovascular disease and cancer, in particular, continue to be leading causes of morbidity and mortality in midlife.[1] For men, prostate cancer is one of five most diagnosed cancers and is a frequent cause of cancer death.[3]

This edition of *check* explores health issues encountered in general practice that are specifically related to midlife. The cases provide guidance about the management of these issues.

LEARNING OUTCOMES

At the end of this activity, participants will be able to:

- outline treatment options for the symptoms of menopause
- list options for contraception in perimenopausal women
- describe the diagnosis and management of patients with sexually transmissible infections in midlife
- explain the risks and benefits of screening for prostate cancer, and discuss follow up and surveillance protocols for prostate cancer
- summarise the diagnostic findings for dilated cardiomyopathy.

AUTHORS

Deborah Bateson MBBS, MA (Oxon) MSc (LSHTM) (Case 3) is the medical director at Family Planning NSW, clinical associate professor at the University of Sydney, adjunct associate professor at the Australian Research Centre in Sex, Health and Society at La Trobe University and is the current chair of the Australasian Sexual Health Alliance. Dr Bateson is also a member of the NSW STI Program Unit General Practice working group.

Sue Reddish MBBS (Case 5) is a general practitioner at Deakin University Medical Centre, Burwood, and has a special interest in women's health.

Mary Stewart MBBS, DFSRH, MPH (Health Promotion) (Case 3) is the senior medical officer – research and education at Family Planning NSW, and a visiting medical officer in sexual assault for the Northern Sydney Sexual Assault Service. Dr Stewart is also a member of the NSW STI Program Unit General Practice working group.

Jill Thistlethwaite MBBS, PhD,MMEd, FRCGP, FRACGP (Case 1) is an adjunct professor in Medical and Health Professional Education at the University of Technology Sydney (UTS), a general practitioner in Sydney, and a member of the RACGP Education Committee. Dr Thistlethwaite has been involved with health professional education with a strong focus on interprofessional education and collaborative practice for health professionals. Her clinical interests include women's health and sexual health.

May Wong MBBS (Case 4) a conjoint associate UNSW lecturer is currently working at Royal Prince Alfred Hospital, Sydney, as a Basic Physician Trainee.

John Yaxley MBBS FRACS (Case 2) is a urologist in private practice at Wesley Hospital, Brisbane, and a consultant urologist at Royal Brisbane and Women's Hospital. Dr Yaxley has a special interest in prostate cancer.

Julian Yaxley MBBS (Case 2) is a surgical resident medical officer at Redcliffe Hospital, with a special interest in urology and population health.

PEER REVIEWERS

Lalith Baduraliya MBBS, FRACGP works as a general practitioner in the eastern suburbs of Melbourne. Dr Baduraliya has been involved in teaching and training of general practitioner registrars and medical students, and contributed to the FRACGP examinations. He has special interests in early detection, prevention and management of chronic diseases and cancers.

Linda Barrett MBBS, FRACGP has worked as a general practitioner in Sydney, and as a medical educator and examiner for the RACGP. Dr Barrett has developed, reviewed and presented educational content for the RACGP.

REFERENCES

1. Australian Institute of Health and Welfare. Australia's health 2014. Canberra: AIHW, 2014. Available at www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=60129548150 [Accessed 6 May 2015].
2. Bettering the Evaluation and Care of Health (BEACH). General practice activity in Australia 2013–14. Sydney: The University of Sydney, 2014. Available at http://ses.library.usyd.edu.au/bitstream/2123/11882/4/9781743324226_ONLINE.pdf [Accessed 6 May 2015].
3. Australian Institute of Health and Welfare. Prostate cancer in Australia. Canberra: AIHW, 2013. Available at www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=60129545133 [Accessed 6 May 2015].

ACRONYMS

BMI	body mass index	**FSH**	follicle stimulating hormone	**OCP**	oral contraceptive pill
BP	blood pressure	**HRT**	hormone replacement therapy	**OTC**	over-the-counter
CAM	complementary and alternative medicine	**ICD**	implantable cardiac defibrillator	**PBS**	Pharmaceutical Benefits Scheme
COPD	chronic obstructive pulmonary disease	**JVP**	jugular venous pressure	**PDE-5**	phosphodiesterase-5
DCM	dilated cardiomyopathy	**LH**	luteinising hormone	**PSA**	prostate-specific antigen
ECG	electrocardiogram	**LNG-IUD**	levonorgestrel intrauterine device	**SNRI**	serotonin-noradrenaline re-uptake inhibitor
FBE	full blood evaluation	**MBS**	Medicare Benefits Schedule	**TSH**	thyroid stimulating hormone
FOBT	faecal occult blood test	**mpMRI**	multiparametric magnetic resonance imaging	**VTE**	venous thromboembolic disease

CASE 1

LINDA'S HOT FLUSHES ARE EMBARRASSING AT WORK

Linda is a teacher aged 52 years. You have seen her a few times for cervical screening and travel vaccinations. Linda says, 'I'm not ill, it's my age – these hot flushes are just getting so embarrassing when I'm teaching, but I don't suppose you prescribe hormones any more'.

QUESTION 1

What information do you need to obtain from Linda?

FURTHER INFORMATION

Linda last had a period 6 months ago. She says her bleeding has lightened over the last 18 months and her periods have been 8 weeks to 6 months apart. The flushes occur about 3 times per day and 3–4 times per night, and are sometimes associated with pricking sensations on her skin. Her weight has been fairly steady for the past few years. She has been married for 25 years, uses condoms for contraception and has had no other sexual partners in that time. She did a pregnancy test a few months ago, 'just in case', and this was negative. She has never smoked. Her cervical screening test was negative 18 months ago (all Pap smears have been normal); she has not yet had a mammogram.

QUESTION 2

What examination and investigations, if any, does Linda need?

FURTHER INFORMATION

Linda's blood pressure (BP) is 132/76 mmHg and her body mass index (BMI) is 24 kg/m^2. Physical examination is unremarkable and her blood tests and other investigations are within normal limits.

QUESTION 3

What management options would you discuss with Linda?

FURTHER INFORMATION

Linda decides to think about the options and to read more about hormone replacement therapy (HRT). She comes back 3 weeks later and advises she would like to try oestrogen for a few months. Linda asks for your opinion on the risks of HRT.

QUESTION 4

What would you advise Linda about HRT risks?

QUESTION 5

Which formulation of HRT is most appropriate for Linda? What information should you give her about how to take the medication?

QUESTION 6

Linda decides to try oral cyclical HRT and asks whether she needs contraception. How do you reply?

QUESTION 7

What is your follow-up plan for Linda?

CASE 1 ANSWERS

ANSWER 1

Linda is certainly at an age to be having climacteric (or perimenopausal) symptoms. The history at this point should include an exploration of any other menopausal symptoms, while ensuring Linda's hot flushes are not likely to be due to another cause. You should advise Linda you will be asking her a number of questions that may not seem relevant to the hot flushes, but that are necessary to help you understand her symptoms.

Questions should be asked about:

- the timing and severity of the hot flushes
- timing of periods and date of the last menstrual period
- whether there is any intermenstrual or postcoital bleeding
- whether Linda is sexually active, her obstetric and sexual history (including contraception) and if she experiences any dyspareunia or urinary symptoms
- whether sleep is affected – does she have night sweats?
- whether her weight is fluctuating or steady
- any symptoms of thyroid disease including palpitations
- any particular stresses at present or symptoms of anxiety or depression
- past medical history including any venous thromboembolic disease (VTE), breast disease
- family history, in particular, cardiovascular disease, osteoporosis, breast cancer
- smoking status and alcohol intake
- medication including over-the-counter (OTC) treatments
- her ideas and concerns about her symptoms.

ANSWER 2

If Linda has not had a 50-year-old health assessment, then this is a good time to offer it. Examination should include height and weight

measurement, waist circumference measurement and calculation of BMI, BP measurement and cardiovascular system checks. Although some guidelines recommend breast, pelvic and thyroid examination,[1] these should not be done as screening tests, but in relation to symptoms and past history.[2]

Given Linda's history, there is no need to check follicle stimulating hormone/luteinising hormone (FSH/LH) or oestrogen levels,[1] as these will not affect management. The 50-year-old health assessment includes lipids and urinalysis for protein.[2] If there are any symptoms to suggest other causes for the hot flushes then thyroid stimulating hormone (TSH), renal and liver function, and full blood evaluation (FBE) should be requested as appropriate for help with diagnosis, not as screening tests.[2] Fasting blood glucose should be done if there is a high risk of diabetes.[2]

Linda does not currently need a cervical smear but should be advised to have a mammogram and faecal occult blood test (FOBT) if she has not had these tests within the last 2 years.[2]

ANSWER 3

Given Linda's menstrual history and age, she is perimenopausal.[1] Linda should be advised that vasomotor symptoms such as hot flushes affect about 80% of women during the menopause transition[1] and about one-quarter of those affected will have severe symptoms.[3] There is no way of predicting when her periods or the hot flushes will stop. Perimenopausal vasomotor symptoms last 4–5 years.[4]

Her options include:

- Lifestyle interventions (eating a healthy diet, getting physical activity, losing weight, stopping smoking, reducing or stopping alcohol and caffeine,[5] reducing stress), where appropriate. This may help some women, although the evidence is limited.[6] In this instance, Linda already has a healthy lifestyle.
- Non-hormonal treatment, such as selective serotonin re-uptake inhibitors (SSRIs), selective noradrenaline re-uptake inhibitors (SNRIs), clonidine and gabapentin, for the vasomotor symptoms. However, while short randomised controlled trials have shown such medication to be more effective than placebo, there have been no long-term trials and side effects are common.[6]
- Complementary and alternative medicine (CAM) therapies.[6] Studies on the use of phytoestrogens for vasomotor symptoms are ongoing.[6] Current evidence of efficacy is conflicting for phytoestrogens and black cohosh, and studies on evening primrose oil, ginseng and St John's wort have shown no symptom control.[6]
- HRT. The therapeutic medication is oestrogen but as Linda has an intact uterus, she will need to take a combination of oestrogen and progestogen to reduce the risk of endometrial cancer.[7] If Linda decides to start HRT now, she will need to take continuous oestrogen with cyclical progestogen for 14 days. If Linda waits until she is postmenopausal (ie she has not had a period for 12 months), she could take continuous combined oestrogen and progestogen. Cyclical HRT causes a monthly bleed[8], which may be off-putting for women with infrequent periods. It is not contraceptive. Continuous HRT can cause breakthrough bleeding for 3 months but then amenorrhoea can be expected. Bleeding after 6 months should be investigated.[8] Mastalgia can occur.[8]
- Oestrogen in combination with a levonorgestrel intrauterine device (LNG-IUD). This regime can cause irregular bleeding for 3 months after insertion but then usually leads to amenorrhoea and so is beneficial for women with heavy bleeding.[3]

If she waits until she is postmenopausal, Linda also has the option of tibolone, which is a non-hormonal medication that alleviates vasomotor symptoms and helps prevent bone loss.[9] Side effects are uncommon but may include mild weight loss and fluid retention. As Linda is 52 years of age, a low-dose combined oral contraceptive is not recommended.[10]

ANSWER 4

A Cochrane review has indicated that HRT is likely to improve vasomotor symptoms.[7] Moreover, the 2013 Global Consensus Statement recommends that HRT is the most effective treatment for vasomotor symptoms such as hot flushes.[10] Linda can be advised that benefits are more likely to outweigh any risks for women under the age of 60 years, although randomised controlled trials have shown no significant increase or decrease in the risk of cardiovascular disease.[11] The absolute risk of VTE with oral oestrogen in women under 60 years of age, especially in the absence of other risk factors, is low.[12] The risk is even lower, almost non-existent, for women using transdermal oestrogen. Combined HRT increases the risk of breast cancer after 4–5 years of use, and as it increases breast density there is the risk of having an abnormal mammogram.[3] Linda's health profile suggests she is not at risk of osteoporosis, but HRT will prevent bone loss and fracture at her age.[8] Recent research has shown an increased risk of ovarian cancer, even when taken for <5 years, such that for every 1000 women over the age 50 years taking HRT, there may be an extra case of ovarian cancer.[13] Ovarian Cancer Australia has responded to this evidence with a statement stressing that ovarian cancer is a rare disease and that this increased risk still reflects a low lifetime risk for Australian women.[14] Common side effects of HRT include nausea, headache and breast tenderness (oestrogen effects), lowered mood and irritability (progestogen effects) and irregular or heavy bleeding (combination effects). HRT does not cause weight gain.[3]

ANSWER 5

As Linda still has her uterus, she cannot take unopposed oestrogen at this time. Therefore, she needs combination treatment with oestrogen and progestogen. The lowest effective dose of HRT should be prescribed.[3]

The options for delivery of the HRT are:

- Oral medication. There are a number of formulations of cyclical oral HRT available.[8,14,15] They differ in the types of oestrogen and progestogen, as well as dosage:
  - 1 mg oestradiol/10 mg dydrogesterone (low dose)
  - 2 mg oestradiol/10 mg dydrogesterone (medium dose)
  - 1 and 2 mg oestradiol/1 mg norethisterone (medium dose).
- Transdermal patches applied once or twice a week:[8,14,15]
  - 50 mg 17-β-oestradiol/140 mg norethisterone acetate (twice weekly application – sequential)
  - 50 mg 17-β-oestradiol/250 mg norethisterone acetate (twice weekly application – sequential).

These have the advantage of little or no risk of VTE and a lower total dose. Nausea is less common than with the oral tablets. They may cause skin irritation and, rarely, an allergic reaction.

- In combination with LNG-IUD:
  - Oral:
    - 1 mg 17-β-oestradiol
    - 1 mg oestradiol valerate
    - 0.3 mg conjugated equine oestrogen.
  - Transdermal oestrogen:
    - 25 mg/24 hours 17-b-oestradiol weekly
    - 25 or 37.5 mg/24 hours 17-β-oestradiol twice weekly.[8,15]

ANSWER 6

Most women are infertile during the perimenopause,[16] but Linda should still use a method of contraception until 1 year after her last period, as she is over 50 years of age.[17] She should continue to use condoms if she and her partner are happy to do so. As she will have bleeding on the HRT, she will not know when her last period would have been. She should therefore use condoms until age 55.[17]

ANSWER 7

Three months of treatment should be prescribed and Linda should be asked to monitor her hot flushes during this time. She should be reviewed a few weeks before the end of the course. If Linda reports symptom relief and no major side effects, and her BP is within the recommended range, she should be followed up again in 6 months. If there has been no symptom relief or if Linda has problematic side effects, discuss a change in dose or medication.[1]

Once Linda is happy with her treatment she should be reviewed every 12 months, and you should ask how long she wishes to continue the treatment. She should be advised that there is no specific recommended duration of treatment but because the risk of breast cancer is increased with the length of combined HRT treatment, staying on medication for more than 5–7 years should only be considered if the benefits outweigh the risks.[11] She should continue to have cervical smears and mammograms at the recommended intervals. Any abnormal vaginal bleeding needs investigation. If there is excessive or prolonged bleeding after 6 months of HRT, a transvaginal ultrasound is required, with endometrial biopsy as appropriate.[1]

RESOURCES FOR PATIENTS

- Contraception around the menopause. Available at www.patient.co.uk/health/contraception-around-the-menopause

RESOURCES FOR DOCTORS

- Jane FM, Davis SR. A practitioner's toolkit for managing the menopause. Climacteric 2014; 17: 1–16, http://informahealthcare.com/doi/pdf/10.3109/13697137.2014.929651
- The Royal Australian and New Zealand College of Obstetricians and Gynaecologists, College Statement C-Gyn 16. Hormone replacement therapy advice, www.ranzcog.edu.au/doc/hormone-replacement-therapy-advice.html
- The Royal Australian and New Zealand College of Obstetricians and Gynaecologists, College Statement C-Gyn 9. Management of the menopause, www.ranzcog.edu.au/doc/management-of-the-menopause.html

REFERENCES

1. Jane FM, Davis SR. A practitioner's toolkit for managing the menopause. Climacteric 2014; 17: 1–16. Available at http://informahealthcare.com/doi/pdf/10.3109/13697137.2014.929651 [Accessed 1 April 2015].
2. The Royal Australian College of General Practitioners. Guidelines for preventive activities in general practice, 8th edn. Melbourne: RACGP, 2012. Available at www.racgp.org.au/download/Documents/Guidelines/Redbook8/redbook8.pdf [Accessed 1 April 2015].
3. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. RANZCOG College Statement C-Gyn 16. Hormone replacement therapy advice. Melbourne: RANZCOG, 2012. Available at www.ranzcog.edu.au/doc/hormone-replacement-therapy-advice.html [Accessed 1 April 2015].
4. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. RANZCOG College Statement C-Gyn 9. Management of the menopause. Melbourne: RANZCOG, 2014. Available at www.ranzcog.edu.au/doc/management-of-the-menopause.html [Accessed 1 April 2015].
5. Greendale GA, Gold EB. Lifestyle factors: are they related to vasomotor symptoms and do they modify the effectiveness or side effects of hormone therapy? Am J Med 2005;118 Suppl 12B:148–54.
6. Royal College of Obstetricians and Gynaecologists. Alternatives to HRT for the management of the symptoms of the menopause. Scientific Impact Paper No. 6. London: RCOG, 2010.
7. MacLennan AH, Lester S, Moore V. Oral oestrogen and combined oestrogen/progestogen therapy versus placebo for hot flushes. Cochrane Database Syst Rev 2004;18:CD002978.
8. Australasian Menopause Society. AMS guide to equivalent HRT doses. Melbourne: Australasian Menopause Society, 2015. Available at www.menopause.org.au/for-women/426-ams-guide-to-equivalent-hrt-doses [Accessed 12 March 2015].
9. Cummings SR, Ettinger B, Delmas PD, et al. LIFT Trial Investigators. The effects of tibolone in older postmenopausal women. N Engl J Med 2008;359: 697–708.
10. Faculty of Sexual and Reproductive Healthcare Clinical Effectiveness Unit. Contraception for women aged over 40 years. London: Faculty of Sexual and Reproductive Healthcare, 2010. Available at www.fsrh.org/pdfs/ContraceptionOver40July10.pdf [Accessed 29 April 2015].
11. De Villiers T, Gass M, Haines C, Lobo R, Pierroz D, Rees M. Global Consensus Statement on Menopausal Hormone Therapy. Climacteric 2013;16:203–04.
12. Royal College of Obstetricians and Gynaecologists. Venous thromboembolism and hormone replacement therapy. Green-top Guideline No. 19. London: RCOG, 2011.
13. Collaborative Group on Epidemiological Studies of Ovarian Cancer. Menopausal hormone use and ovarian cancer risk: individual participant meta-analysis of 52 epidemiological studies. Lancer 2015;doi:http://dx.doi.org/10.1016/S0140-6736(14)61687-1.
14. Ovarian Cancer Australia. February 2015. Available at https://ovariancancer.net.au/wp-content/uploads/2015/02/Ovarian-Cancer-and-Hormone-Replacement-Therapy-HRT.pdf [Accessed 29 April, 2015].
15. NPS MedicineWise. Menopausal symptoms: prescription products. Sydney: National Prescribing Service Limited, 2009. Available at www.nps.org.au/conditions/reproductive-system-conditions/menopause/prescription-products-for-menopausal-symptoms [Accessed 12 March 2015].
16. Laufer N, Simon A, Samuelhoff A, et al. Successful spontaneous pregnancies in women older than 45 years. Fertil Steril 2004;81:1328–32.
17. Family Planning New South Wales, Family Planning Queensland, Family Planning Victoria. Contraception: an Australian clinical practice handbook. 3rd edn. Ashfield: Family Planning NSW, 2012.

CASE 2

BILL IS WORRIED ABOUT HIS PROSTATE

Bill, 55 years of age, is new to your practice. He presents explaining that he is worried about having prostate cancer. Bill's father has recently been diagnosed with metastatic prostate cancer at 79 years of age, and his uncle passed away from prostate cancer at the age of 75 years.

Bill is in generally good health and has no urinary symptoms or haematuria. He has essential hypertension, which is well controlled with lifestyle measures and amlodipine. Bill is slightly overweight but otherwise has no relevant comorbidities. He works as a librarian, is a non-smoker and drinks alcohol only socially.

QUESTION 1

What would you advise Bill about his risk of prostate cancer?

QUESTION 2

What would you explain to Bill regarding prostate cancer testing?

QUESTION 3

What is the value of prostate-specific antigen (PSA) testing for identifying cancer?

QUESTION 4

What can Bill do to improve the accuracy of the PSA test? What other blood tests may be useful?

FURTHER INFORMATION

Bill elects to have PSA screening. You order a PSA test and instruct Bill to abstain from sexual activity for the 2 days preceding the test. Bill declines a digital rectal examination.

Bill returns to the clinic the following week to discuss his results. The PSA is 2.5 µg/L. You subsequently choose to order a free PSA test, which is measured at 10.5%.

QUESTION 5

How would you interpret these results? Would you recommend any further actions?

FURTHER INFORMATION

Bill has a repeat PSA test 9 weeks later, which reveals a total PSA of 2.8 µg/L. He reassures you that he refrained from sexual activity in the days prior to the test and is not taking any undisclosed medications. You decide to order further diagnostic investigations before referral to a urologist for biopsy.

QUESTION 6

What further investigations might aid with the diagnosis of prostate cancer before referral for prostate biopsy?

FURTHER INFORMATION

Bill proceeds to a 3T multiparametric magnetic resonance imaging (mpMRI) scan of his prostate, which identifies no suspicious lesions and a prostate volume approaching the upper limit of normal at 35 cm^3. Because of Bill's concerns and family history, he also undergoes a 12-core random transperineal prostate biopsy performed by the urologist. This reveals 1/12 cores positive for Gleason 3 + 3 cancer in 5% of the biopsy core length. Bill's urologist discusses with him the management options and the decision is made to commence an active surveillance protocol.

QUESTION 7

What is included in an active surveillance protocol? What is the role of the GP?

FURTHER INFORMATION

Bill begins on an active surveillance program with no change in circumstances for several years. After 4 years of active surveillance, Bill decides to undergo a prostate MRI. A 3T mpMRI of the prostate identifies a 1-cm lesion of the right base peripheral zone. The urologist performs a targeted biopsy of the lesion, which detects a Gleason 4 + 3 carcinoma occupying 80% of the core length. This represents clear disease progression.

QUESTION 8

What are the treatment options available to Bill? What are the risks and benefits of these approaches?

FURTHER INFORMATION

After discussion with his urologist Bill proceeds to robotic assisted laparoscopic radical prostatectomy. His operation is uneventful with successful removal of the prostate with clear surgical margins. A follow-up PSA level at 6 weeks is less than 0.01 µg/L. Bill returns to you for a check-up at 6 weeks, complaining of erectile dysfunction and small amounts of urine loss requiring the use of one pad daily.

QUESTION 9

What advice would you offer Bill regarding his postoperative symptoms? What can be expected in a typical postoperative course following radical prostatectomy?

CASE 2 ANSWERS

ANSWER 1

The incidence of prostate cancer in men rises rapidly after 40 years of age.[1] The incidence in Australia is approximately 2 per 100 men at 55 years of age.[2] By the age of 85 years, almost 20% of men will be diagnosed with prostate cancer.[2] Additionally, the risk of prostate cancer is strongly influenced by family history. The relative risk of disease in men with one affected first degree relative is 2.46, compared with a relative risk of 3.71 in men with two affected first-degree relatives.[3] Higher risk of prostate cancer is also associated with second-degree relatives with the disease, such as uncles.

Bill is at a greater-than-average risk for prostate cancer. He is 55 years of age with one first-degree relative with the disease and one second-degree relative with the disease.

ANSWER 2

The optimal prostate cancer test is unclear. A method that accurately identifies clinically significant tumours while avoiding the detection of indolent cancers, in which risks of treatment outweigh benefits, remains elusive. Although randomised trial data demonstrate reduced prostate cancer-specific mortality by 21–44% in the least contaminated screened arms, the absolute mortality benefit of screening is very low and the likelihood of overdiagnosis or overtreatment is high.[4–7]

Currently, the typical screening tests would include a PSA test and possibly digital rectal examination.[8] In their latest guidelines, published in 2012, The Royal Australian College of General Practitioners advises against screening men for prostate cancer unless the patient specifically asks for it, at which time it would be appropriate to discuss the risks and benefits of screening with the patient.[8]

Testing for prostate cancer is not without risk. Patients will often undergo further investigations and treatment following an elevated PSA test. Prostate biopsy can be complicated by infection, bleeding and psychological distress. Furthermore, many men are identified with low-grade cancer, which will never become clinically significant, and are therefore exposed to risks of unnecessary treatment.[9]

The National Health and Medical Research Council (NHMRC) provides information for health practitioners on the benefits and risks of PSA testing for prostate cancer in asymptomatic men (refer to *Resources for doctors*).

In 2013, a set of consensus statements was released at the Prostate Cancer World Conference held in Melbourne.[10] A panel of experts in urology, oncology, general practice and epidemiology met to generate a list of guidelines that clarifies the current evidence on PSA screening, and presents reasonable and practical advice for general practice. The five consensus statements are:

1. For men aged 50–69 years, level 1 evidence demonstrates that PSA testing reduces prostate cancer-specific mortality and the incidence of metastatic prostate cancer.
2. Prostate cancer diagnosis must be uncoupled from prostate cancer intervention.
3. PSA testing should not be considered on its own, but rather as part of a multivariable approach to early prostate cancer detection.
4. Baseline PSA testing for men in their 40s is useful for predicting the future risk of prostate cancer.
5. Older men in good health with over a 10-year life expectancy should not be denied PSA testing on the basis of their age.

Bill should be educated about the benefits and risks of screening. It is worth informing him that most clinical guidelines and authorities, such as the Australian Cancer Council, do not support mass population screening but do recommend individualising the decision on the basis of an individual's risk and personal concerns.[7] Bill should be informed that he is at an elevated risk of cancer relative to the population. In Bill's case, the benefits of testing may be greater than the risks.

ANSWER 3

PSA, a glycoprotein produced by the prostate, is currently used for prostate cancer testing. PSA levels rise because cancer disrupts tissue barriers between the prostate and contiguous capillaries, facilitating an increase in serum PSA. Using a cut off of 3 µg/L, the PSA sensitivity for prostate cancer is approximately 32%, which rises to 68% for high-grade tumours. Its specificity for cancer of any grade is 91%.[11]

There are a number of explanations for an elevated PSA other than cancer. PSA may rise in the presence of benign prostatic hyperplasia, infection, sexual activity or perineal trauma.[12–14]

ANSWER 4

To avoid a falsely raised PSA result, patients should be advised to avoid sexual activity or masturbation for several days preceding the test, and to have the sample obtained in the morning because of diurnal fluctuation of PSA levels.[15] Conversely, PSA may be falsely low in patients taking 5-alpha-reductase inhibitors, thiazide diuretics or statins.[16]

There are several other blood markers that can be helpful in the evaluation of a patient with possible prostate cancer; however, no consensus has been reached on whether their measurement improves clinical outcomes.

- One option is measurement of free PSA levels. PSA is present as both a free unbound form as well as a form bound to other macromolecules. Patients with prostate cancer have lower relative levels of the free form. Measurement of free PSA following an initial positive PSA test increases cancer detection rates, particularly if free PSA is <10%.[17]
- A second, potentially helpful, option is a test referred to as prostate health index (PHI). This blood test measures several isoforms of PSA simultaneously and combines them into a single score derived with a mathematical equation. One constituent of the PHI is pro-PSA, a precursor substance of PSA, which preferentially leaks

into the bloodstream in men with prostate cancer. PHI is more predictive of clinically significant cancer than standard PSA.[18] This test is not subsided by the Pharmaceuticals Benefits Scheme (PBS) in Australia and would cost patients approximately $95.[19]

ANSWER 5

The reference ranges for PSA vary with patient age. The historically accepted normal range for a man aged 55 years is a PSA of up to 3.5 µg/L.

Bill's PSA of 2.5 µg/L is within normal limits. However, Bill's PSA result substantially exceeds the median PSA of 1.2 µg/L for a man aged 55 years.[20] The sensitivity of a PSA measurement above the upper limit of normal for prostate cancer is roughly 60%, meaning that up to 40% of cancers will be discovered in men within the normal PSA range.[20] By definition, those men with a result above the median, but still within the normal range, will have greater than average risk for prostate cancer. In a man such as Bill, whose pre-test probability for cancer is already high, a PSA above the age-related median adds to his risk profile.

There is still no accepted standard for the place of free PSA testing. Studies show that the lower the percentage of free PSA, the higher the likelihood of prostate cancer. The likelihood of cancer is small if free PSA is greater than 25%, a level often used as an indicator for or against the need for biopsy.[17] At 10.5%, Bill's free PSA is low. However, trials on free PSA have not validated its accuracy in patients with a total serum PSA below 4 µg/L. The significance of a low free PSA in Bill is therefore uncertain.[17,21]

Although Bill's PSA is not above the reference range, it is more than double the median level for his age. Given Bill's young age and prominent family history, additional investigations and follow-up would be reasonable. In the authors' experience, many clinicians will repeat the PSA test in 6–8 weeks to confirm the level remains elevated.

Asymptomatic prostatic inflammation may cause false-positive PSA readings. Consequently, some clinicians would also suggest that evaluation for asymptomatic bacteriuria be performed in concert with PSA screening.[22] This is accomplished with either urine dipstick or microscopy.[23]

ANSWER 6

There are several new imaging technologies that can provide vital information to the GP and specialist, which may guide treatment decisions.

- mpMRI is a recent technological advance that has improved the diagnostic approach to prostate cancer. The addition of functional diffusion-weighted imaging studies represents a significant enhancement in the ability to detect high-grade cancers. It also potentially avoids overdiagnosis of low-grade tumours, as these lesions are frequently undetectable by MRI at low volume.[24,25] A normal mpMRI in a patient with elevated PSA or an abnormal rectal examination is associated with a risk of clinically significant cancer of <10%. Similarly, an abnormal mpMRI indicates a >85% probability of cancer, most of which have intermediate or high-grade histology.[26] Another benefit of this technique is that it identifies a target area for biopsy, increasing biopsy yield and reducing the need for random biopsies.[26] That notwithstanding, high-quality data must be maintained or this technology will not deliver on its promise. Although there is no restriction regarding a need for specialist referral to obtain a prostate MRI, there is currently no Medicare rebate and irrespective of who requests it, prostate MRI will cost the patient in excess of $500.[27]
- Urinary tract ultrasound has a low positive predictive value for prostate cancer, but can provide other useful information such as prostate gland volume.
- Transrectal ultrasound alone has limited benefit in the early diagnosis of prostate cancer. A hypoechoic area sonographically is suggestive of prostate cancer although most cancers are invisible on ultrasound in the early stages. New three-dimensional Doppler techniques are currently being studied to address this pitfall.[28]

ANSWER 7

Bill has low-volume, low-grade prostate cancer. A Gleason score of 3 + 3 signifies the early histological phase of prostate cancer where prognosis is favourable and associated with a low disease-specific mortality over the next 10 years. Similarly, the more biopsy cores that contain cancer, the greater the disease burden: only one-twelfth of Bill's cores showed adenocarcinoma. Such tumours are likely to evolve slowly and it therefore may be preferable to avoid radical therapies and their side effects. Active surveillance is the method of postponing definitive therapy until evidence of disease progression arises. It is an increasingly accepted approach for low-risk disease because of its ability to minimise overtreatment. The risk of mortality from a favourable-grade cancer such as Bill's is <3% over 10 years on an active surveillance regimen.[29]

A typical active surveillance program involves regular PSA testing and surveillance biopsies. PSA testing is recommended every 4 months for the first year after diagnosis then every 6 months thereafter.[9] A surveillance biopsy should be performed by the urologist at 12 months to exclude histological progression of disease despite stable PSA, followed by biopsies every 2–3 subsequent years.[9] Digital rectal examination (DRE) is generally not incorporated into active surveillance. The role of prostate MRI in active surveillance is yet to be defined but may help avoid unnecessary biopsies in the future.[26]

Indications for curative intervention in a patient on active surveillance include:[9]

- progression to a high-grade tumour on biopsy
- progression to a high-volume tumour on biopsy
- PSA doubling time of <3 years
- significant PSA rise
- significant lesion on surveillance mpMRI
- change in patient preference towards definitive therapy.

GPs are central to an active surveillance program, where they may be responsible for regular patient reassessment and PSA monitoring.

ANSWER 8

Most prostate cancers detected with PSA are clinically localised and are amenable to treatment with any of radical prostatectomy, brachytherapy or external beam radiotherapy.[30] The presence of a high-grade tumour with a suspicious lesion on MRI is a clear sign of disease progression and warrants intervention.

Radical prostatectomy is a robust treatment with excellent outcomes for long-term cancer control. Prostate cancer survival at 23 years following early radical prostatectomy is 82%.[31] There is ongoing debate about the superiority of the various techniques, including robotic, laparoscopic and open surgery. The uptake of robotic surgery is growing but there are few comparative studies at present. The principal complications of radical surgery, including impotence and urinary incontinence, are probably influenced more by surgeon experience and skill than the technology by which the prostate is removed. However, laparoscopic and robotic surgery are associated with lower rates of infection, postoperative pain and bleeding than open surgery and result in earlier discharge from hospital.[32]

Brachytherapy is also a successful treatment modality. Brachytherapy is the direct implantation of radioactive seeds into the prostate, minimising irradiation of surrounding structures while maximising radiation dose delivery to the prostate. Brachytherapy is frequently associated with urinary tract toxicity, causing more irritative voiding symptoms and higher rates of urethral strictures than surgery. Salvage surgery for local recurrence is difficult following brachytherapy.[33]

External beam radiotherapy is associated with good cancer-specific survival, although treatment of local recurrence is difficult. Side effects are generally favourable, but may include radiation proctitis or cystitis.

Focal ablation therapy is an emerging treatment for prostate cancer and may become an alternative to standard therapies in future. Although long-term data are absent, early studies on focal treatment of a tumour with high-intensity focused ultrasound (HIFU) or electroporation (NanoKnife) have shown promising results. Focal therapy remains an experimental treatment not yet suitable for use outside clinical trials.[34]

ANSWER 9

Bill should be reassured that impotence and urinary incontinence are common early problems following prostate surgery.

Approximately 90% of patients will have returned to continence by 12 months following the operation.[35,36] Some patients will require a long-term safety pad for urinary losses, but the probability of severe incontinence requiring surgical correction is <5%. Return of urinary control is accelerated with early postoperative referral by the GP to a physiotherapist for pelvic floor exercises.[37] Although there is no clear evidence of benefit in the literature, instigation of a pelvic floor exercise regime prior to the operation is generally advocated.[38,39]

Impotence slowly improves with time but in some men, sexual potency never fully returns. Approximately 50% of patients still report erectile dysfunction at 2 years.[35] Rates of impotence are lower following bilateral nerve-sparing surgery. Men should be educated that optimal recovery of sexual function is usually attained by 2–3 years following the operation. Sexual rehabilitation with oral phosphodiesterase-5 (PDE-5) inhibitors taken 3 times weekly for up to 12 months improves recovery of erectile function.[40–42] There are no standardised protocols, but the authors would propose commencing a phosphodiesterase-5 (PDE-5) inhibitor at half dose for the first 2 weeks, followed by full dose if there are no side effects. Intracavernosal therapy may also be instituted and is usually encouraged if improvement is minimal on the PDE-5 inhibitors.

CONCLUSION

Prostate cancer is common and potentially life threatening. Mass population screening for prostate cancer remains controversial but individualised testing is appropriate in certain situations, especially in men with a family history of the disease or in those who are particularly concerned. The diagnosis of prostate cancer must be uncoupled from intervention. PSA testing remains the fundamental baseline investigation.

The introduction of mpMRI may potentially transform the way prostate cancer is diagnosed and managed. By improving the diagnostic yield of prostate biopsies and restricting the number of unnecessary biopsies being performed, mpMRI should improve detection of significant tumours and reduce both the overdiagnosis and overtreatment of low risk disease. The role of mpMRI in prostate cancer screening is yet to be determined.

There are a variety of treatments available for men with localised cancer. The choice between active surveillance and immediate curative therapy depends on clinical circumstances and tumour characteristics, as many lower grade tumours never progress to clinically significant cancers. When the decision is made for definitive treatment, robotic-assisted laparoscopic radical prostatectomy is assuming a prominent role in contemporary urological practice. It has the potential for less bleeding, less pain and earlier discharge from hospital compared with open surgery.

RESOURCES FOR DOCTORS

- National Health and Medical Research Council, PSA testing for prostate cancer in asymptomatic men, www.nhmrc.gov.au/_files_nhmrc/publications/attachments/men4d_psa_testing_asymptomatic_men_140304.pdf
- The RACGP Red Book, guidelines for preventative activities in general practice 8th edition, prostate cancer, www.racgp.org.au/your-practice/guidelines/redbook/early-detection-of-cancers/prostate-cancer/

REFERENCES

1. Hankey B, Feuer E, Clegg L, et al. Cancer surveillance series: interpreting trends in prostate cancer part 1: evidence of the effects of screening in recent prostate cancer incidence, mortality, and survival rates. J Natl Cancer Inst 1999;92:1017–24.
2. Australian Institute of Health and Welfare. Prostate cancer in Australia. Canberra: AIHW, 2013.
3. Abright F, Stephenson R, Agarwal N, et al. Prostate cancer risk prediction based on complete prostate cancer family history. Prostate 2015;75:390–98.
4. Schroder F, Hugosson J, Roobol M, et al. Screening and prostate cancer mortality in a randomised European study. N Engl J Med 2009; 360:1320–28.

5. Hugosson J, Carlsson S, Aus G, et al. Mortality results from the Goteborg randomised population-based prostate cancer screening trial. Lancet Oncol 2010;11:725–32.
6. Andriole G, Crawford D, Grubb R, et al. Mortality results from a randomised prostate cancer screening trial. N Engl J Med 2009;360:1310–19.
7. Cancer Council Australia. Prostate cancer screening. Canberra: Cancer Council Australia, 2010.
8. The Royal Australian College of General Practitioners. Guidelines for the preventive activities in general practice, 8th edn. Melbourne: RACGP, 2012.
9. Yaxley JP, Yaxley JW, Gardiner R, Yaxley W. Prostate cancer: active surveillance as a management option. Aust Fam Phys 2013;427:74–76.
10. Murphy D, Ahlering T, Catalona G. The Melbourne Consensus Statement on the early detection of prostate cancer. BJU International 2014;113:186–88.
11. Wolf A, Wender R, Etzioni R, et al. American Cancer Society guideline for the early detection of prostate cancer: update 2010. CA Cancer J Clin 2010;60:70–98.
12. Grummet J. Factsheet: PSA testing [pamphlet]. Melbourne: Andrology Australia; 2013.
13. Tchetgen M, Song J, Strawderman M, Jacobsen S, Oesterling J. Ejaculation increases the serum prostate specific antigen concentration. Urology 1996;47:511–16.
14. Tarhan F, Orcun A, Kucukeran I, Camursoy N, Kuyumcuoglu U. Effect of prostatic massage on serum complexed prostate specific antigen levels. Urology 2005;66: 1234.
15. Soletormos G, Semjonow A, Sibley P, et al. Biological variation of total prostate specific antigen: a survey of published estimates and consequences for clinical practice. Clinical Chemist 2005;51:1342–51.
16. Chang S, Harshman L, Presti J. Impact of common medications on serum total prostate specific antigen levels: analysis of the National Health and Nutrition Examination Surgery. J Clin Oncol 2010;28:3951–57.
17. Catalona W, Partin A, Slawin K, et al. Use of the percentage of free PSA to enhance differentiation of prostate cancer from benign prostatic disease. JAMA 1998;279:1542–47.
18. Loeb S, Sanda M, Broyles D, et al. The prostate health index selectively identifies clinically significant prostate cancer. J Urol 2014;doi: 10.1016/j.juro.2014.10.121.
19. Melbourne Pathology. New advances in prostate cancer testing [pamphlet]. Melbourne: Sonic Healthcare Ltd, 2012.
20. Sikaris K. Prostate specific antigen. Aust Prescr 2011;34:186–88.
21. Mayo Clinic, Mayo Medical Laboratories. Prostate-specific antigen (PSA), total and free, serum [Internet]. Rochester: Mayo Foundation for Medical Education, 2015 Available at www.mayomedicallaboratories.com/test-catalog/Clinical+and+Interpretive/81944 [Accessed 1 Mar 2015].
22. Kawakami J, Siemens R, Nickel C. Prostatitis and prostate cancer: implications for prostate cancer screening. Urology 2004; 64: 1075–80.
23. Little B, Ho K, Gormley G, Young M. PSA testing in general practice. Prostate Cancer Prostatic Dis 2003;6:54–58.
24. Siddiqui M, Rais-Bahrami S, Turkbey B, et al. Comparison of MR/ultrasound fusion-guided biopsy with ultrasound-guided biopsy for the diagnosis of prostate cancer. JAMA 2015;313:390–97.
25. Wysock J, Rosenkrantz A, Meng X, et al. Predicitive value of negative 3T multiparametric prostate MRI on 12 core biopsy results. World J Urol 2014;191:754.
26. Pokorny M, Rooij M, Duncan E, et al. Prospective study of diagnostic accuracy comparing prostate cancer detection by transrectal ultrasound-guided biopsy versus magnetic resonance (MR) imaging with subsequent MR-guided biopsy in men without previous prostate biopsies. Eur Urol 2014;66:22–29.
27. Lawrentschuk N. Imaging in prostate cancer with multiparametric magnetic resonance imaging and gallium positron emission tomography-computed tomography: 'the real deal'? BJU Int 2015;115(Sup 5):1–2.
28. Manyahi J, Musau P, Mteta A. Diagnostic values of digital rectal examination, prostate specific antigen and transrectal ultrasound in men with prosatism. East Afr Med J 2009;86:450–53.
29. Klotz L, Vesprini D, Sethukavalan P, et al. Long-term follow-up of a large active surveillance cohort of patients with prostate cancer. J Clin Oncol 2014;33:272–77.
30. Farkas A, Schneider D, Perrotti M, Cummings K, Ward W. National trends in the epidemiology of prostate cancer, 1973 to 1994: evidence or the effectiveness of prostate specific antigen screening. Urology 1998;53:444–48.
31. Bill-Axelson A, Holmberg L, Garmo H, et al. Radical prostatectomy or watchful waiting in early prostate cancer. N Engl J Med 2014;370:932–42.
32. Trinh Q, Sammond J, Sun M, et al. Perioperative outcomes of robot-assisted radical prostatectomy compared with open radical prostatectomy: results from the nationwide inpatient sample. Eur Urol 2012;61:679–85.
33. Rukstalis D. Treatment options after failure of radiation therapy: a review. Rev Urol 2002;4:12–17.
34. Heidenreich A, Bellmunt J, Bolla M, et al. EAU guidelines on prostate cancer part 1: screening, diagnosis and treatment of clinically localised disease. Eur Urol 2011;59: 61–71.
35. Sanda M, Dunn R, Michalski J, et al. Quality of life and satisfaction with outcome among prostate cancer survivors. N Engl J Med 2008;358:1250–61.
36. Catalona W, Carvalhal G, Mager D, Smith D. Potency, continence and complication rates in 1,870 consecutive radical retropubic prostatectomies. J Urol 1999;162:433.
37. Filocamo M, Li Marzi V, Del Popolo G, et al. Effectiveness of early pelvic floor rehabilitation treatment for post-prostatectomy incontinence. Eur Urol 2005;48:734.
38. Wang W, Huang Q, Liu F, Mao Q. Effectiveness of preoperative pelvic floor muscle training for urinary incontinence after radical prostatectomy: a meta-analysis. BMC Urology 2014;14:1–8.
39. Continence Foundation of Australia. Continence and prostate – a guide for men undergoing prostate surgery [pamphlet]. Melbourne: Continence Foundation of Australia, 2012.
40. Magheli A, Burnett A. Erectile dysfunction following prostatectomy: prevention and treatment. Nat Rev Urol 2009;6:415–27.
41. Glina S. Erectile dysfunction after radical prostatectomy. Drugs Ageing 2011;28:257–66.
42. Jamal J, Engel J. Management of post-prostatectomy erectile dysfunction. Can J Urol 2011;18:5726–30.

CASE 3

SARA REQUESTS A PAP TEST

Sara is 45 years of age and usually attends your practice with one or more of her children, who are aged 12, 10 and 8 years. She presents today for a routine Pap test. Her last test, 2.5 years ago, was reported as negative and her notes state she never had an abnormal test.

QUESTION 1

What are the current guidelines for initiation, cessation and frequency of cervical cancer screening in Australia?

QUESTION 2

Apart from a general medical history, what further history should you take as part of a Pap test consultation?

FURTHER INFORMATION

Sara's last menstrual period was 2 weeks ago. She has a regular 5/28–30 day cycle with no postcoital or intermenstrual bleeding, dysmenorrhea, pelvic pain or vaginal discharge. While sensitively asking about pain during or bleeding after intercourse, you find that Sara has been single for 2 years following her divorce; however, she had a 'one-night stand' with a male sexual partner at a work conference 3 months ago. Sara says she is deeply embarrassed about this episode and on gentle questioning, she tells you he did not use a condom. She is very relieved to talk to you as she has recently met a potential new sexual partner through an online dating site. Sara tells you she was prompted to come for a Pap test because she was hoping it will give her 'the all clear'. You explain that the Pap test does not check for STIs and advise her that she should consider other tests.

QUESTION 3

What questions should you ask to assess Sara's risk of human immunodeficiency virus (HIV) and other bloodborne viruses?

FURTHER INFORMATION

You confirm Sara has no history that would indicate a high risk of HIV, syphilis or hepatitis B but advise that, although she is at a low risk for these infections, you can still offer her testing.

QUESTION 4

What tests for sexually transmissible infections (STIs) would you recommend as part of an asymptomatic screen for Sara?

FURTHER INFORMATION

Sara has never smoked, has no personal or family history of venous thromboembolism (VTE) and no contraindications to any hormonal or non-hormonal method of contraception. She would like more information about the hormonal intrauterine device (IUD) as she likes the idea that she does not need to remember to take a pill each day and that it will reduce her menstrual blood loss.

QUESTION 5

What factors influence a woman's options for contraception?

QUESTION 6

What advice should Sara be given on the use of the hormonal IUD?

FURTHER INFORMATION

You order Sara's blood tests for HIV, syphilis and hepatitis B. You also perform a speculum examination to view the vagina and cervix, and to take a Pap test and endocervical swab for chlamydia nucleic acid amplification test (NAAT).

QUESTION 7

Do you perform a bimanual pelvic examination at the time of the Pap test?

FURTHER INFORMATION

You receive Sara's test results 2 days later. All test results are normal except for her chlamydia test, which is positive.

QUESTION 8

How will you manage Sara's positive chlamydia diagnosis?

QUESTION 9

Does Sara's diagnosis of uncomplicated chlamydial cervicitis preclude her from having an IUD inserted?

QUESTION 10

You arrange for Sara to see one of the GPs in your practice who inserts IUDs. Sara asks you about her risk of infection related to IUD use, what do you tell her?

CASE 3 ANSWERS

ANSWER 1

The current National Health and Medical Research Council (NHMRC) guidelines[1] recommend that women who have ever been sexually active have Pap tests every 2 years from the age of 18–20 years, or 2 years after first sexual activity, whichever is later. Women are advised to continue biennial Pap tests until 70 years of age, at which time they can stop if they have had two negative tests within the previous 5 years.[2]

New recommendations for cervical cancer screening by The Medical Services Advisory Committee (MSAC) are currently under consideration by the Australian government.[3] Changes to the screening program are not expected to be implemented until 2017, so it is important for women to continue 2-yearly Pap tests until the new recommendations are released.

ANSWER 2

Important aspects of Sara's history to obtain include:

- menstrual history: last menstrual period, cycle length, duration and heaviness of bleeding; presence of dysmenorrhoea, any intermenstrual bleeding or postcoital bleeding
- any abnormal vaginal discharge
- any pelvic pain including dyspareunia.

It is important to specifically ask about postcoital and intermenstrual bleeding, as they may indicate cervical pathology.[4] If intermenstrual bleeding persists, chlamydia testing, transvaginal ultrasonography and referral to a gynaecologist are advisable. Persistent postcoital bleeding requires exclusion of other causes, such as chlamydia, and referral for colposcopy regardless of the Pap test result.[4]

A Pap test consultation also provides an ideal opportunity to enquire about your patient's sexual relationship history, her contraceptive needs and risk of sexually transmissible infections (STIs). Additionally, cardiovascular, bone and breast health are important issues to address opportunistically with women in midlife.[5]

ANSWER 3

Ask Sara:

- about any intravenous drug use
- about any past partners who may have been intravenous drug users or were men who have sex with men
- whether past partners were from countries with a high prevalence of HIV
- whether she has a history of STIs

ANSWER 4

The New South Wales STI Programs Unit (STIPU) STI testing tool (*http://stipu.nsw.gov.au/wp-content/uploads/147045_GP_STI_Testing_Tool_2012.pdf*) recommends:

- chlamydia polymerase chain reaction (PCR) NAAT on an endocervical sample. A single swab can be taken after cytology sampling (PCR testing can be performed on a liquid-based cytology sample without the need for an additional swab)*
- HIV, syphilis and hepatitis B serology tests.

*A self-collected vaginal swab or first-pass urine sample (first part of the urine stream taken at any time of day, preferably ≥1 hour since last passing urine, although as little as 20 minutes is acceptable) for NAAT testing is an adequate screening test for asymptomatic women who are not having a speculum examination.

You should explain each of the STI tests you are recommending and their window period. As 3 months have passed since exposure, Sara does not require follow-up testing. You should also discuss how the patient will get the results and the need for contact tracing if any of the results are positive. The STIPU contact-tracing tool is a useful resource (refer to *Resources for doctors*). As with any test it is important to obtain informed consent for HIV testing.[6] You explain that there are very effective treatments for HIV although there is no cure.

In considering Sara's sexual health, it is important to address her contraceptive needs. Although Sara is 45 years of age and her fertility is likely to be low, she is menstruating regularly and therefore at risk of unintended pregnancy, which can be especially challenging for a woman nearing the end of her reproductive life.

ANSWER 5

There are many factors that influence a patient's choice of contraception. These include medical eligibility, method effectiveness, impact on sexual spontaneity, the need for STI protection, the impact of side effects and desire for non-contraceptive hormonal benefits on factors such as menstrual blood loss, acne and hirsutism, as well as personal preference.[7]

Medical eligibility

It is important to first identify any contraindications to methods of contraception and to then discuss the suitable options so women (and their partners) can make an informed decision about what suits them best. The Medical Eligibility Criteria (MEC) for contraceptive use provides a framework for the safe prescribing of contraception and is an invaluable guideline for practitioners. First developed by the World Health Organization, it has been adapted by the Faculty of Reproductive and Sexual Health in the UK[8] and is included in *Contraception: an Australian clinical practice* handbook.[7] It categorises contraceptive methods according to medical conditions.

Table 1 provides a summary of MEC categories and examples in each category.

It is important to ask about contraindications, particularly for combined hormonal contraception. Risk factors for, or a past history of, VTE, smoking (as she is aged over 35 years), migraine with aura or other risk factors for stroke, hypertension, obesity and breast cancer history are just some of the contraindications to combined hormonal contraception.[7,8]

Efficacy

There is strong evidence that long-acting, reversible contraception (LARC) methods (intrauterine methods, contraceptive implants and, to a lesser extent, contraceptive injection) are more effective with typical use than shorter acting methods[9] (the pill and vaginal ring), barrier methods (male or female condom and diaphragm) or fertility-awareness-based methods.[10] The LARC methods do not require the user to 'remember to do something' every day or for every act of sex.

The GP's role is to provide evidence-based information to support informed choice and some middle-aged women like Sara may find a less effective method acceptable given the relatively low fertility risk at this age.

Useful patient tools are available to help explain contraceptive efficacy (refer to *Resources for patients*).

STI protection

Male and female condoms are the only methods that offer both STI protection and contraception but as they have high contraceptive failure rate, women at risk of STIs should be advised to use condoms as well as an additional more effective contraceptive method.[7]

Women of all ages should be made aware that the 1.5 mg single-dose levonorgestrel emergency contraceptive pill (ECP) is available without a prescription at pharmacies. The ECP should be taken as soon as possible after unprotected sexual intercourse and, although licensed for use up to 72 hours after unprotected sexual intercourse, its use can be effectively extended to 96 hours.[7]

Table 1. Medical eligibility criteria for contraceptive use[7]

MEC Category	Examples
MEC 1 No restriction for use	Nulliparity and IUD use Past PID or past asymptomatic chlamydia or gonorrhoea assuming no current risk factors for STIs and IUD use
MEC 2 Can generally be used, but more careful follow-up may be required	Previous VTE and progestogen-only method Migraine without aura or migraine with aura current or within the last 5 years and hormonal IUD
MEC 3 Use of the method is not usually recommended unless other methods are not available or not acceptable; may require expert clinical judgement and/or referral to a specialist contraceptive provider	Smoking <15 cigarettes per day in a woman aged 35 + years and combined hormonal method. Consistently elevated systolic blood pressure of 140–159 or diastolic blood pressure of 90–94 mmHg and combined hormonal methods
MEC 4 Use poses an unacceptable health risk.	Migraine with aura and combined hormonal method Past history of VTE and combined hormonal method

ANSWER 6

As she is over 45 years of age, Sara should be advised that the hormonal IUD can be used as an effective method of contraception for 7 years.[7] She should be reminded that she can combine the hormonal IUD with condoms to simultaneously prevent unintended pregnancy and STIs in the future.

ANSWER 7

While a bimanual examination is essential before an IUD insertion to determine method eligibility, there is ongoing debate about the role of routine bimanual pelvic examination in asymptomatic women during cervical screening, but it can still be offered if the patient is informed about its limitations.[11–13]

A bimanual examination is, however, essential for all women with gynaecological symptoms suggestive of upper genital tract pathology, including pelvic pain, unscheduled bleeding or heavy menstrual bleeding.[7]

ANSWER 8

You can support Sara by providing:

- **Information** – Explain that chlamydia is a common infection that responds well to simple treatment and provide Sara with a patient information sheet such as the fact sheet on chlamydia from the Let them know website (www.letthemknow.org.au).
- **Treatment** – As Sara has no signs or symptoms of pelvic inflammatory disease (PID), pelvic pain, deep dyspareunia, cervical excitation, cervical/vaginal discharge, fever, she can be treated immediately with a single oral dose of azithromycin 1 g.[14]
- **Information on contact tracing** – Advise Sara that she needs to let any sexual partners in the past 6 months know that they need testing and treatment. The NSW STIPU contact tracing tool has useful strategies to facilitate this contact tracing. The *Let Them Know* website is a useful tool that supports the generation of anonymous SMS messages for partners of index cases infected with chlamydia or other STIs.
- **Prevention advice** – Discuss the importance of using condoms (together with effective contraception) in the future to reduce her chance of further STIs and HIV.
- **Retesting** – Repeat Sara's chlamydia test in 3 months to detect reinfection.[14]

The new *STI Management Guidelines*[14] are an invaluable GP resource for managing STIs (www.sti.guidelines.org.au).

Chlamydia is a notifiable infection for public health purposes. This is largely the responsibility of the diagnosing laboratory but depends on local legislation and varies between states and territories (in South Australia, Western Australia and Victoria the treating clinician is also responsible for the notification in a dual notification process).

ANSWER 9

No, Sara is still eligible for an IUD (MEC 1).

If the woman has not developed symptoms or signs of PID, consideration can be given to inserting the IUD 7 days from the time she and her partner have been treated, providing pregnancy can be excluded.[7] Women infected with chlamydia may have a false positive chlamydia PCR NAAT result for up to 6 weeks after successful treatment[14] and waiting for a negative test result may place a woman at unnecessary risk of an unintended pregnancy.[15]

ANSWER 10

All women who have an IUD inserted need to be aware that there is an increased, but low, risk of infection (1 in 300) in the first 20 days after

insertion after which this risk returns to baseline.[7] Suspected infection in women using an IUD can be treated with antibiotics, often without needing to remove the IUD, as long as symptoms settle. As for all women who have had an IUD inserted, Sara should be advised to return for review 4–6 weeks after insertion to assess for potential insertion-related complications including expulsion perforation and infection. She should be advised to use condoms with new partners and have STI screening as per the routine recommendations.[7,14]

CONCLUSION

Sara is very satisfied to know that she has a negative Pap test result, that her chlamydia infection has been successfully treated and that she has a plan for effective contraception that will also reduce her menstrual blood loss. She is now aware of the importance of condom use with new sexual partners and that STI testing is available if possible exposure occurs.

RESOURCES FOR PATIENTS

- The let them know website supports contact tracing and provides frequently asked questions, fact sheets, examples of conversations, emails, text messages (SMS) or letters patients can use to inform their partner/s of an STI diagnosis and the need for partner treatment and testing. An SMS or email can be sent directly from the site, either personally or anonymously, www.letthemknow.org.au

RESOURCES FOR DOCTORS

Cervical screening

- Screening to prevent cervical cancer: guidelines for the management of asymptomatic women with screen-detected abnormalities www.nhmrc.gov.au/guidelines-publications/wh39
- Australian Government Department of Health cancer screening website www.cancerscreening.gov.au. This website provides information on cancer screening programs including the Cervical Screening program. It includes information for patients in many different languages and information for health professionals including useful resources and publications.

STIs

- The new Australian STI Management Guidelines for use in primary care is an invaluable GP resource for managing STIs. This online resource can be used on a smart device and is extremely user-friendly, providing a quick reference for diagnosing and managing STIs, www.sti.guidelines.org.au
- The NSW STIPU website has an excellent general practice resources section, which includes the STI testing tool and the STI contact tracing tool for general practice. It also has links to online education on sexual health, stipu.nsw.gov.au/general-practice-resources/sti-clinical-management/

Contraception

- Contraception: an Australian clinical practice handbook. 3rd edn, contraceptionhandbook.org.au
- Family Planning Alliance Australia website includes contact details and web links for each member state's Family Planning Organisation with factsheets, resources and information about clinical services on each state's site, fpallianceaus.org.au
- The efficacy of contraception methods card is a useful resource to use with patients to discuss the different methods of contraception in the framework of efficacy, fpallianceaus.org.au/wp-content/uploads/2014/11/FPAA_Efficacy_SCREEN.pdf
- Guidance for management of troublesome vaginal bleeding with progestogen-only long-acting reversible contraception (LARC), www.fpnsw.org.au/fpaa_guidance_for_bleeding_on_progestogen_only_larc.pdf
- Bateson D, McNamee K, Harvey C, Stewart M. Contraception for women aged over 40: an important but neglected area. Medicine Today 2012;13:27–36, www.medicinetoday.com.au/2012/august/article/contraception-women-aged-over-40-important-neglected-area#.VNvgk9L9mM8
- The website from the Faculty of Sexual and Reproductive Healthcare of the Royal College of Obstetricians and Gynaecologists in the UK faculty has a wealth of information and latest updates. The clinical guidance section is particularly useful, www.fsrh.org

REFERENCES

1. National Health and Medical Research Council. Screening to prevent cervical cancer: guidelines for the management of asymptomatic women with screen-detected abnormalities. Canberra: Commonwealth of Australia, 2005. Available at www.nhmrc.gov.au/guidelines-publications/wh39 [Accessed 9 February 2015].
2. Australian Government Department of Health. National Cervical Screening Program. The screening process. Canberra: Department of Health, 2014. Available at www.cancerscreening.gov.au/internet/screening/publishing.nsf/Content/the-screening-process-cervical [Accessed 9 February 2015].
3. Australian Government Department of Health. National Cervical Screening Program. Medical Services Advisory Committee recommendations. Canberra: Commonwealth of Australia 2015. Available at www.cancerscreening.gov.au/internet/screening/publishing.nsf/Content/MSAC-recommendations Page last updated: 29 January 2015 [Accessed 9 Febuary 2015].
4. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Investigation of intermenstrual and postcoital bleeding (C-Gyn 6). Melbourne: RANZCOG, 2015. Available at www.ranzcog.edu.au/college-statements-guidelines.html [Accessed 29 April 2015].
5. The Royal Australian College of General Practitioners. Guidelines for preventive activities in general practice. 8th edn. Melbourne: RACGP, 2012. Available at www.racgp.org.au/your-practice/guidelines/redbook [Accessed 29 April 2015].
6. Australasian Society for HIV Medicine. Features of informed consent for HIV testing. Darlinghurst: ASHM, 2011. Available at www.testingportal.ashm.org.au/resources/practitioners/Informed_Consent_resource_HIV.pdf [Accessed 29 April 2015].
7. Family Planning New South Wales, Family Planning Queensland, Family Planning Victoria. Contraception: an Australian clinical practice handbook. 3rd edn. Canberra: Commonwealth of Australia, 2012.
8. The Royal College of Obstetricians and Gynaecologists. Faculty of Sexual and Reproductive Healthcare. UK Medical Eligibility Criteria for Contraceptive Use. Faculty of Sexual and Reproductive Healthcare, 2009. Available at www.fsrh.org/pdfs/UKMEC2009.pdf [Accessed 9 Febuary 2015].
9. Winner B, Peipert JF, Zhao Q, et al. Effectiveness of long-acting reversible contraception. N Engl J Med 2012;24:366:1998–2007.
10. Trussell J. Contraceptive failure in the United States. Contraception 2011;83: 397–404.
11. The American College of Obstetricians and Gynaecologists. ACOG practice advisory on annual pelvic examination recommendations. Washington DC: ACOG, 2014. Available at www.acog.org/About-ACOG/News-Room/Practice-Advisories/2014/ACOG-Practice-Advisory-on-Annual-Pelvic-Examination-Recommendations [Accessed 9 February 2015].
12. Qaseem A, Humphrey LL, Harris R, Starkey, Denberg MT. Screening pelvic examination in adult women: a clinical practice guideline form the American College of Physicians. Ann Intern Med 2014;161:67–72.
13. Stewart RA, Thistlethwaite J, Evans R. Pelvic examination of asymptomatic women: attitudes and clinical practice. Aust Fam Physician 2008; 37:493–96.
14. Australian Sexual Health Alliance. Australian STI management guidelines: for use in primary care. ASHA, 2014. Available at www.sti.guidelines.org.au [Accessed 9 February 2015].
15. Grimes DA. Intrauterine device and upper-genital-tract infection. Lancet 2000;356:1013–19.

CASE 4

JIM IS SHORT OF BREATH

Jim, aged 38 years, presents to you with periods of shortness of breath and fatigue on exertion of the body. He is a regular soccer player and has difficulty breathing while running. He describes being easily fatigued and unable to catch his breath. He has not had any symptoms in the past year.

QUESTION 1

What are some possible causes for Jim's shortness of breath? What additional information would you ask from Jim?

FURTHER INFORMATION

As Jim has been actively playing soccer, you assess whether these symptoms could be due to exercise-induced asthma. A chest radiograph reveals cardiomegaly. Jim's electrocardiogram (ECG) is normal apart from non-specific, frequent, premature ventricular contractions of multiple morphologies. You refer Jim to a cardiologist, who conducts an echocardiogram.

QUESTION 2

How would an echocardiogram be helpful in this case? What is assessed on the echocardiogram?

QUESTION 3

What echocardiogram features are supportive of dilated cardiomyopathy (DCM)?

FURTHER INFORMATION

Jim was diagnosed with DCM on his echocardiogram. His echocardiography showed a severely dilated left ventricle with severe global hypokinesis and mild atrial enlargement. His ejection fraction was 25%.

QUESTION 4

What causes DCM?

QUESTION 5

How else may Jim have presented?

QUESTION 6

What treatment options are available?

CASE 4 ANSWERS

ANSWER 1

Common causes of chronic dyspnoea include:[1]

- asthma
- chronic obstructive pulmonary disease (COPD)
- interstitial lung disease
- myocardial dysfunction
- obesity/deconditioning

You should also ask Jim if he has had any recent exertional chest pain, to exclude angina or ischaemic heart disease. A smoking history may indicate COPD, whereas a history of asthma may indicate an exacerbation of asthma. Ask Jim about his occupational history including any exposure to toxins that may lead to interstitial lung disease. You should also ask Jim about any family history of cardiovascular disease.

ANSWER 2

An echocardiogram provides more detailed information than that provided by a standard X-ray. In Jim's case, an echocardiogram was ordered as there were signs of cardiomegaly on his chest X-ray. An echocardiogram can also be performed for other indications including suspected left ventricular heart failure or pulmonary hypertension. Systolic heart failure can also be visualised as a dilated left ventricle with a reduced ejection fraction.

The left ventricular volume is an important prognostic indicator for patients with ischaemic or DCM.[2] Colour flow Doppler echocardiography provides further information for patients where pulmonary embolism, pulmonary hypertension, or diastolic dysfunction are being considered. Diastolic dysfunction manifests on an echocardiogram as diminished early diastolic filling and reduced ventricular compliance and clinically with dyspnoea on minimal exertion.[3,4]

ANSWER 3

Cardiomyopathies are diseases of the cardiac muscle that lead to a deterioration in heart function.[5] In DCM, a part of the ventricle expands, resulting in impaired systolic function and, subsequently, further enlargement and remodelling of the heart.[5,6] A dilated ventricle requires more energy for effective contraction.[7]

A diagnosis of DCM requires evidence of dilation and impaired contraction of the left ventricle or both ventricles (such as ejection fraction <40 %).[8,9] The echocardiogram in DCM should show lower ventricle cavitary dilatation and poor wall motion. In addition to changes in the lower ventricle, other findings include left atrial enlargement. The enlargement of the remaining heart chambers is primarily due to lower ventricular failure, but may be secondary to the primary cardiomyopathic process.[10]

Idiopathic DCM is the primary indication for cardiac transplantation.[11] The prevalence of idiopathic DCM is underestimated and recent estimates are 1 in 250 individuals.[10]

ANSWER 4

Some causes of DCM are listed in *Table 1*.

Table 1. Some causes of DCM[11–13]

Cause	Examples	
Ischaemic heart disease	• Coronary heart disease	• Myocardial infarction
Structural heart disease	• Pressure or volume overload	• Valvular • Left-to-right shunts
Drugs	• Anthracyclines (eg doxorubicin) • Chemotherapeutic agents	• Cocaine • Imatinib • Sympathomimetics
Endocrine	• Acromegaly • Cushing's disease • Hypothyroidism	• Phaeochromocytoma • Thyrotoxicosis
Immune-mediated	• Autoimmunity (eg systemic lupus erythematosus, Churg-Strauss syndrome)	• Hypersensitivity myocarditis (allergen, serum sickness, vaccines) • Transplantation rejection
Infiltrative	• Amyloidosis	• Sarcoidosis
Infectious	• Bacterial (Staphylococcus, Streptococcus) • Viral (Coxsackievirus, Enteroviruses, HIV, Influenza, Parvovirus)	• Fungal • Mycobacterial • Parasitic (toxoplasmosis, trichinosis, Chagas disease) • Rickesttsial (Q fever, Rocky Mountain spotted fever)
Metabolic	• Electrolyte disturbances (hypocalcaemia, hypophosphatemia)	• Nutritional deficiencies (carnitine, selenium, thiamine)
Toxins	• Cadmium • Carbon monoxide • Cobalt	• Ethanol • Lead • Mercury
Others	• Radiation	• Tachycardia-mediated

As there are many causes of DCM,[12] finding a specific cause for an individual case may be difficult. Common causes include viruses and gene mutations, which are now recognised to be common among patients with idiopathic DCM. Other factors include infection, toxins and alcohol exposure.

ANSWER 5

Other presenting manifestations can include atrial and/or ventricular arrhythmias.[10] Jim describes mainly an exertional dyspnoea and reduced exercise capacity. He could have also presented with symptoms of orthopnoea, paroxysmal nocturnal dyspnoea and peripheral oedema. Some patients may only present with vague constitutional symptoms and non-specific weight loss, and may complain of fatigue.[14]

On further examination, Jim may have had signs of congestive cardiac failure, such as hypotension, elevated jugular venous pressure (JVP), pulsatile liver, displaced and diffuse apex beat, third and fourth heart sounds, and bibasal crepitations. Pulmonary oedema is thought to be a result of increased hydrostatic pressure in the right side of the circulation as a result of the failing left ventricle.[15]

ANSWER 6

Jim will not be able to play competitive soccer and will also need to consider lifestyle changes. Non-pharmacological interventions are the cornerstone of heart failure therapy.[16] You give Jim strict instructions to significantly reduce his sodium and red meat intake. A diet restricted to 2 g of sodium a day and 1.5 litres of fluid is imperative and may eliminate the need for diuretics. Jim should enrol in cardiac rehabilitation involving aerobic exercise.[17]

Treatment for individuals with symptomatic DCM is recommended. It is aimed at management of heart failure symptoms as well as prevention of the natural progression of the disease.[18] Angiotensin converting enzyme inhibitors, beta-blockers and implantable cardiac defibrillators (ICD) are considered when indicated.

Jim is prescribed carvedilol 3.125 mg twice a day and spironolactone 12.5 mg once a day. As he is affected by light-headedness and dizziness, his first doses of carvediolol were titrated. He is also being worked up for a surgical implantation of an ICD with cardiac resynchronisation therapy.

REFERENCES

1. Pratter MR, Curley FJ, Dubois J, Irwin RS. Cause and evaluation of chronic dyspnea in a pulmonary disease clinic. Arch Intern Med 1989;149:2277–82.
2. Wong SP, French JK, Lydon AM, et al. Relation of left ventricular sphericity to 10-year survival after acute myocardial infarction. Am J Cardiol 2004;94:1270–75.
3. Penicka M, Bartunek J, Trakalova H, et al. Heart failure with preserved ejection fraction in outpatients with unexplained dyspnea: a pressure-volume loop analysis. J Am Coll Cardiol 2010;55:1701–10.
4. Ommen SR, Nishimura RA. A clinical approach to the assessment of left ventricular diastolic function by Doppler echocardiography: update 2003. Heart 2003;89(Suppl iii):18–23.
5. Dec GW, Fuster V. Idiopathic dilated cardiomyopathy. Engl J Med 1994;331:1564–75.
6. Elliot P. Diagnosis and management of dilated cardiomyopathy. Heart 2000;84:106–12.
7. Lilli A, Baratto MT, Del Meglio J, et al. Three-dimensional simultaneous strain-volume analysis describes left ventricular remodelling and its progression: a pilot study. Eur J Echocardiogr 2011;12:520–27.
8. Report of the WHO/ISFC task force on the definition and classification of cardiomyopathies. Br Heart J 1980;44:672–73.
9. Richardson P, McKenna W, Bristow M, et al. Report of the 1995 World Health Organization/International Society and Federation of Cardiology Task Force on the Definition and Classification of cardiomyopathies. Circulation 1996;93: 841–42.
10. Hershberger RE, Hedges DJ, Morales A. Dilated cardiomyopathy: the complexity of a diverse genetic architecture. Nat Rev Cardiol 2013;10:531–47.
11. Manolio TA, Baughman KL, Rodeheffer R, et al. Prevalence and etiology of idiopathic dilated cardiomyopathy (summary of a National Heart, Lung, and Blood Institute workshop). Am J Cardiol 1992;69:1458–66.
12. Felker GM, Thompson RE, Hare JM, et al. Underlying causes and long-term survival in patients with initially unexplained cardiomyopathy. N Engl J Med 2000;342:1077–84.
13. Caforio AL, Marcolongo R, Jahns R, Fu M, Felix SB, Iliceto S. Immune-mediated and autoimmune myocarditis: clinical presentation, diagnosis and management. Heart Fail Rev 2013;18:715–32.
14. Abelmann WH, Lorell BH. The challenge of cardiomyopathy. J Am Coll Cardiol 1989;13: 1219–39.
15. Navas JP, Martinez-Maldonado M. Pathophysiology of edema in congestive cardiac failure. Heart Dis Stroke 1993;2:325–29.
16. Remme WJ, Swedberg K. Comprehensive guidelines for the diagnosis and treatment of chronic heart failure: Task force for the diagnosis and treatment of chronic heart failure of the European Society of Cardiology. Eur J Heart Fail 2002;4:11–12.
17. Stolen KQ, Kemppainen J, Ukkonen H, et al. Exercise training improves biventricular oxidative metabolism and left ventricular efficiency in patients with dilated cardiomyopathy. J Am Coll Cardiol 2003;41:460–67.
18. Hunt SA, Abraham WT, Chin MH, et al. ACC/AHA 2005 Guideline Update for the Diagnosis and Management of Chronic Heart Failure in the Adult: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Circulation 2005;112:e154–235.

CASE 5

JENNY IS HAVING NIGHT SWEATS

Jenny, 47 years of age, works full time in a high-profile position. She is fit and well and has no significant family history or previous medical history. She has three adult children. She explains that when she originally made this appointment 3 weeks earlier, she had not had a period for 3 months and was experiencing hot flushes and night sweats, which were interfering with her sleep and daily functioning. However, she now feels she is wasting your time as she has recently had a period and all her symptoms have completely resolved.

QUESTION 1

What is the most likely explanation of Jenny's fluctuating symptoms?

QUESTION 2

How would you explain to Jenny what physiological processes are occurring in her body?

QUESTION 3

What hormone tests would you order to diagnose menopause?

FURTHER INFORMATION

Jenny and her husband use condoms for contraception. She wonders whether she needs to continue using contraception if she is now 'menopausal'.

QUESTION 4

Does Jenny require contraception? If so, what are her options?

FURTHER INFORMATION

Jenny returns 6 months later with symptoms of fatigue, heightened anxiety, mood swings and a loss of libido. Her husband was recently retrenched and has admitted that he had an affair with a much younger woman 12 months ago. Two of her children have recently moved out of home and her elderly mother is now in care after falling and fracturing her hip. Jenny continues to experience erratic periods, occasional flushes and night sweats.

QUESTION 5

What are the possible causes of Jenny's symptoms?

QUESTION 6

What options for management of Jenny's symptoms do you discuss?

FURTHER INFORMATION

Jenny commits to a regular walking program and commences yoga classes. Her employer adjusted her workload without significantly affecting her income. She and her husband attend regular relationship counselling and make time to have a regular 'date night'. She enlists the help of her siblings and children to assist with the care of her elderly mother. Jenny is not keen to use medications or hormones unless absolutely necessary.

Jenny returns after 6 months feeling much better. Her physical symptoms are manageable and not interfering with her daily activities. Her periods are becoming increasingly erratic and sparse. She attends to discuss what she should be doing now and what to expect.

QUESTION 7

What advice would you give Jenny now?

CASE 5 ANSWERS

ANSWER 1

The most likely explanation for Jenny's symptoms is that she is experiencing menopausal transition. Although she is not yet menopausal, her natural ovarian function is starting to wane, ovulation is erratic and she has fluctuating hormone levels.

Menopause is defined as the final menstrual period a woman experiences following cessation of ovarian function. A woman is considered postmenopausal after 12 consecutive months of amenorrhoea that is not due to other factors such as hysterectomy, progesterone intrauterine device (IUD) or endometrial ablation.[1,2]

The average age of menopause is 51.5 years and usually occurs at 45–55 years. However, 1 in 10 women become menopausal before the age of 45.

The menopausal transition is defined as the period between the onset of menstrual irregularity to final menses.[1] The transition from full ovarian function to cessation of function can last 4–6 years.[2] It is often referred to as a time of 'hormonal chaos' as erratic ovarian activity results in fluctuating hormone levels and symptoms.

ANSWER 2

Confirmation of Jenny's understanding of the normal process is essential, particularly as there is a substantial amount of information available via the media, internet, friends, family, advertising and health professionals.[3] These sources vary considerably in accuracy and motive. A simple explanation of the physiology underlying the menopausal transition, including the functions of hormones and the effects of hormonal deficiencies on short- and long-term health, may eliminate many concerns.[2]

A way to explain menopause might include the following information:[4]

Women are born with a finite number of ova, which decline from birth. From puberty, the ovaries usually release one ovum each month, which triggers the hormonal changes resulting in regular periods and cyclical changes. As the supply of ova diminishes, the ovaries begin to release them erratically, which in turn results in erratic hormone levels and erratic periods. This is the stage of hormonal chaos where hormone levels are unpredictable and fluctuate. Symptoms such as hot flushes occur when the ovary has not released an ovum at the usual time and oestrogen levels drop – then suddenly the hot flushes stop because your ovary has spontaneously released an egg and given you a natural 'dose of hormones'. This period of time, called the menopausal transition, can continue for 4–6 years. Very rarely do the ovaries 'switch off' overnight (unless removed surgically). Eventually, when no active ova remain, ovarian function ceases completely and hormone levels remain persistently low.

ANSWER 3

There are no blood tests to diagnose menopause. In postmenopausal women, with no ovarian reserve, anovulation results in follicle stimulating hormone (FSH) and luteinising hormone (LH) levels becoming persistently

elevated and oestradiol levels declining. In premenopausal women, hormone levels will vary according to the phase of the menstrual cycle and may also vary from cycle to cycle. During the menopausal transition, hormone levels will be variable, depending on current ovarian activity, and are therefore of limited value in the diagnosis of menopause.[2,5,6]

Salivary hormone tests, often used to prescribe the unregistered compounded 'bio identical hormone products', are costly and there is no scientific evidence that they are accurate or relevant to menopausal symptoms.[5,7,8]

Anti-Müllerian hormone (AMH) levels, often used to measure ovarian reserve in infertility treatments, is currently not considered a reliable marker or predictor of menopause. Levels of this hormone can be undetectable for several years before menstrual cycle irregularities and the last menstrual period occur.[6,9–11]

Diagnosis of menopause is based on clinical presentation alone and is defined retrospectively after 12 consecutive months of amenorrhoea not due to any other medical or surgical process.[1,2] Management of menopausal symptoms depends primarily on the impact of symptoms on daily life and not on blood test results.[2]

Hormone levels may be of some use in assessing premature ovarian failure or in women who have had a previous hysterectomy, endometrial ablation or are using a levonogestrel IUD Hormone levels are of no use in women who are current users of the oral contraceptive pill (OCP) or 'bio-identical' hormone preparations (troches and creams).

ANSWER 4

Yes, Jenny does require contraception for at least 12 months from her last natural period. During the menopausal transition, ovulation is still occurring sporadically and unpredictably. Women whose menopause occurs before the age of 50 should be advised to use contraception for 2 years after their last period. Women whose menopause occurs after the age of 50 should use contraception for 12 months after their last period.[12,14]

Contraceptive options will depend on symptom profile and risk factor analysis.[12,13] Women who experience menorrhagia or menstrual irregularity may benefit from a levonogestrel IUD, which will also provide endometrial protection if oestrogen therapy is required for menopausal symptoms. Presuming there are no cardiovascular contraindications, a low-dose OCP will provide cycle control, contraception and relief of menopausal symptoms, if required. Women are then advised to cease the OCP at the age of 51 years, because of increased cardiovascular risks, and to use barrier methods of contraception until menopausal status is defined.[12] If Jenny remains asymptomatic, she can safely continue to use condoms for contraception. Hormone replacement therapy (HRT) is not contraceptive as doses are not high enough to suppress ovarian function.[12,13]

ANSWER 5

Jenny's symptoms may be directly related to fluctuating hormone levels associated with the menopausal transition. Medical conditions such as anaemia, thyroid disease and unstable diabetes may mimic menopausal symptoms and can be excluded with simple blood tests such as thyroid function tests, full blood evaluation and fasting blood glucose tests.[2]

Midlife is also a time in a woman's life where many other psychosocial factors may affect her mood and symptoms.[15,16] Jenny is currently experiencing significant changes in her personal life.

Further conversation with Jenny will help determine possible factors in her personal life that may contribute to her different symptoms. These include:

- financial or relationship issues following her husband's retrenchment
- experiencing the effects of an 'empty nest' where her role as a mother has altered as her children leave home. Alternatively, women can become frustrated with 'full nest' or 'revolving door' syndromes where children either will not leave home or come and go as they want[23]
- insecurity in her marriage, particularly as she sees physical changes of ageing in her body such as fat redistribution, dry skin, loss of muscle tone, urinary incontinence, loss of fertility and libido. Her altered body image will be compounded with the revelation that her husband has previously 'sought greener pastures'[17]
- being the primary carer for her elderly mother, who is now dependent on her for care and support (ie her role as a daughter has changed)
- having a full-time job while caring for her family and elderly mother, resulting in inadequate time allowed for her own relaxation and self-care, resulting in fatigue[18]
- sleep deprivation due to night sweats or depression/anxiety.

Libido may be influenced by a range of factors. Declining oestrogen levels during the menopausal transition, may cause a dry vagina, pelvic floor dysfunction, loss of sexual desire and sleep deprivation. However, psychosocial factors such as relationship status, body image, self-esteem and depression will also significantly affect libido.

Jenny's hormone changes and external stressors may have contributed to the development of depression, particularly if she has previously suffered with postnatal depression.

ANSWER 6

Jenny requires a multidisciplinary approach as her hormonal status is only one factor among various external stressors common in midlife. These may include family and relationship issues, socio-economic concerns, ability to adapt to changes associated with ageing, and general health and wellbeing.

- Reinforce lifestyle interventions such as diet, exercise,[19] smoking cessation and reduction or cessation of alcohol intake.
- Stress the importance of time management and life balance. This may require the support and input of other family members and employers.[18]
- Suggest counselling to assist with relationships, improve self-esteem, teach relaxation and stress management techniques to manage depression/anxiety disorders.
- Hot flushes may be managed simply by avoiding potential triggers such as caffeine, alcohol and spicy foods, or wearing appropriate clothing (ie layers).
- Hormone therapies such as the OCP or HRT may be helpful.

- Antidepressant/antianxiety medications such as selective serotonin reuptake inhibitors (SSRIs) and serotonin-noradrenaline reuptake inhibitors (SNRIs) may also be appropriate.

ANSWER 7

It is important for Jenny to understand that every woman's experience of menopause is unique. Some women have symptoms, some do not, some will need HRT, others will not, some need investigations, others do not. It is not possible to predict which women will experience disabling symptoms and which women will experience minimal symptoms. Information must be specific to the woman's particular situation and based on a thorough assessment of all interplaying factors – hormonal, psychosocial, cultural, general health, external stressors and lifestyle.[4,20]

Midlife is also an important time to address preventive health issues and assess potential risk factors that may affect Jenny's short- and long-term health. These include cardiovascular risk profile, cancer risks, osteoporosis and fall risk. Jenny needs to be particularly aware of the long-term consequences of oestrogen deficiency such as osteoporosis, pelvic floor dysfunction and the increased risk of cardiovascular disease and breast cancer with age.[20, 24]

Once a thorough history and physical examination have been completed, the majority of women will not need further investigations other than updating routine preventive health screening status (Pap smear, mammogram, fasting lipids, glucose).[24] Women could be offered the option of having a dual energy X-ray absorptiometry (DXA) scan at this time to assess their baseline risk of osteoporosis (note, DXA is not covered by Medicare Benefits Schedule (MBS) for routine screening purposes). Additional investigations should be judiciously chosen and targeted to investigate a specific finding or for analysis of risk factors.[21]

Once all information has been gathered, a list of issues relevant to Jenny can be determined and, from there, her overall management plan can be defined. She will then be able to make informed decisions and take control of her own health management.[4,20]

RESOURCES FOR PATIENTS AND DOCTORS

- International Menopause Society, www.imsociety.org
- Australasian Menopause Society, www.menopause.org.au
- The Jean Hailes Foundation, www.jeanhailes.org.au
- National Heart Foundation, www.heartfoundation.org.au
- RACGP Guidelines for preventive activities in general practice 8th edition (the red book), www.racgp.org.au/redbook

REFERENCES

1. Australasian Menopause Society. Scientific definitions for menopause-related terminology. Melbourne: AMS, 2002. Available at www.menopause.org.au/health-professionals/position-statements/181-scientific-definitions-for-menopause-related-terminology [Accessed 4 March 2015].
2. Australasian Menopause Society. Diagnosing Menopause. Melbourne: AMS, 2008. Available at www.menopause.org.au/health-professionals/gp-hp-resources/16-diagnosing-menopause [Accessed 4 March 2015].
3. International Menopause Society. Where do women get their information about hormone therapy – and whom so/should they trust? Cornwall: IMS, 2012. Available at www.imsociety.org/updates_view_open.php?menopauselivelD=1435 [Accessed 4 March 2015].
4. Reddish S. Assessment of women in midlife. Aust Fam Physician 2004;33:883–87.
5. MacLennan AH and Sturdee DW. The use and abuse of screening tests around menopause. Climacteric 2006;9:153–55.
6. Burger HG, Hale GE, Dennerstein L, Robertson D. Cycle and hormone changes during perimenopause: the key role of ovarian function. Menopause 2008;15:603–12.
7. Australasian Menopause Society. Bioidentical hormones for menopausal symptoms. Melbourne, 2014. Available at www.menopause.org.au/for-women/information-sheets/34-bioidentical-hormones-for-menopausal-symptoms [Accessed 4 March 2015].
8. Schmidt P. The 2012 Hormone therapy position statement of the North American Menopause Society. Menopause 2012;19:257–71.
9. Australasian Menopause Society. Anti-Mullerian Hormone Test. Melbourne: AMS, 2010. Available at www.menopause.org.au/health-professionals/gp-hp-resources/515-anti-mullerian-hormone-test [Accessed 4 March 2015].
10. International Menopause Society. FSH, oestradiol, AMH and inhibin B in the menopausal transition. Cornwall: IMS, 2008. Available at www.imsociety.org/updates_view_open.php?menopauselivelD=31 [Accessed 4 March 2015].
11. Lambalk CB. Testing ovarian reserve to predict age at menopause. Maturitas 2009;63:280–91.
12. Faculty of Sexual and Reproductive Healthcare. Clinical Guidance. Contraception for women aged over 40 years. 2010. London: Faculty of Sexual and Reproductive Healthcare, 2010. Available at www.fsrh.org/pdfs/ContraceptionOver40July10.pdf [Accessed 4 March 2015].
13. International Menopause Society. The contraceptive needs of the perimenopausal woman. Cornwall: IMS, 2014. Available at www.imsociety.org/updates_view_open.php?menopauselivelD=2455 [Accessed 4 March 2015].
14. International Menopause Society. Female Contraception over 40: ESHRE Workshop Summary. Cornwall: IMS, 2009 Available at www.imsociety.org/updates_view_open.php?menopauselivelD=321 [Accessed 4 March 2015].
15. Gibbs Z, Lee S, Kulkarni J. The unique symptom profile of perimenopausal depression. Clin Psychologist 2014;DOI: 10.1111/cp.12035
16. Deeks AA. Is this menopause? Women in midlife – psychosocial issues. Aust Fam Physician 2004;33:889–93.
17. International Menopause Society. Body image and depression. Cornwall: IMS, 2014. Available at www.imsociety.org/updates_view_open.php?menopauselivelD=2475 [Accessed 4 March 2015].
18. Australasian Menopause Society. Women, work and the menopause project. Melbourne: AMS, 2014. Available at www.menopause.org.au/health-professionals/studies-published/918-women-work-and-the-menopause-project [Accessed 4 March 2015].
19. Anderson D, Seib C, Rasmussen L. Can physical activity prevent physical and cognitive decline in postmenopausal women? A systematic review of the literature. Maturitas 2014;79:14–33.
20. Reddish S. Menopausal transition – assessment in general practice. Aust Fam Physician 2011;40:266–72.
21. The Royal Australian College of General Practitioners. Guidelines for preventive activities in general practice. 8th edn. Melbourne: RACGP, 2012. Available at www.racgp.org.au/your-practice/guidelines/redbook/ [Accessed 25 March 2011]
22. International Menopause Society. Approach to the patient with menopausal symptoms. Cornwall: IMS, 2009. Available at www.imsociety.org/updates_view_open.php?menopauselivelD=91 [Accessed 4 March 2015].
23. Dennerstein L, Dudley E, Guthrie J. Empty nest or revolving door? A prospective study of women's quality of life in midlife during the phase of children leaving and re-entering the home. Psychol Med 2002;32:545–50.
24. The Royal Australian College of General Practitioners. Preventive activities in middle age. In: Guidelines for preventive activities in general practice 8th edn. Melbourne: RACGP, 2012. Available at www.racgp.org.au/your-practice/guidelines/redbook/preventive-activities-in-middle-age [Accessed 30 April 2015].

ACTIVITY ID: 25263

STAGES OF LIFE: MIDLIFE

This unit of *check* is approved for 6 Category 2 points in the RACGP QI&CPD program. The expected time to complete this activity is 3 hours and consists of:

- reading and completing the questions for each case study
- you can do this on hard copy or by logging on to the *gplearning* website, http://gplearning.racgp.org.au
- answering the following multiple choice questions (MCQs) by logging on to the *gplearning* website, http://gplearning.racgp.org.au
- you must score ≥80% before you can mark the activity as 'Complete'
- completing the online evaluation form.

You can only qualify for QI&CPD points by completing the MCQs online; we cannot process hard copy answers.

If you have any technical issues accessing this activity online, please contact the *gplearning* helpdesk on 1800 284 789.

If you are not an RACGP member and would like to access the *check* program, please contact the *gplearning* helpdesk on 1800 284 789 to purchase access to the program.

QUESTION 1

Clementine, 46 years of age, presents for advice about contraception. She has a history of migraine with aura. Which of the following forms of contraception would be listed under medical eligibility criteria category 3 or 4 (MEC 3/4) for Clementine?

A. Combined hormonal contraception
B. Hormonal intrauterine device (IUD)
C. IUD
D. Progestogen-only method

QUESTION 2

Clementine returns to see you 2 years later for her routine Pap smear. She and her partner decided to use condoms for contraception but she has not had a period for the past 10 months and asks if she still requires contraception. What advice would you give her?

A. If Clementine does not have any periods for the next two months she will no longer require contraception.
B. Clementine can now be considered menopausal and no longer requires contraception.
C. If Clementine does not have any periods in the next 2 months, she should continue to use contraception for a further 2 years.
D. If Clementine does not have any periods in the next 2 months she should continue to use contraception for a further 12 months.

QUESTION 3

Clementine returns to see you 6 months later. She has not had any periods since her last visit but has been experiencing hot flushes during the day and night, which she finds distressing. She has heard about hormone replacement therapy (HRT) but does not fully understand if it is considered a safe treatment option or would be effective in controlling her hot flushes. What can you tell Clementine about the risks and benefits of HRT?

A. HRT may improve her symptoms and as she is under 60 years of age, the benefits are more likely to outweigh any risks.
B. Randomised controlled trials have shown a significant increase in the risk of cardiovascular disease.
C. Randomised controlled trials have shown a significant decrease in the risk of cardiovascular disease.
D. There is a high risk of venous thromboembolism even in women without other risk factors.

QUESTION 4

Which of the following non-hormonal treatment options has been shown to be beneficial in alleviating postmenopausal vasomotor symptoms?

A. Phytoestrogens
B. Tibolone
C. St John's wort
D. Ginseng

QUESTION 5

Louise, aged 51 years of age, is tested for STIs and found to be positive for chlamydia. She has no other infections or symptoms of pelvic inflammatory disease (PID). How would you manage this diagnosis?

A. Treat with a single oral dose of azithromycin 1000 mg and re-test in 3 months to detect re-infection.
B. Treat with doxycycline 200 mg twice a day for 7 days and re-test if symptoms persist.
C. Advise Louise that sexual partners she has had only in the past 3 months will need testing for chlamydia.
D. Advise Louise that sexual partners she has had only in the past 3 months will need treatment for chlamydia.

QUESTION 6

Which of the following is one of the Melbourne consensus statements on early detection of prostate cancer?

A. For men aged 50–69 years, there is no evidence that prostate-specific antigen (PSA) testing reduces prostate cancer-specific mortality or the incidence of metastatic prostate cancer.

B. For men in their 50s, level 1 evidence shows that PSA testing alone is reliable for early prostate cancer detection.

C. Baseline PSA testing for men in their 40s is useful for predicting the future risk of prostate cancer.

D. Older men in good health with over a 10-year life expectancy should not be subjected to PSA testing.

QUESTION 7

Which of the following can falsely elevate PSA levels?

A. Sexual activity in the days preceding the test

B. 5-alpha reductase inhibitors

C. Thiazide diuretics

D. Statins

QUESTION 8

A typical active surveillance program for a patient diagnosed with low-grade prostate cancer includes:

A. PSA testing and digital rectal examination (DRE) every 6 months after diagnosis and a surveillance biopsy at 12 months if PSA levels are elevated

B. PSA testing and DRE every 4 months for the first year after diagnosis every 12 months thereafter

C. PSA testing every 4 months for the first year and every 6 months thereafter, and a surveillance biopsy at 12 months after diagnosis and every 2–3 years thereafter.

D. PSA testing every 4 months for the first year and every 12 months thereafter, and a prostate MRI at 12 months after diagnosis.

QUESTION 9

A diagnosis of dilated cardiomyopathy (DCM) requires:

A. Evidence of increased wall motion.

B. Evidence of impaired contraction of both ventricles.

C. Evidence of dilation and impaired contraction of the left ventricle or both ventricles.

D. Evidence of decreased wall thickening.

QUESTION 10

Which of the following is recommended as a non-pharmacological treatment for DCM?

A. Fluid intake of at least 2 L/day

B. Regular, moderate physical activity

C. Sodium intake of <1 g/day

D. A high-protein diet

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Independent learning program for GPs