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Independent learning program for GPs

Unit 580
March 2021

Women's health

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We acknowledge the Traditional Custodians of the lands and seas on which we work and live, and pay our respects to Elders, past, present and future.

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Women's health

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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
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NIPT Webinar Series

Integrating NIPT into GP Practice

Non-invasive prenatal testing (NIPT) is the most accurate screening option for fetal aneuploidies. NIPT analyses the cell-free DNA in a pregnant woman's blood to screen for potential chromosomal anomalies during pregnancy. General Practitioners (GPs) are often the first touchpoint for newly pregnant patients. In order to maximize a patient's options for prenatal screening for chromosomal anomalies, GPs should be able to introduce and offer NIPT to their patients and arrange appropriate follow up of results.

Presented by local healthcare professionals, this webinar series will provide insights and expertise on successfully implementing NIPT into clinical practice. Presentations will include the current state of prenatal screening options in Australia, review the latest RANZCOG/HGSA prenatal screening guidelines, identify helpful resources, address patient counselling considerations, and present interesting case studies.

Session 1
16 March 2021, 7:00 PM – 8:00 PM (AEDT)
General overview of NIPT and screening guidelines
A/Professor Vinay Rane, Royal Australasian College of Medical Adminstrators

Session 2
30 March 2021, 7:00 PM – 8:00 PM (AEDT)
Test methods and limitations
Dr Michael Gabbett, Queensland University of Technology

Session 3
14 April 2021, 7:00 PM – 8:00 PM (AEDT)
NIPT counselling considerations
Ms Belinda Dopita, Comprehensive Genetic Counselling

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About this activity

One in eight (12.5%) women who attend general practice in Australia present with an obstetric and/or gynaecological problem.[1]

Heavy menstrual bleeding affects 25% of menstruating women and is a common general practice presentation.[2] It can result in lost productivity, a decreased quality of life and increased financial burden.[3]

Data show that 81% of Australian women are using some form of contraception.[4] General practitioners (GPs) are well placed to recommend long-acting reversable contraception, which is more than 99% effective, as a first-line option for women with no contraindications.[5]

Approximately 14% of women are affected by dyspareunia, although prevalence varies across the lifespan.[6] Certain conditions, such as vaginismus, are thought to be common, although incidence is unknown,[7] potentially due to patients' shame and embarrassment about discussing the issue.

Anxiety and depression affect one in five women at some stage in their lives.[8] Assessing a woman's mental health in relation to her stage of life is essential, as the likelihood of developing depressed mood may be up to three times higher during menopause when compared with premenopause.[9]

In 2019, Australia observed its hottest year on record.[10] Heat exposure is associated with risks to pregnancy, including preterm birth and stillbirth.[11] Other environmental factors, such as air pollution, can also lead to adverse pregnancy outcomes.[12] GPs are well placed to advise pregnant women how to minimise these risks during pregnancy.

This edition of *check* considers the investigation and management of conditions affecting women's health in general practice.

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Learning outcomes

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

- outline the process of history-taking and physical examination used to determine the cause of heavy menstrual bleeding
- identify the contraindications to long-acting reversible contraception and the combined oral contraceptive pill
- describe the long-term management of a patient with vaginismus
- discuss the potential causes of mood disorders in midlife and the signs that indicate perimenopausal depression should be considered
- outline ways in which the detrimental effects of climate change on pregnancy can be mitigated.

Authors

Case 1

Sarah Sibson FRACGP, BMBS, BMSc is a General Practitioner at Aware Women's Health in Adelaide, and an Obstetrics & Gynaecology surgical assistant. She has special interests in antenatal care, contraception, fertility/family planning and menstrual disorders.

Case 2

Alison Creagh MBBS, DRANZCOG, MHPE has worked as a General Practitioner with a special interest in women's health for 34 years. With a strong interest in medical education, she has also been the Medical Educator at Sexual Health Quarters (previously known as Family Planning Western Australia) for 20 years. Her particular interests in sexual and reproductive health include contraception, gynaecological problems and menopause.

Case 3

Sarah Yolland MBBS (Hons), FRACGP, DCH is a General Practitioner in Hobart with an interest in women's health. She has completed the Family Planning Alliance Australia Certificate in Reproductive and Sexual Health.

Case 4

Amy Moten MBBS, FRACGP is the Coordinator: Medical Education at SHINE SA, where she provides clinical education to doctors, registered nurses and midwives in South Australia. She also works as a General Practitioner with a special interest in sexual and reproductive healthcare.

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Case 5

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Uma Sivasekaram BSc (Hons), MBBS, FRACGP, DCH is a General Practitioner who works in a busy CBD practice in Sydney, NSW. While she enjoys the wide variety of medicine that general practice has to offer, she has a special interest in women's health and sexual and reproductive health and has completed the Family Planning Alliance Australia Certificate in Reproductive and Sexual Health – Theory component in NSW. She also has interests in mental health, medical education and paediatric medicine.

Abbreviations

BMI	body mass index
CBT	cognitive behavioural therapy
COCP	combined oral contraceptive pill
CST	cervical screening test
FBE	full blood examination
FIGO	International Federation of Gynecology and Obstetrics
GP	general practitioner
hCG	human chorionic gonadotrophin
HMB	heavy menstrual bleeding
IUD	intrauterine device
LMP	last menstrual period
LNG-IUS	levonorgestrel 52 mg intrauterine system
MEC	Medical Eligibility Criteria
MRI	magnetic resonance imaging
MUSA	Morphological Uterus Sonographic Assessment
NSAID	nonsteroidal anti-inflammatory drug
PCR	polymerase chain reaction
PID	pelvic inflammatory disease
SNRI	serotonin and noradrenaline reuptake inhibitor
SSRI	selective serotonin reuptake inhibitor
STI	sexually transmissible infection
TSH	thyroid stimulating hormone
VTE	venous thromboembolism

CASE

1 Diya requests a medical certificate

Diya, aged 29 years, is a regular patient of your practice. She is generally well and has only attended for minor illnesses in the past. Today she presents requesting a medical certificate for work, as she has not been able to attend for the past three days because of her menstrual symptoms. Her periods have become increasingly heavy, and Diya has been taking a couple of days off work every month as she worries about accidents while she is in the office.

Question 1

What further information would you like to determine as part of your history-taking?

Further information

Diya started menstruating at 10 years of age. Her periods were initially irregular but have since settled into regular 26-day cycles. Her periods last for seven days, and she has very heavy bleeding on the first three days, needing to change her tampon and pad (she uses both at the same time) every two hours. Diya often has spotting in the 1–2 days leading up to the start of her period. She experiences clots and flooding during the first two days of her cycle, and her pads frequently leak overnight so she has started sleeping on an old towel during her period. Diya's periods have also become increasingly painful over the past 10 years; she describes a heavy central pelvic ache that begins the day before her period and continues for two days after bleeding starts.

Diya does not have any bladder or bowel symptoms, nor any vaginal discharge or irritation. She does not report any significant acne or abnormal hair growth. Diya and her fiancé, Michael, have been together for four years and are using condoms for contraception, but she notes they are not intimate as often lately because she experiences deep pelvic pain during intercourse. She has previously been prescribed a combined oral contraceptive pill (COCP) and remarks that her periods were not as bad when taking the COCP. Diya has not had a pregnancy; her cervical screening test (CST) when aged 26 years was negative, and sexually transmissible infection (STI) screening performed four years ago was also negative. Her mother and maternal aunt both had hysterectomies when aged in their forties, but she is not sure what the indications were.

Question 2

What examinations would you perform?

Further information

On examination, Diya's blood pressure is 116/68 mmHg, and her heart rate is 78 beats per minute, rising to 92 beats per minute on standing. Her body mass index (BMI) is 27 kg/m^2. Her abdominal examination is unremarkable, and the speculum examination is normal. Diya's bimanual vaginal examination reveals central pelvic tenderness with a palpable uterine fundus below the pelvic brim, normal uterine mobility and no adnexal masses or tenderness.

Question 3

What is the differential diagnosis at this stage?

Question 4

What investigations would you request?

Further information

The results of Diya's blood tests are:

- low ferritin 18 μg/L (reference range 30–210 μg/L)
- high transferrin 3.6 g/L (reference range 2.0–3.2 g/L)
- low-normal saturation 14% (reference range 10–45%)
- normal serum iron 10.1 μmol/L (reference range 8.8–27 μmol/L)
- normal haemoglobin 122 g/L (reference range 119–160 g/L).

Thyroid function testing, electrolyte/liver function testing and coagulation studies are all normal. Her quantitative human chorionic gonadotropin (hCG) is negative. CST is negative for human papillomavirus, and liquid-based cytology is normal with an endocervical component present. The endocervical swab is negative for chlamydia and gonorrhoea on polymerase chain reaction (PCR), and high vaginal swab microscopy, culture and sensitivity shows normal flora. Transabdominal and transvaginal pelvic ultrasonography performed on day seven of her cycle shows:

- uterus is enlarged and appears bulky, measuring 105 mm long × 65 mm wide × 45 mm anteroposterior (reference range – mean 80 mm long × 50 mm wide × 40 mm anteroposterior)
- normal endometrial thickness 5 mm
- heterogeneity of the endometrial–myometrial border with multiple small (<2 mm) myometrial cysts
- ovaries normal in size (4 cc and 6 cc) and appearance
- small amount of free fluid in the Pouch of Douglas.

Question 5

Based on your findings, what are Diya's main issues?

Question 6

What treatment would you recommend for the cause of Diya's heavy periods?

Further information

Diya successfully uses the levonorgestrel 52 mg intrauterine system (LNG-IUS) for two years, at which point she returns to see you with her husband, Michael. They are thinking about trying for a pregnancy soon, so she wants to remove her LNG-IUS in preparation for this. However, Diya is concerned about her periods getting worse again. They are also worried about the effects of her condition on their ability to conceive and if it will have any impact on a pregnancy.

Question 7

As Diya is planning to start her family soon, what other options does she have to manage her symptoms in the interim?

Question 8

What would you tell Diya and Michael about their concerns regarding fertility and pregnancy?

Further information

Diya continues to see you and now has three school-aged children. She and Michael have completed their family and she is hoping to simplify her healthcare by changing to a treatment option that requires less maintenance to control her heavy periods.

Question 9

What permanent treatment options are available to address Diya's condition?

CASE 1 Answers

Answer 1

Heavy menstrual bleeding (HMB) is a common presentation in general practice; it affects one in four menstruating women.[1] For research quantification purposes, HMB is defined as >80 mL of blood loss per cycle. However, this measure is impractical for clinical applications and does not equate to impact on the patient, so clinical focus should instead be on determining if there is 'excessive menstrual blood loss which interferes with a woman's physical, social, emotional, and/or material quality of life'.[2]

Therefore, it is important to take a detailed menstrual history and characterise Diya's bleeding.[3] This includes the regularity and length of her cycles; number of days bleeding; flow as assessed by frequency and number of pads and/or tampons used (or need to empty menstrual cup/change period underwear), including overnight; presence of large clots (size >50-cent piece); flooding or accidents. Attention to abnormal patterns of bleeding (intermenstrual and post-coital loss) and pain are also key.

Other factors such as obstetric, sexual and family histories may contribute to your diagnosis of the cause of Diya's HMB, so a thorough general history should always be conducted as well.

The impacts of HMB are wide-reaching and result in significant reductions in quality of life, lost productivity and increased financial burden.[4] Recognising every individual's experience is crucial to adequately treat the condition.

Answer 2

Routine observations including postural blood pressure and heart rate and BMI are relevant in the workup of patients with HMB. If the blood loss is significant, there may be signs of postural hypotension or tachycardia. Women with an elevated BMI are at increased risk of some causes of HMB, including endometrial hyperplasia[5] and leiomyomata.

A bimanual pelvic examination is recommended for most patients unless they are not yet sexually active[1,2] or they decline the examination. This may detect abnormal findings such as palpable masses and/or abnormal uterine size and may clarify the location of any pain experienced.

A speculum examination should be performed if there is a likely vaginal or cervical cause of the patient's symptoms, such as Diya's premenstrual spotting. Samples can also be collected at the same time, as appropriate.

Answer 3

The International Federation of Gynecology and Obstetrics (FIGO) developed a system for classification and assessment of abnormal uterine bleeding called PALM-COEIN (Box 1), which is a useful acronym to employ when considering the differential diagnoses for causes of HMB.

Box 1. Federation of Gynecology and Obstetrics PALM-COEIN system[5]

Structural (diagnosed via imaging and/or histopathology):

- **P**olyp
- **A**denomyosis
- **L**eiomyoma
- **M**alignancy/hyperplasia

Non-structural:

- **C**oagulopathy
- **O**vulatory dysfunction
- **E**ndometrial disorders
- **I**atrogenic (including medication affecting coagulation, ovulation)
- **N**ot otherwise classified

Diya's presentation is most consistent with adenomyosis but may also reflect uterine fibroids (leiomyomata) or endometriosis. Other pathology such as an endometrial polyp or hypothyroidism may account for some of her symptoms but are less likely.

Answer 4

There is no standard set of tests that applies to all patients who present with HMB, apart from performing a full blood examination[2] and iron studies[1] to assess the impact the bleeding has had on iron status and potential anaemia.

The remainder of investigations should be individualised on the basis of the patient's history and examination findings. The practitioner may consider performing the following tests if indicated: urine/serum hCG, thyroid function testing, coagulation profile, genetic coagulopathy testing, CST or endocervical swab PCR for chlamydia/gonorrhoea.[1,2,5]

Diya has recently relied on condoms for contraception, so hCG testing is advised. A CST should also be collected, as although her most recent test was <5 years ago, she reported pre-menstrual spotting that needs to be investigated.

The most useful and accessible diagnostic tool assessing HMB is transvaginal ultrasonography. It is recommended that most patients with HMB have transvaginal ultrasonography performed on day 5–10 of their menstrual cycle, unless there is a clear non-structural cause for their symptoms or they are not yet sexually active.[1] If it is the latter, abdominal ultrasonography or magnetic resonance imaging (MRI) may be considered instead, but these are not considered first-line imaging in other patients.[2]

It is important to note that if a patient is at risk of ongoing HMB while investigations are being undertaken, they should commence provisional treatment while awaiting results.[2]

Answer 5

Diya's ultrasonography results are highly suggestive of adenomyosis, a condition described as the benign invasion of endometrial tissue into the myometrium.[6] Symptoms commonly reported with adenomyosis are heavy bleeding, dysmenorrhoea and irregular bleeding, although as many as one-third of women may be asymptomatic.[7] The condition was previously defined as a variant of endometriosis, but more clinicians now advocate for its consideration as an independent entity. It is difficult to accurately assess the prevalence of the condition because the diagnosis was historically made at the time of hysterectomy, but the mean frequency of adenomyosis in surgical specimens is between 20% and 30%.[6]

As a result of advances in ultrasonography technology, the condition is now frequently diagnosed using transvaginal ultrasonography findings. The Morphological Uterus Sonographic Assessment (MUSA) group created sonographic criteria (Box 2) wherein the presence of two or more of the findings is highly associated with adenomyosis.[5] However, the most common finding on ultrasonography is diffuse myometrial heterogeneity.[6]

Box 2. Morphological Uterus Sonographic Assessment group adenomyosis criteria[5]

- Asymmetrical myometrial thickening
- Myometrial cysts
- Hyperechoic islands
- Fan-shaped shadowing
- Echogenic subendometrial lines
- Translesional vascularity
- Irregular junctional zone
- Interrupted junctional zone

Diya's blood results reveal a significant iron deficiency, as is frequently the case for women with HMB. She should commence appropriate iron replacement and be adequately monitored to assess her response.

Answer 6

There are several reversible hormonal treatment options available for adenomyosis, and recommendations should be tailored for each individual patient. The LNG-IUS is the first choice because of efficacy in bleeding reduction, with a drop in menstrual loss of 71–90%, and high patient satisfaction.[1,8,9] It should be offered unless there are contraindications to its use.

The COCP is moderately effective in reducing menstrual blood loss when it contains an ethinyloestradiol dose of 30 μg,[8] and it may be suitable for use for patients with HMB, depending on patient risk factors and preference.[10]

While cyclical use of progestogen-only pills is less effective in controlling HMB,[11] they may still be beneficial in a select group of patients for whom an LNG-IUS or the COCP is not suitable and treatment is only required for ≤6 months. For women with ovulatory cycles, a long cycle of 21 days of medroxyprogesterone 10 mg 2–3 times daily or norethisterone 5 mg 2–3 times daily is recommended.[1,8] A short cycle of 12 days should only be used for patients with anovulatory cycles, and dosing is once daily.[8,11]

The HMB Clinical Care Standards also suggest injected long-acting progestogens as an option,[1] but the evidence is not borne out in other high-quality sources.[2,8]

Early gynaecology referral is recommended if there is concurrent suspected malignancy or significant pelvic pathology and may be considered for patients who are non-responsive to optimal medical treatment after six months.[1,2]

Answer 7

Effective non-hormonal treatment options exist for HMB related to adenomyosis. Tranexamic acid 1–1.5 g 3–4 times daily for the first 3–5 days of menstruation is the first-line medication because of its superior efficacy over nonsteroidal anti-inflammatory drugs (NSAIDs) in controlling HMB.[8,12] However, for women who also have significant pain, NSAIDs may be chosen in preference to address both symptoms at once. NSAIDs can also be used in combination with tranexamic acid (or hormonal therapies). NSAIDs must be started just before or with onset of menses; selection depends on patient preference: ibuprofen 200–400 mg 3–4 times daily, mefenamic acid 500 mg three times daily or naproxen 500 mg immediately then 250 mg 3–4 times daily.[8]

There is emerging evidence that two interventional radiological procedures may be of adequate benefit in treating HMB due to adenomyosis. Uterine artery embolisation[13] and MRI-guided focused ultrasonography[6] appear to be safe and result in a reduction in HMB, but their effects on fertility are yet to be confirmed.

Answer 8

The couple's question is challenging but important, as adenomyosis does have negative impacts on ability to conceive because of several potential structural and biochemical abnormalities.[7] Women with the condition are more likely to

have lower pregnancy rates with in vitro fertilisation,[7] and studies in non–assisted reproduction treatment populations appear to mirror this. While Diya and Michael may not have any issues, it is important to set expectations about how long they should try before seeking the help of a fertility specialist.

If they can conceive, then there are additional concerns related to adenomyosis regarding risks of negative outcomes in pregnancy. Research in this area is still in its early stages, but studies have shown increased rates of preterm labour and premature rupture of membranes in particular, as well as small for gestational age babies, first and second trimester miscarriage, pre-eclampsia and placental malposition.[14,15]

Answer 9

Now that Diya has completed her family, a couple of effective options are available to her that were not appropriate to use earlier in her reproductive life. An endometrial ablation is recommended as the first option for most women seeking a longer-term solution, as it has a lower risk of complications when compared with hysterectomy, is undertaken as a day procedure, results in significant reduction in menstrual bleeding and has a high patient satisfaction rate.[1,16]

If other treatment options are ineffective, unsuitable or not desired by the patient, then it is appropriate to discuss the option of hysterectomy.[1] It is important to recognise that the risk of complications is higher because of the extent of the operation, but it is certainly a definitive treatment for HMB. If the procedure can be performed laparoscopically, the recovery time and return to normal activity are similar to that of ablation.[17]

Resources for doctors

- Jean Hailes for Women's Health – Heavy menstrual bleeding health professional tool, www.jeanhailes.org.au/resources/heavy-menstrual-bleeding-health-professional-tool
- Australian Commission on Safety and Quality in Health Care – Heavy menstrual bleeding clinical care standard, www.safetyandquality.gov.au/standards/clinical-care-standards/heavy-menstrual-bleeding-clinical-care-standard

Resources for patients

- Jean Hailes for Women's Health – Adenomyosis, www.jeanhailes.org.au/health-a-z/vulva-vagina-ovaries-uterus/adenomyosis
- Jean Hailes for Women's Health – Heavy menstrual bleeding fact sheet, www.jeanhailes.org.au/resources/heavy-menstrual-bleeding-fact-sheet
- The Royal Australian and New Zealand College of Obstetricians and Gynaecologists – Endometriosis, https://ranzcog.edu.au/womens-health/patient-information-resources/endometriosis
- The Royal Women's Hospital – Heavy periods, www.thewomens.org.au/health-information/periods/heavy-periods
- Endometriosis Australia – What is endometriosis, www.endometriosisaustralia.org/about-endo

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CASE

2 Jana is seeking contraception

Jana, aged 17 years, comes to your practice to talk to you about effective contraception. She has been sexually active with a male partner for the past three months, using condoms most of the time. She does not want to become pregnant at this time and has not been pregnant previously. She has regular menstrual cycles, bleeding for four days every 30–32 days, and her last menstrual period (LMP) was 12 days ago. Jana and her partner have consistently used condoms since her LMP. Before you discuss all available options with Jana, you decide to check for contraindications to the more effective options.

Question 1

What are important contraindications to initiating a contraceptive implant?

Question 2

What are the contraindications to initiating an intrauterine device (IUD)?

Question 3

What are important contraindications to initiating a combined hormonal contraceptive method, such as the combined oral contraceptive pill?

Further information

Fortunately, Jana has no contraindications to any contraceptive method. You discuss the available contraceptive options with Jana, using the contraceptive card you have downloaded from your local family planning organisation's website (Figure 1). Because of its effectiveness and ease of use, Jana decides to try a contraceptive implant and wants to know if it can be inserted today.

Question 4

How will you respond to Jana's question about implant insertion today?

Further information

You insert Jana's contraceptive implant using the Quick Start method. Eight months later, Jana comes to see you again. She was very happy with the implant for six months, as she had no hormonal side effects and very infrequent light vaginal bleeding. However, she has experienced daily light vaginal bleeding for the past six weeks.

Figure 1. Contraception method information card[9]

Reproduced with permission from Family Planning Alliance Australia

Question 5

What might be causing the bleeding?

Question 6

If no abnormal causes for bleeding are detected, what management options would you suggest?

Further information

Jana is unwilling to continue using the contraceptive implant as she does not want to risk further frequent bleeding. She is interested in trying a hormonal IUD, as her friend has experienced amenorrhoea while using it.

Question 7

What would you tell Jana about the bleeding patterns she may experience while using the 19.5 mg and the 52 mg levonorgestrel-containing IUDs?

Further information

Jana is keen to know what she might experience during insertion.

Question 8

What information would you provide to Jana, including explaining possible complications with insertion?

CASE 2 Answers

Answer 1

There are very few contraindications to contraceptive implants, but it is still important to take a thorough history to exclude them. Contraindications are often classified within Medical Eligibility Criteria (MEC) guidelines, from 1 (no contraindication) to 4 (absolute contraindication). Those below are from the UK guidelines and are not a complete list:[1,2]

- UKMEC 4 (absolute contraindication)
  - Current breast cancer
- UKMEC 3 (risks usually outweigh the benefits)
  - Unexplained vaginal bleeding (suspicious for serious condition)
  - Past breast cancer
  - Severe decompensated cirrhosis of liver, liver tumours.

Answer 2

Important contraindications to initiating an IUD include:

- UKMEC 4
  - Pelvic inflammatory disease or symptoms or signs of chlamydia or gonorrhoea
- UKMEC 3
  - Distortion of uterine cavity (congenital anomalies, fibroids)
  - Unexplained vaginal bleeding (suspicious for serious condition)
  - Postpartum 48 hours to four weeks
  - Current or past breast cancer (hormone-containing IUDs only)
  - Severe decompensated cirrhosis of liver, liver tumours (hormone-containing IUDs only)
  - Human immunodeficiency virus with serious immune compromise.

Answer 3

Contraindications to implementing a combined contraceptive method include:

- UKMEC 4
  - Migraine with aura
  - Current breast cancer
  - History of venous thromboembolism (VTE), known thrombophilia
  - Complicated valvular heart disease, cardiac arrhythmia
  - Ischaemic heart disease or cerebrovascular disease
  - Age >35 years, smoker of >15 cigarettes daily
  - Hypertension with blood pressure >160/100 mmHg
  - Severe decompensated cirrhosis of liver, liver tumours
  - Postpartum up to three weeks, with additional VTE risks
  - Breastfeeding and up to six weeks postpartum
- UKMEC 3
  - First-degree relative aged <45 years who has had a VTE; immobility
  - Strong cardiovascular risks (eg diabetes with renal complications)
  - Body mass index >35 kg/m^2

- Past breast cancer
- Acute viral hepatitis
- Postpartum, not breastfeeding: 0–3 weeks without additional VTE risks or 0–6 weeks with additional VTE risks.

Migraine with aura is quite common, occurring in approximately 4% of women.[3] Specific questions may be required regarding migraine history and family history of VTE, as patients will not always provide this history without specific questioning.

Answer 4

Jana has two options: insertion today, using the Quick Start method (Box 1), or insertion during the first five days of her next cycle.

The advantages of insertion today include effective contraception sooner and avoiding the need to return for insertion another day. Possible disadvantages are that pregnancy cannot be excluded now; therefore, a pregnancy test should be done in four weeks. The implant will become effective in seven days, so Jana will either need to continue using condoms or abstain until it is effective.

Advantages of insertion during days 1–5 of a menstrual cycle include greater certainty that there is no pregnancy and the implant will become effective immediately.

Whenever possible, it is recommended to follow the Quick Start method of hormonal contraception to provide effective contraception earlier than if the patient waited until their next period commenced – or longer if they were unable to attend on days 1–5.

Box 1. Quick Start contraception[4]

Quick Start[4] refers to starting a method of hormonal contraception outside the usual recommendation of commencing on days 1–5 of a cycle. The principles are:

- start active contraception immediately
- use barriers or abstinence until the method becomes effective (seven days for most methods; 48 hours for progestogen-only pills)
- do a pregnancy test in four weeks.

Quick Start is suitable for all types of contraception except intrauterine devices.

Answer 5

Irregular vaginal bleeding is a common side effect of contraceptive implants. However, a recent increase in bleeding could indicate a pathological cause. The most common cause in young women is chlamydia.

Other important possibilities to consider, depending on age and other risk factors, are pregnancy, medication interactions, cervical cancer, endometrial cancer and endometrial polyps.[5]

Answer 6

Depending on the patient's wishes and the absence of contraindications to medications, the following management options can be tried:[5]

- wait and see if the bleeding settles
- trial a combined hormonal contraceptive for three months
- trial a five-day course of nonsteroidal anti-inflammatory drugs such as mefenamic acid 500 mg twice to three times daily
- trial a five-day course of tranexamic acid 500 mg twice daily, particularly if bleeding is heavy
- commence another method and remove the implant once the new method is effective.

Other options with lower levels of evidence for their effectiveness include:[5]

- norethisterone 5 mg three times daily for 21 days
- levonorgestrel progestogen-only pill, 30 μg twice daily for 20 days
- early replacement of implant.

Answer 7

Both IUDs are likely to result in reduced bleeding in comparison to that which occurs during natural cycles, with a greater reduction in bleeding likely with the 52 mg IUD than the 19.5 mg IUD.[6] Bleeding may be frequent in the first 3–6 months.[7]

Answer 8

A blood pressure and pulse measurement and vaginal examination are usually performed; a speculum is inserted and the cervix is usually cleaned with an antiseptic solution. Some providers apply local anaesthetic (spray, gel or injection). This sometimes feels uncomfortable, and injections can cause cramps. Cramps are common during the insertion procedure but are generally manageable. Sometimes vasovagal reactions occur, so the patient may feel faint, nauseated or sweaty.

Other possible complications of IUD insertion include:

- infection occurring in the first three weeks after insertion (approximately one in 300 people)
- non-insertion (due to excessive pain or technical factors)
- perforation of the uterus (1–2 in 1000 people)
- malposition of the IUD.[8]

Conclusion

Jana has a lower-dose hormonal IUD inserted without any problems and undergoes removal of her contraceptive implant a week later. She continues to use the IUD, and after four

years she continues to experience very light, regular monthly bleeding. Jana is very happy with her IUD.

Resources for doctors

- Family Planning Alliance of Australia – Contraception card, www.familyplanningallianceaustralia.org.au/wp-content/uploads/2019/03/EFFICACY-OF-CONTRACEPTIVE-METHODS-2019.pdf
- Family Planning Alliance of Australia – Bleeding guide, www.familyplanningallianceaustralia.org.au/wp-content/uploads/2014/11/fpaa_guidance_for_bleeding_on_progestogen_only_larc1.pdf
- Family Planning Victoria – Quick Start guide, www.fpv.org.au/assets/resources/Quick-Start-Contraception-protocol.pdf
- UKMEC – April 2016 Summary Sheet (Amended 2019), www.fsrh.org/standards-and-guidance/documents/ukmec-2016-summary-sheets/

Resources for patients

Contraceptive methods information from family planning organisations:

- Northern Territory, www.fpwnt.com.au
- Queensland, www.true.org.au
- Australian Capital Territory, www.shfpact.org.au
- New South Wales, www.fpnsw.org.au
- Victoria, www.fpv.org.au
- Tasmania, www.fpt.asn.au
- South Australia, www.shinesa.org.au
- Western Australia, www.shq.org.au

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CASE

3 Kyung Mi is experiencing painful sex

Kyung Mi, aged 23 years, has come to see you with her boyfriend, Tom, for a standard 15-minute appointment. Kyung Mi says that sexual intercourse has recently become more painful. She is embarrassed and upset talking about it but is able to tell you that since being with Tom, penetration has become so painful that she now cannot tolerate penetrative sex. Kyung Mi says it is putting a strain on their relationship and says tearily, 'I just want to be able to have sex like a normal person'.

Question 1

How would you manage this consultation, and what would you ask Kyung Mi to help you make a diagnosis?

Further information

You learn from Kyung Mi that sexual intercourse has always been painful for her. She uses tampons, and inserting them has always been painful also. She has recently switched to using pads only. She has a normal 6/28-day cycle with moderate pain on the first two days of her period only and no other gynaecological symptoms of note (including no post-coital bleeding). She has never been pregnant and has not yet had a cervical screening test (CST) as per screening guidelines. She became sexually active when aged 19 years and has had three male sexual partners. She had a normal sexually transmissible infection (STI) screen at the beginning of her relationship with Tom and does not report any other recent partners.

Kyung Mi states that the pain she experiences is at superficial penetration. She describes it as a 'burning, stinging sensation' all around the vaginal opening ('like it is shut') and does not think the pain is localised to one point. The pain is now so severe that she cannot have sexual intercourse. She explains that she now dreads sexual intercourse as she anticipates the pain.

Tom is supportive during the consultation and seems caring towards Kyung Mi. You ask to see Kyung Mi alone and she does not report any domestic violence/sexual assault either in the past or currently. She confirms that she feels safe in her relationship and wants to enjoy sexual intercourse. Kyung Mi explains that she has had 'a bit of anxiety' in the past but has managed it herself and has not needed to see a psychologist.

Question 2

What is your working diagnosis at this stage?

Question 3

What would you do next?

Further information

Kyung Mi declines a chaperone and you proceed with examination after gaining verbal consent. She has no abdominal tenderness. Her external genitalia and vulva appear normal. There is no sensitivity to light touch around the vaginal opening. Kyung Mi tolerates a vaginal examination, which is normal, and she is able to tolerate a very gentle speculum examination with the smallest speculum available. Kyung Mi reports that the most pain is on insertion of the speculum. Endocervical swabs are taken for chlamydia and gonorrhoea polymerase chain reaction (PCR). Her cervix and vagina look normal.

Examination therefore supports your provisional diagnosis of primary (lifelong) vaginismus.

Question 4

How would you explain this to Kyung Mi?

Question 5

What treatment options are available for vaginismus?

Further information

You refer Kyung Mi to a pelvic floor physiotherapist for assessment and management. Her sexually transmissible infection (STI) screen is negative. You receive a telephone call from the physiotherapist to explain that despite three appointments and seemingly good adherence to treatment, Kyung Mi is not progressing. Kyung Mi reports increasing anxiety in relation to vaginal penetration.

Question 6

What would you consider at Kyung Mi's follow-up appointment?

CASE 3 Answers

Answer 1

Time management is often challenging for this type of consultation. There may be a substantial amount of historical information to discuss, Kyung Mi is distressed and an examination will take time. It is also important to consider asking Tom to leave the room while you speak with Kyung Mi privately about domestic violence, safety and some aspects of the sexual history about which she may not be forthcoming in Tom's presence. One possibility to aid with time management is to take a history from Kyung Mi and order any preliminary investigations you consider to be pertinent (eg an STI test) at this consultation, and ask her to return for an examination at a later date. This approach will differ between practitioners.

History should include a comprehensive sexual history: menstrual cycle details, pelvic pain history, obstetric history, how many partners she has had, if she is up to date with STI screening and the CST, and details of the pain felt during intercourse. A general medical/surgical history is also appropriate given the possibility of comorbid conditions, as is a mental health history to assess for any contributing factors.

Answer 2

The longstanding history Kyung Mi gives of painful sexual intercourse and tampon insertion is supportive of a diagnosis of primary (lifelong) vaginismus. The differential diagnosis includes secondary (acquired) vaginismus, vulvodynia, endometriosis, STI and pelvic inflammatory disease (PID), with potential underlying contributing factors/diagnoses of undisclosed sexual assault and anxiety.

Answer 3

It is important to examine women who present with pain during sexual intercourse, to guide diagnosis and therefore treatment. This should be done after obtaining verbal consent, and a chaperone could also be offered. As mentioned previously, examination may be deferred or declined as a result of distress, and sometimes several consultations with health professionals (and possibly commencement of treatment) are needed prior to an examination.[1]

Lower abdominal palpation to assess for pelvic tenderness can be a good way to start the examination process in a non-invasive way. It is important to examine the external genitalia/vulva for skin lesions and abnormalities such as signs of lichen sclerosus and vaginal atrophy. A vaginal examination is appropriate to assess for signs of vulvodynia and endometriosis/PID (eg adnexal tenderness/cervical motion tenderness). Speculum examination is ideal but is likely to cause distress and can be considered on a case-by-case basis in discussion with the patient. It may need to be deferred but should not preclude referral for treatment.

STI testing (endocervical swab, high vaginal swab, low vaginal swab or urine PCR) and urine microscopy, culture and

sensitivity to rule out a urinary tract infection if there are any suggestive symptoms are reasonable pathology tests to consider in this situation.

Answer 4

The definition of vaginismus is changing. It was previously described in the literature as an involuntary contraction of the vaginal muscles that makes (desired) sexual intercourse difficult or impossible, despite a lack of evidence linking objective muscle spasm to vaginismus.[2,3] In 2014, the *Diagnostic and statistical manual of mental disorders*, fifth edition, provided a new framework for vaginismus and the often-linked condition dyspareunia under the new term 'genito-pelvic pain/penetration' disorder, which places as much emphasis on the patient experience of pain and difficulty with sexual intercourse as on the objective spasm of the pelvic floor musculature. This is such that a diagnosis can be made in the absence of clear spasm, based purely on the experience of pain, difficulty with intercourse and fear of pain or vaginal penetration.[4]

A good explanation for Kyung Mi would be one that emphasises the importance of her experience of pain with vaginal penetration and the interplay between physiological and psychological factors that lead to the 'vicious cycle of vaginismus', where fear of pain leads to increased muscular reactivity, which worsens the experience of pain, further increasing fear.[5]

Answer 5

There is not yet any treatment for vaginismus that has good supporting evidence. Typical accepted treatment is delivered by a multidisciplinary team[6] and tends to focus on vaginal dilation in combination with progressive desensitisation and relaxation techniques, though a Cochrane review concluded that there is limited evidence to support systematic desensitisation (dilators).[7] Education regarding sexual intercourse and anatomy, psychology and/or sex therapy aimed at reducing the fear component of vaginismus and couples therapy are all important pillars of effective treatment. Cognitive behavioural therapy (CBT) aimed at 'decreasing avoidance behaviour and penetration fear'[6] has been shown to be effective in the literature. General practitioners (GPs) are well placed to assist in the provision of education regarding vaginismus treatment, and women often are reassured by normal findings on physical examination.[5] GPs can facilitate important referrals to a pelvic floor physiotherapist for ongoing education and delivery of progressive desensitisation, as well as a psychologist or sex therapist to target the causes of behavioural avoidance in relation to penetration, which has often been present for many years before treatment. Referral to a gynaecologist is not always necessary and may only be required when the diagnosis is unclear or in the presence of other comorbid gynaecological conditions (eg endometriosis). There is only poor evidence available for other treatments such as Botox injections, hypnotherapy, electromyography and biofeedback, and topical anaesthetic creams.[1,5]

Answer 6

Long-term support will be necessary for Kyung Mi to ensure her treatment continues to be helpful. It will be important to regularly check on her symptoms and potential sequelae; for example, comorbid anxiety. Because Kyung Mi has begun treatment, and therefore increased her exposure to this painful stimulus, it follows that her anxiety has increased. She would now benefit from referral to a psychologist for CBT if she had not been previously referred. Contraception review and regular STI screening are also important to consider in her follow-up and future consultations.

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CASE

4 Sheree feels anxious

Sheree, aged 44 years, is a teacher and has been your patient for several years. She is worried about her mood. She has been feeling tired and anxious for the past six months. Sheree has been having trouble sleeping, feeling forgetful and having difficulty concentrating at work. She is also worried that she is overreacting to minor issues, and this is affecting her home life.

Question 1

What additional information do you need?

Further information

Sheree has no significant past medical history and is a non-smoker. She previously drank two standard glasses of wine each night on weekends but now finds she is drinking up to four glasses most nights. She is not taking prescription medication but has recently started taking a multivitamin to try to increase her energy levels. She lives with her husband, George, and has two teenage children, Sarah (aged 13 years) and Mark (aged 16 years). Her father is deceased; her mother, June, (aged 74 years) has dementia and has recently moved into supported accommodation. Sheree teaches junior primary school five days per week.

Sheree has gained 3 kg in the past six months but has no other symptoms of an underlying medical or endocrine condition such as pallor (anaemia), cold intolerance (hypothyroidism) or polydipsia/polyuria (diabetes). Her menstrual cycle is 28 days; menstruation lasts five days, and Sheree describes it as light. She has no signs of oestrogen deficiency such as hot flushing, night sweats or vaginal dryness.

In addition to her presenting complaints of tiredness, fatigue and concerns about memory and concentration, Sheree reports feeling anxious and irritable and says she is overreacting for no reason. She has feelings of low self-esteem and worthlessness and has difficulty doing things she previously enjoyed, such as reading. She feels her energy levels have decreased, and she no longer exercises regularly. Her Kessler Psychological Distress Scale (K10) score is 31, which is in the high range, indicating increased risk for depression.

Question 2

What investigations would you order?

Further information

Sheree's clinical examination is unremarkable. The results for thyroid stimulating hormone (TSH), full blood examination (FBE), iron studies, vitamin B12 and fasting blood glucose levels are all within reference ranges. Urinalysis is clear for red cells, white cells, nitrites and glucose.

Question 3

What differential diagnosis would you consider as a cause of Sheree's mood symptoms?

Question 4

On the basis of Sheree's age, are there any additional diagnoses you need to consider?

Question 5

On the basis of your history, examination and investigations, how would you manage Sheree's symptoms?

Further information

After a thorough discussion of potential treatments, side effects and efficacy of treatment, Sheree chooses to have a mental healthcare plan and also to start antidepressant medication. You arrange to review her at two and four weeks after starting citalopram 20 mg daily. If Sheree has no initial response, or a partial response, you agree to discuss increasing the dose. After four weeks, Sheree reports the majority of her mood symptoms have improved, and she has engaged with a psychologist for regular therapy.

You see Sheree two years later. Her mood is stable, and she continues to take citalopram but is now starting to have hot flushes.

Question 6

What further information do you need to assess Sheree's hot flushes?

Further information

In addition to her hot flushes, Sheree reports waking up at night drenched in sweat. She is feeling generally achy, and her sleep disturbance has worsened again. She is most bothered by the hot flushes and night sweats as they are interfering with her work and sleep. Sheree reports her menses are becoming shorter and closer together; she has a 23–25-day cycle with bleeding for three days.

Question 7

What further investigations should be performed to assess Sheree's symptoms?

Question 8

How would you manage Sheree's hot flushes?

CASE 4 Answers

Answer 1

Additional history should include general health, medications and associated symptoms that may suggest a secondary cause for a mood disorder, such as an endocrine disorder.

Sheree is reporting mood symptoms; therefore, a full screen of symptoms related to mood disorders should be performed. A screen for depression would include depressed mood and/or anhedonia. Further questions would explore significant weight change or appetite disturbance, sleep disturbance (insomnia or hypersomnia), fatigue or loss of energy, feelings of worthlessness and diminished ability to think or concentrate.[1] Screening questions for anxiety disorders can include asking

about feelings of nervousness or worry, restlessness, feeling keyed up or on edge, being easily fatigued, difficulty concentrating or mind going blank, irritability and sleep disturbance.[1] Using a screening tool such as the K10 or Depression Anxiety Stress Scales 21 can give an objective measure for mood symptoms.[2] When assessing someone for mood disorder, it is important to assess suicidal ideation. There is no evidence to suggest that asking about suicidal ideation increases suicide risk.

Exploring additional stressors that could be contributing to mood is important, such as employment, home life and relationships.

Answer 2

A TSH level test is recommended to exclude hypothyroidism. Other recommended investigations include an FBE, iron studies for anaemia, and vitamin B12 level, as vitamin B12 deficiency can be associated with depression-like symptoms. Urinalysis and blood glucose level will screen for diabetes as a cause of fatigue. If there are any signs or symptoms of somatic disease, further investigations could include erythrocyte sedimentation rate, C-reactive protein, electrolytes, urea, creatinine and liver function tests.[3]

Answer 3

Mood disorders are common in midlife, including both new diagnoses in people with no previous history and exacerbations of previously well-controlled mood disorders. Australian statistical data show the median age of death due to suicide for women was 44.0 years of age in 2019.[4] Additionally, depression and anxiety affect one in five women at some stage in their lives.[5] The differential diagnosis for Sheree's mood symptoms should include major depressive disorder, generalised anxiety disorder and adjustment disorder. Other medical conditions that could cause Sheree's symptoms include anaemia, endocrine conditions such as hypothyroidism or diabetes, and depression secondary to other medical conditions. Drug and alcohol abuse should be excluded. Medications such as beta-blockers can also cause fatigue.

Answer 4

Sheree is within the typical age of perimenopause in Australia (39–51 years),[6] and perimenopausal depression should be considered, as the likelihood of developing depressed mood may be up to three times higher during menopause when compared with premenopause.[7] Menopausal transition or perimenopause is the time period between the onset of symptoms and the last menstrual period. Menopause is considered to have occurred 12 months after the last menstrual period in people aged >50 years or two years after the last menstrual period in people aged <50 years.[6] Perimenopause is marked by fluctuation in reproductive hormones followed by a low oestrogen state after menopause. Oestrogens are a class of neurosteroids that interact with neurotransmitters and neural circuits in addition to their primary endocrine and reproductive function.[8] It is increasingly recognised that perimenopausal women, as well as women in other low oestrogen states such as postpartum or premenstrual women, have an increased vulnerability to mood symptoms.[9]

Answer 5

For women in the perimenopausal age group with mild mood symptoms who do not meet the criteria for depression, or have other symptoms of oestrogen deficiency, menopause hormone therapy might be considered. Oestrogen replacement may also be helpful for people with vasomotor symptoms that disrupt sleep, such as night sweats.[10] Psychological intervention is also helpful for depression and anxiety and can be accessed via a mental healthcare plan.

Sheree meets the *Diagnostic and statistical manual of mental disorders*, fifth edition, criteria for major depressive disorder with anhedonia, sleep disturbance, fatigue, loss of energy, diminished concentration and feelings of worthlessness.[1] In addition to psychological treatment, standard treatment for acute depression could include antidepressant medication.

Older evidence suggests that all antidepressants are of similar efficacy in treating major depression.[10] One meta-analysis suggested differences in efficacy between antidepressants, but a subsequent meta-analysis did not replicate this finding.[11,12]

First-line antidepressants recommended for initial treatment of major depression in the community are selective serotonin reuptake inhibitors (SSRIs), serotonin and noradrenaline reuptake inhibitors (SNRIs) and mirtazapine.[8]

SSRIs are also recommended as the first-line treatment of perimenopausal depression.[13] Some SSRIs/SNRIs have the additional advantage of treating hot flushes in people who have symptoms of oestrogen deficiency in addition to mood dysfunction.[14] Agomelatine has also been observed to significantly improve symptoms of depression and physical symptoms related to perimenopause over a period of six weeks.[15]

Answer 6

Sheree is aged >45 years and reports a symptom of oestrogen deficiency. It is necessary to reassess her full medical history including smoking, alcohol and exercise as well as exclude other causes for her symptoms such as thyroid disease (hyperthyroidism).

A full history of menopausal symptoms is recommended to assess signs and symptoms of oestrogen deficiency including vasomotor symptoms, sleep disturbance and urogenital symptoms. A standardised questionnaire, such as the Greene Climacteric score (refer to Resources for doctors), can be used.

Symptoms commonly reported in peri- and postmenopause include hot flushes and night sweats, bodily aches and pains, dry skin, vaginal dryness, loss of libido, urinary frequency and sleeping difficulties. Some patients may have unwanted hair growth, thinning of scalp and pubic hair and skin changes. Menses may become closer together or further apart, and the amount of bleeding can increase. Heavy menstrual bleeding affects 25% of Australian women in their lifetime, and this can first occur in perimenopause.

Answer 7

It is not recommended to use hormonal blood tests to diagnose menopause in people aged >45 years, as this is unlikely to change management.[6] Diagnosis of menopause and perimenopause in this age group is clinical, and management should be based on symptomatic control.

Any increase in amount or frequency of bleeding should be investigated with transvaginal ultrasonography on day 5–9 to assess endometrial thickness.[6] Any intermenstrual bleeding or post-coital bleeding should be investigated with a co-test and referred for further gynaecological assessment if ongoing; guidelines for investigation of abnormal vaginal bleeding are available from Cancer Council Australia (https://wiki.cancer.org.au/australiawiki/images/f/fb/Investigation_of_women_with_abnormal_vag_bleeding.pdf).[16]

As Sheree is aged >45 years, you could offer her a preventive health check that includes measuring her blood pressure and fasting lipids, and an assessment of diabetes risk.[17]

Answer 8

Treatment of menopausal symptoms including hot flushes can include lifestyle and behavioural modifications, oestrogen replacement therapy and non-hormonal treatments. Treatment choice is based on symptoms, personal preference, contraindications and additional benefit. Tool kits for managing menopausal symptoms are available in the Resources section. The Australian Menopause Society also has tables with guides to equivalent dosing of menopause hormone treatment.

Conclusion

Menopause is a common presentation for general practitioners. While the physiological symptoms are well understood, the effect on mood is less well recognised. Many risk factors are associated with and shared between perimenopausal syndrome and mood disorders, and it is important to consider perimenopausal depression for people with midlife mood symptoms. It is important to note that menopause is an independent risk factor for mood disorder and that mood symptoms can occur years before other signs and symptoms of perimenopause. It is also important to be aware that midlife is a common time for mood disorders in women but is also the age at which suicide rates are highest.

Treatment for mild mood dysfunction in the perimenopausal age range can include oestrogen replacement for people without suicide ideation and who are experiencing other symptoms of oestrogen deficiency. Treatment for moderate-to-severe perimenopausal depression is similar to treatment for major depressive disorder and should include discussion of psychological referral and antidepressant medication.

Resources for doctors

- Australian Menopause Society – Mood problems at menopause, www.menopause.org.au/hp/information-sheets/570-mood-problems-at-menopause
- Jean Hailes for Women's Health – Menopause health professional tool, www.jeanhailes.org.au/resources/menopause-health-professional-tool
- Monash University – A practitioner's toolkit for the management of menopause, www.monash.edu/medicine/sphpm/units/womenshealth/toolkit-management-of-the-menopause
- Jean Hailes for Women's Health – Greene Climacteric Scale, https://assets.jeanhailes.org.au/Health-professionals/Menopause_symptom_scale_Greene_Climacteric.pdf
- Australian Menopause Society – AMS guide to equivalent MHT/HRT doses in Australia only, www.menopause.org.au/hp/information-sheets/426-ams-guide-to-equivalent-mht-hrt-doses

Resources for patients

- Australian Menopause Society – Mood problems at menopause, www.menopause.org.au/hp/information-sheets/570-mood-problems-at-menopause#:~:text=Mood%2C%20depression%20and%20the%20menopause,in%20some%20women%20(3)%20.
- Beyond Blue – Anxiety and depression checklist, www.beyondblue.org.au/the-facts/anxiety-and-depression-checklist-k10

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CASE

5 Lydia is worried about climate change

Lydia, aged 32 years, is a financial planner. She is pregnant for the first time and comes to talk to you about some of her concerns at 14 weeks' gestation. While the pregnancy was planned, it was a difficult decision for Lydia and her partner to make as they have increasing anxiety about climate change. Lydia is particularly worried about the upcoming summer and what this may bring in the way of bushfire, smoke and heat exposure.

Question 1

How does environmental heat exposure affect pregnancy and birth outcomes?

Question 2

What advice can you provide to Lydia about reducing her risks from heat exposure?

Question 3

What are the impacts of air pollution (including bushfire smoke) on pregnancy and birth outcomes?

Question 4

What advice can you provide to Lydia about reducing her risks from air pollution?

Further information

Lydia eats a predominantly plant-based diet since she learned that this was a powerful individual action she could take to reduce her contribution to climate change. She is wondering whether it is recommended to continue eating this way now that she is pregnant. You review her blood results; her recent full blood examination, iron studies and vitamin B12 tests are all within reference ranges.

Question 5

What are the benefits of a plant-based diet?

Question 6

What are some considerations for plant-based diets during pregnancy?

Further information

As Lydia gets up to leave, she asks for some information on postnatal contraception, to avoid an unplanned pregnancy. She describes the situation of a friend who unexpectedly conceived again within months of the birth of her first baby.

Question 7

Why are sexual and reproductive rights of women key to climate mitigation?

Question 8

What would you advise Lydia specifically regarding postnatal contraception?

CASE 5 Answers

Answer 1

The evidence for increasing global temperatures since pre-industrial levels is incontrovertible.[1,2] In 2019, Australia observed its hottest year on record.[3] Australia is particularly vulnerable to heat effects because of both rising temperatures and a very high rate of urbanisation resulting in the urban heat island effect.[4] Heat exposure stands to contribute the most direct impacts of climate change on human health.[5]

Pregnant women have impaired thermoregulation and an impaired physiological response to heat stress. This increases vulnerability to medical complications from heat exposure.[6] Additionally, heat exposure is associated with significant risks to the pregnancy at all stages of gestation. Statistically significant risks include low birthweight, preterm birth and stillbirth.[7–9] Mechanisms are complex but include dehydration initiating premature labour, altered blood viscosity, reduced blood flow, altered placental–fetal exchange and a reduction in amniotic fluid volume.[8] An Australian study looking at windows of exposure to heat found relationships between preterm birth and heatwave exposure in all months of pregnancy. Earlier gestational months seemed to be key exposure windows for heatwave-affected stillbirth.[9] Heat exposure in pregnancy is also associated with an increased risk for gestational diabetes and congenital heart defects.[10,11] After birth, neonates may be vulnerable to heat-related morbidity and mortality.[7]

Answer 2

The advice for pregnant women for reducing risks from heat exposure is drawn from general public health advice regarding staying cool during heatwaves.[12,13] Strategies include drinking plenty of water to maintain adequate hydration, avoiding outdoor exercise and being outdoors generally during the hottest part of the day, wearing loose-fitting clothing, keeping the house cool by shutting blinds and curtains during the day and avoiding using the stove and oven. Cold wet towels or cool packs placed on the arms or neck can provide some cooling effect, as can placing feet in cold water. People without air conditioners may want to go to cooler public places nearby such as libraries, shopping centres, cinemas or swimming pools.[12,13]

Answer 3

Physiological changes in pregnancy include increased minute ventilation and a 50% increase in cardiac output. These changes lead to an increased blood concentration of pollutants. Other physiological changes in pregnancy that may increase the susceptibility of pregnant women to the effects of air pollution include alterations in immune system functioning and an increase in insulin resistance.[14]

Generally, exposure to air pollution (including bushfire smoke) causes oxidative stress and inflammation. In pregnancy, this can affect trophoblastic invasion, change placental perfusion and damage DNA.[15] Air pollution particles, such as black carbon, have been found on the fetal side of the human placenta.[16]

Clinically, air pollution exposure during pregnancy is linked to increased rates of miscarriage, preterm birth,[17] fetal growth restriction, hypertensive disorders of pregnancy[14] and gestational diabetes.[18] Exposure to air pollution in utero and in infancy has been linked to increased infant mortality, poor lung development, adverse neurodevelopmental outcomes and childhood cancer.[19]

Bushfire smoke in Sydney in 2019 recorded air pollution levels equivalent to smoking 37 cigarettes/day, with levels even higher closer to the fires.[20] Of importance is that increases in air temperature increase levels of air pollution.[21]

The pathways for climate change affecting pregnancy extend beyond heat and air pollution, as shown in Table 1.

Answer 4

Lydia could download a free air pollution monitor app (eg AirRater, Plume or EPA AirWatch), which provides location-specific reports of PM2.5, drawn from government air quality monitors and modelling.[22] It is important that Lydia understands that even if air looks clear, it can have a high pollution index. Because increases in ambient temperature cause increases in air pollution, outdoor exercise should therefore be avoided in either situation. Lydia should also avoid busy roads and rush-hour traffic.

In a bushfire, Lydia should evacuate at the first alert. If she cannot, then she should stay indoors with doors and windows closed. Once the smoke plume abates, doors and windows can be opened to avoid fine particles being trapped indoors.[23] This advice is the same for prescribed burns.

Indoor air pollution is as dangerous as outdoor pollution. This includes smoke from cigarettes and wood heaters, gas from heating and cooking, cleaning products, paints, pesticides, air fresheners, candles, mould, cosmetics and phthalates from polyvinylchloride.

Lydia should be encouraged to create a healthy indoor environment. This includes using natural household cleaners and a vent hood when cooking, removing mould and avoiding unnecessary cosmetics and sprays. Indoor plants can naturally filter air, and air purifiers can be partially effective.[24]

Answer 5

Diets high in plant-based foods with reduced animal products confer both improved health and environmental benefits.[25,26] In 2019, the EAT-*Lancet* Commission (https://eatforum.org/content/uploads/2019/01/EAT-Lancet_Commission_Summary_Report.pdf) published the world's first scientific targets for healthy and sustainable food systems. The recommendations include a universal 'planetary health diet', which addresses both human health and environmental sustainability. The diet is designed to be flexible and adaptable across different global populations. The Commission does not specifically promote a vegan or vegetarian diet but instead describes an omnivorous diet characterised by a high plant-based content and optional low amounts of animal-source foods.[25] The diet is based on an increase in consumption of nutrient-dense, less environmentally resource intensive plant-based foods (eg vegetables, fruits, whole grains, legumes and nuts) and a decrease in consumption of less nutritious and/or environmentally resource intensive foods (eg red meat, sugar and refined grains).[25,27] These recommendations align with the Australian Dietary Guidelines.[26] The special needs of pregnant and lactating women are recognised and can be met within the ranges of the suggested diet.[25]

Answer 6

Plant-based diets are on the rise in Australia and are likely to be encountered during the care of pregnant women.[28] Balanced maternal nutrition is important for supporting optimal fetal growth and maintaining good maternal health status.[26,29,30] Plant-based diets can confer beneficial pregnancy outcomes, such as reduced rates of pre-eclampsia, gestational diabetes and preterm birth.[29]

Plant-based diets can provide the necessary nutrient and energy requirements for pregnancy, although diets that strictly avoid all animal products generally require supplementation with vitamin B12.[25,29,31] It may be helpful to refer women who are planning pregnancy or who are already pregnant, and who avoid all animal products, to an Accredited Practising Dietitian for further advice.[29] Medical practitioners with a special interest in plant-based nutrition can be found through contacting 'Doctors for Nutrition' practitioners listing enquiries (refer to Resources for doctors). Although Lydia does not exclude animal products, she still may benefit from a referral to an Accredited Practising Dietitian to help address her concerns. Educational resources and food recommendations can also help support women eating plant-based diets to consume adequate and complete diets (refer to Resources for patients).

Table 1. An overview of pathways in which climate change can affect pregnancy outcomes, additional to heat and air pollution[37–42]

Extreme weather events	Death and injury, loss of infrastructure, reduced access to healthcare, reduced access to food and clean water, increased family violence, increased sexual and gendered violence, increased human trafficking, increased poverty and socioeconomic inequality, and increased risk of poor mental health. Women are more likely than men to be affected by extreme weather events and have 14 times the likelihood of dying.
Food	Reduced nutritional content of food and food scarcity. Increased risk of nutritional deficiencies and malnutrition.
Water	Insecurity and water-borne disease. Increased risk of dehydration and increased vulnerability to heat events. Increased risk of diarrhoea with contaminated water.
Changing disease patterns	Increasing range and duration of exposure to some vector-borne illnesses. For example, Dengue virus range is increasing in Australia; malaria and Zika virus are increasing in other parts of the world.
Population displacement	Climate migrants and climate refugees. Displaced populations are at risk of numerous poorer health outcomes due to various mechanisms such violence, food and water insecurity, poverty, infectious diseases, poor mental health and reduced access to healthcare services. Women comprise 80% of climate refugees. Increased rates of climate migrants and climate refugees may occur in Australia in the decades to come.

Answer 7

The promotion of women's and girls' education, health and reproductive rights has environmental co-benefits. It is widely recognised that sustainable population growth is crucial to addressing climate change and achieving global development priorities. Rapid population growth exacerbates the negative effects of climate change, particularly in areas that are already highly vulnerable.[32]

Family planning is one of the most cost-effective methods for improving health outcomes of women. Simultaneously, family planning programs are more cost-effective than other conventional carbon energy solutions.[32] In Australia, up to 50% of pregnancies are unplanned, unexpected or unwanted.[33] Proactively providing contraception advice to all women of childbearing age, and ensuring access to medical or surgical termination in cases of unwanted pregnancy, is central to the role of the general practitioner in advancing the sexual and reproductive rights of women, and in mitigating climate change.[32]

Answer 8

Lydia should be advised that postnatal contraception is recommended, as a short interpregnancy interval (<12 months) increases the risks of complications including preterm birth, low birthweight, stillbirth and neonatal death.[34] Currently, the World Health Organization recommends a minimum of a 24-month interpregnancy interval after childbirth.[35] Contraception is not required until 21 days postpartum; however, starting immediately eliminates the need for a repeat visit and can reduce the risk of a rapid repeat pregnancy. The etonogestrel implant, depot medroxyprogesterone injection, progesterone-only pill and condoms are all safe to use immediately postpartum. Intrauterine devices (either levonorgestrel-releasing or copper) should be inserted within 48 hours of childbirth, or else not before four weeks postpartum, because of the higher risk of expulsion, malposition or perforation. All options are safe during breastfeeding. Combined hormonal contraception (combined oral contraceptive pill or vaginal ring) and diaphragms can generally be used from six weeks postpartum and are also safe if breastfeeding. Lactational amenorrhoea can be effective; however, generally an additional method of contraception is recommended.[36]

Resources for doctors

- The Royal Australian College of General Practitioners – Position statement on climate change and human health, www.racgp.org.au/FSDEDEV/media/documents/RACGP/Position%20statements/Climate-change-and-human-health.pdf
- The Conversation – *Days with both extreme heat and extreme air pollution are becoming more common – Which can't be a good thing for global health*, https://theconversation.com/days-with-both-extreme-heat-and-extreme-air-pollution-are-becoming-more-common-which-cant-be-a-good-thing-for-global-health-139957
- EAT-*Lancet* commission brief for healthcare professionals, https://eatforum.org/lancet-commission/healthcare-professionals/
- Doctors for Nutrition, www.doctorsfornutrition.org

Resources for patients

- Australian Government – Heatwave health tips and information, www.health.gov.au/health-topics/emergency-health-management/heatwave-health-tips-and-information
- Queensland Government – Healthy eating for vegetarian or vegan pregnant and breastfeeding mothers, www.health.qld.gov.au/__data/assets/pdf_file/0024/726063/antenatal-veganveget.pdf
- Better Health Channel – Vegetarian and vegan eating, www.betterhealth.vic.gov.au/health/HealthyLiving/vegetarian-and-vegan-eating
- Better Health Channel – Climate change and health (includes information about air pollution, heat and plant-based diets), www.betterhealth.vic.gov.au/health/healthyliving/climate-change-and-health

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ACTIVITY ID **238374**

Women's health

This unit of *check* is approved for six CPD Activity points in the RACGP CPD Program. The expected time to complete this activity is three 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 RACGP website (www.racgp.org.au), clicking on the My Account button and selecting the *gplearning* link from the drop-down
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Case 1 – Lucy

Lucy, aged 25 years, presents with heavy, painful, unmanageable periods. Her history and examination lead you to believe her symptoms may be caused by adenomyosis.

Question 1

Which one of the following findings on a pelvic ultrasound indicates the presence of adenomyosis?

A. Increased endometrial thickness

B. Increased vascularity within endometrial cavity

C. Heterogeneity of myometrial tissue

D. Hypoechoic myometrial mass

Question 2

Which of the following hormonal options is most effective in treating heavy menstrual bleeding related to adenomyosis?

A. Combined oral contraceptive pill (COCP)

B. Medroxyprogesterone 150 mg/mL injection

C. Etonogestrel 68 mg implant

D. Levonorgestrel 52 mg intrauterine system (LNG-IUS)

Case 2 – Farah

Farah, aged 23 years, attends your clinic and tells you that she would like some advice regarding long-term contraception. She has just started a new relationship after being single for the past nine months, during which time she used condoms for contraception with casual partners.

Question 3

Of the following methods of contraception, which one is the most effective?

A. COCP

B. Depot contraception injections

C. Contraceptive implant

D. Condoms

Further information

Farah opts for a contraceptive implant and returns to see you four months after the insertion. She tells you she is happy with it, except for the frequent light spotting that she experiences. During her last serious relationship, she used the COCP for contraception, but her previous general practitioner suggested that she change methods when she developed migraine with aura.

Question 4

If investigations reveal no pathological cause for the bleeding, which one of the following management options could be tried?

A. Mefenamic acid three times per day for five days

B. COCP continuously for three months

C. Insert a second implant into the other arm

D. Replace the implant now

Case 3 – Marion

Marion, aged 45 years, is a woman who presents to you as a new patient. On taking a history from Marion, you discover she has regular periods with no intermenstrual bleeding but has never had a cervical screening test or Pap smear. When you ask her about this, she is uncomfortable and explains that she cannot tolerate speculum examinations because they 'hurt too much'. When you discuss her sexual history, you discover that Marion was sexually assaulted at the age of 25 years. Prior to this she was able to have penetrative sexual intercourse and insert tampons without pain, but since the assault she has not been able to tolerate anything being inserted into her vagina.

Question 5

Which one of the following is the most likely diagnosis for Marion?

A. Primary vaginismus

B. Vulvodynia

C. Acquired vaginismus

D. Cervical cancer

Question 6

Which one of the following would be the best initial treatment method for Marion?

A. Progressive dilatation of the vagina with dilators

B. Topical oestrogen

C. Pelvic floor physiotherapy and psychology

D. An anxiolytic such as diazepam

Case 4 – Jules

Jules, aged 47 years, is a female patient who presents with a history of increasing anxiety and depressed mood for the past two years. She noticed these symptoms began to occur around the time her menstrual cycles started to become more irregular and less frequent. Her symptoms have been getting worsening the past 6–12 months.

Question 7

Which of the following signs or symptoms would suggest that Jules' mood changes are the result of perimenopausal mood dysfunction, rather than major depressive disorder?

A. Post-coital bleeding

B. Hot flushing and night sweats

C. Suicidal ideation

D. Fatigue and loss of energy

Further information

Jules reports increasing heat intolerance and episodes of facial redness and sweating consistent with hot flushes. She has not had a menstrual cycle in six months. On the basis of Jules' history and symptoms, you decide to arrange some investigations.

Question 8

Which one of the following is the most appropriate first-line investigation?

A. Follicle stimulating hormone and luteinising hormone

B. Pelvic ultrasonography

C. Oestradiol and testosterone

D. Thyroid stimulating hormone, full blood examination and vitamin B12

Case 5 – Yifei

Yifei, aged 32 years, is currently 10 weeks pregnant with her first child. During a routine appointment, she mentions that she is nervous about the upcoming summer as she finds it hard to tolerate hot weather and fears it will be even more difficult now that she is pregnant.

Question 9

Which one of the following is a practical strategy to reduce risks to health during heatwaves?

A. Sitting outside in the shade

B. Drinking plenty of water to maintain hydration

C. Switching off electrical appliances at the wall

D. Opening doors and windows to provide adequate ventilation

Further information

Yifei mentions that she has been trying to adopt a healthier lifestyle since she found out she is pregnant and is eating a lot less meat. One of her friends has mentioned that this might cause deficiencies that harm her baby, so Yifei would like your opinion on plant-based diets.

Question 10

Which one of the following statements about plant-based diets is accurate?

A. They are dangerous during pregnancy and should be avoided.

B. They cause more negative environmental impacts than omnivorous diets.

C. They are likely to be deficient in vitamin C, requiring supplementation.

D. They can confer beneficial pregnancy outcomes when managed carefully.

check

Independent learning program for GPs