## Case 1 (cont. from previous worksheet)

Several months later, at 33 weeks’ gestation, Lily presents to ED again, this time with blurred vision and right upper quadrant abdominal pain. On examination, she is found to have a blood pressure of 162/86 mmHg. She has been previously normotensive.

**Does Lily have pre-eclampsia – why/why not? What other differentials would you want to exclude?**

Unable to diagnose pre-eclampsia with the clinical presentation. A diagnosis of preeclampsia requires the following:

* **New onset hypertensive** (≥ 140mmHg systolic or ≥ 90mmHg diastolic) on **at least 2 occasions** at least 4 hours apart after 20 weeks’ gestation **OR** SBP ≥ 160mmHg or DPB ≥110mmHg confirmed within a short internal (minutes) to facilitate timely antihypertensive therapy.
* **AND** at least one of the following:
  + **Proteinuria (**≥300mg per 24-hour urine collection)
  + **Protein: creatinine ratio** ≥ 0.3
  + **Urine dipstick reading** ≥1+
* **OR (in the absence of proteinuria), new onset hypertension with the new onset of any of the following (shows end-organ dysfunction):**
  + Thrombocytopenia
  + Renal insufficiency
  + Impaired liver function as indicated by liver transaminase levels at least 2x normal concentration
  + Pulmonary oedema
  + Persistent cerebral or visual symptoms

Other differentials might include

* **Pre-existing (chronic) hypertension** - although not for Lily in this case, needs to be HT diagnosed <20 weeks’ gestation or before pregnancy
* **Gestational hypertension** (without proteinuria)
* **White coat hypertension**

**What causes preeclampsia? What are some risk factors?**

Not completely understood but multiple maternal, foetal and placental factors are involved in placental hypoperfusion → leads to maternal hypertension and other systemic consequences

**Risk factors:** obesity, chronic HT, DM, CKD, age < 20 or > 40 years

**Pregnancy-related risk factors:** nulliparity [first pregnancy], previous preeclampsia, FHx, multiple gestations, hydatidiform moles

**What investigations would you like to order?**

* Urine dipstick – looking for protein in urine
* FBC – looking for low platelets
* eGFR and creatinine – assess renal function
* LFTs – looking for elevated transaminases, suggesting liver involvement
* Foetal assessment via US – growth restriction, placental implantation, amniotic fluid, foetal HR (make sure baby is okay, may need early delivery)
* Others

**What is eclampsia?**

Onset of generalised seizures in a woman with pre-eclampsia - before during or after delivery. Seizures cannot be attributed to other causes.

**What is the HELLP syndrome?**

* Occurs during 10-20% of (pre)eclampsia cases.
* Cause it not well known, but related to thrombi formation in the vasculature, leading to:
  + **H**aemolysis – haemolytic anaemia (RBCs undergo haemolysis)
  + **E**levated **L**iver enzymes
  + **L**ow **P**latelets (thrombocytopenia)

\*\* To remember can sing the following to the tune of Help! by The Beatles (lol)

* HELLP, I’m haemolysing
* HELLP, my liver enzymes rising
* HELLP, my platelets falling
* HELLPPPP

Further investigations confirm that Lily has elevated levels of protein in her urine, elevated creatinine and elevated aminotransferases (AST and ALT). She also has elevated ALP. Repeat blood pressure measurements are 154/86 mmHg and 155/83 mmHg.

**Why is her ALP elevated?**

ALP is produced by the placenta during pregnancy.

**What medication might you prescribe to Lily to control her blood pressure? Explain the MOA.**

Appropriate antihypertensives for pregnancy include: (**H**ypertensive **M**ums **N**eed **L**ove)

* Hydralazine (vasodilator)
* Methyldopa (a2 agonist)
* Nifedipine (dihydropyridine calcium channel blocker)
* Labetalol (non-selective beta blocker) – **FIRST LINE**

ACE inhibitors and Angiotensin Receptor Blockers are contraindicated during pregnancy as they are teratogenic

Magnesium Sulphate can also be given to prevent seizures if seen as high risk for eclampsia

Lily presents to the hospital at 38 weeks with uterine contractions.

**What are the three stages of labour?**

* Stage 1 - dilation and effacement of cervix to 10cm
* Stage 2 - delivery of baby (pushing stage)
* Stage 3 - delivery of placenta

Lily has an uncomplicated birth. After 10 hours a baby boy, Harry is born. You are asked to assess Harry at 1 and 5 minutes of age.

**Fill out the following table to explain the APGAR score.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Stands for...** | **Score 2** | **Score 1** | **Score 0** |
| **A** | Appearance | Pink | Extremities blue | Pale/blue |
| **P** | Pulse | >100bpm | <100bpm | Absent |
| **G** | Grimace | Cries and pulls away | Grimaces or weak cry | No response to  stimulation |
| **A** | Activity | Active movement | Arms, leg flexed | No movement |
| **R** | Respiration | Strong cry | Slow, irregular | No breathing |

**What if… instead of all this, Lily presented to ED at 32 weeks’ gestation stating ‘her waters had broken’ and uterine contractions have started. If the following drugs were prescribed, what would be the rationale for in providing these?**

* **Betamethasone**
* **Salbutamol**
* **Nifedipine**
* **Amoxicillin + erythromycin**

Note: This is preterm premature rupture of membrane (PPROM) – i.e. the rupture of membranes before 37 weeks’ gestation. Note that this is different to premature rupture of membranes (PROM) which is defined as the rupture of membranes prior to the onset of uterine contractions at term

If patient is stable, plan for delivery >34 weeks.

|  |  |
| --- | --- |
| Betamethasone | Can be given from 24-34 weeks’ gestation to accelerate foetal lung maturity and increase surfactant production to improve outcomes/prevent respiratory distress |
| Salbutamol | Agonist of beta2 receptors → tocolytic → relax uterus → delay labour for enough time to allow for betamethasone to work (~48hr)  (*In practice*: 2nd line agent for tocolysis where nifedipine is contraindicated. Should consult an obstetrician prior to use.) |
| Nifedipine | Calcium channel blocker → tocolytic → relax uterus → delay labour |
| Amoxicillin PLUS erythromycin | As prophylaxis for infection (particularly against Group B streptococcus). Remember that the amnion is usually protecting the foetus from infection. |

Tocolysis is contraindicated in advanced labour (cervical dilation > 4 cm), chorioamnionitis, non-reassuring foetal signs, abruptio placentae, or risk of cord prolapse.

*In practice:* Queensland Health has several excellent guidelines/flow charts in relaxation to management of several obstetric conditions. This may be valuable on your women’s health rotation next year; and are readily available via google.

## Case 2

**You are a third-year medical student on your Women’s Health rotation at Sunshine Coast University Hospital. You have been asked to see two patients in the general gynaecology outpatient clinic today!**

Your first patient, Monica, is 65 years old and presents with vaginal bleeding. She describes the bleeding as being scant. Menarche was at age 10 and she went through menopause at age 57. She used oestrogen hormone replacement therapy for the first 3 years following menopause but has not used it recently. She has never had an abnormal cervical screening test or pap smear.

**What are your differential diagnoses?**

* *Hormone (oestrogen) therapy*
* *Atrophy of vagina or endometrium*
* *Uterine or cervical polyps*
* *Endometrial hyperplasia*
* *Cancer of endometrium, cervix, or vagina*
* *Others*

*Note that the PALM-COEIN acronym is for abnormal uterine bleeding in women of* ***reproductive age*** *(not in this case!).*

* P – polyps
* A – adenomyosis
* L – leiomyoma (uterine fibroids)
* M – malignancy and hyperplasia
* C – coagulopathies
* O – ovulatory dysfunction
* E – endometrial cancer
* I – idiopathic
* N – not otherwise specified

**What is the most common cause of abnormal uterine bleeding in post-menopausal women? What diagnoses must not be missed?**

Most common = Atrophic vaginitis

Not to be missed = Cancer – often endometrial (but can be of cervix or vagina)

* **All post-menopausal bleeding MUST be investigated! Cancer until proven otherwise!**

**What are some risk factors for the not to be missed diagnosis? How do these factors contribute to an increased risk?**

Risk factors for endometrial cancer (type I) are associated with **increased or prolonged exposure to oestrogen**.

Risk factors include:

* Nulliparity (progesterone is main hormone of pregnancy)
* Early menarche / late menopause
* Obesity – adipose tissue produces oestrogen
* PCOS (due to the obesity AND the anovulatory cycles)
* Unopposed (without progesterone) oestrogen replacement therapy (e.g. for menopausal symptoms)
* Breast cancer – history of breast cancer, tamoxifen treatment (has anti-oestrogenic effects at the breast, but oestrogenic effects in uterus)

**What examinations do you want to perform?**

* Abdominal examination (look for abdominal masses)
* Speculum examination (assess for atrophic vaginitis, lesions of cervix/vagina/vulva, cervical polyps)
* Bimanual examination (assess uterine size/mobility/position, cervical/vaginal masses, adnexal masses)

**What are the key investigations that will help you rule out the not to be missed diagnosis?**

**Gold standard:** Endometrial biopsy + histology

* *In practice*: this is done routinely in women presenting with post-menopausal bleeding in clinic. An endometrial biopsy (“pipelle”) is taken in the clinic and sent to the lab.

Others include:

* Transvaginal ultrasound – doesn’t give definitive diagnosis but increased risk with thicker endometrial wall (usually done before they come to clinic)
* Other imaging as indicated (e.g. abdominal USS, CXR, CT) → looking for metastasis
* Not key for diagnosis - but FBC and coags to assess for anaemia or other causes

**How might a family history of colorectal cancer affect your consideration of your provisional diagnosis?**

Increased chance of endometrial cancer – there is an associated between colorectal cancer and endometrial cancer.

* Hereditary nonpolyposis colorectal (Lynch syndrome) is an inherited cancer syndrome, that predisposes family members to certain cancers including **colorectal** and **endometrial**

**What if Monica presented with spotting while taking hormone replacement therapy (oestrogen and progesterone). How might this affect your differential diagnosis?**

Potentially due to the hormone replacement therapy / less likely to be hyperplasia or malignancy. Although should still be investigated.

**What do the following tumour markers represent?**

|  |  |
| --- | --- |
| **Tumour marker** | **Elevated in which cancers?** |
| CA 19-9 | Pancreatic |
| CA-125 | Ovarian |
| CEA | Bowel (among many others) |

Your second patient, Rachel, is 42 years old and has been referred to the gynaecologist from her GP, following an abnormal routine cervical screening test. She is asymptomatic. She has not yet gone through menopause. She is a smoker and has a history of unprotected sexual intercourse with multiple sexual partners.

**What are some risk factors for cervical cancer?**

* Oncogenic HPV infection – HPV 16 (most common in squamous cell carcinoma) and HPV 18 (most common in adenocarcinoma)
  + Early onset of sexual activity
  + Multiple sexual partners
  + High-risk sexual partners
  + History of STIs
  + History of vulvar or vaginal squamous intraepithelial neoplasia or cancer (due to similar etiology)
  + Immunosuppression (eg, HIV)
  + Multiparity and early age at first full term pregnancy (likely due to above)
* Cigarette smoking
* Potential risk factors (correlation, but not necessarily causation)
  + Low SES
  + Oral contraceptive use
* Non-participation in cervical screening

**If Rachel has cervical cancer, but had presented with symptoms, what might those symptoms be?**

* **Abnormal vaginal bleeding** (irregular, postcoital bleeding, intermenstrual bleeding/irregular vaginal bleeding)
* Abnormal vaginal discharge (blood stained or purulent malodorous discharge)
* Dyspareunia
* Pelvic pain
* Late symptoms: tumour spread to vagina, bladder, rectum etc
  + Swelling in lower extremities (due to compression of veins)
  + Lymphadenopathy
  + Other signs of metastatic disease

**What does the cervical screening test look for? Explain what happens in terms of follow-up screening if you get a positive, negative, or unsatisfactory result from your cervical screening test. What did the pap smear look for and what is the difference?**

Cervical screening test looks for the **presence of HPV** (looking for the virus)

* 16 and 18 are the high-risk viruses, most likely to progress to cancer. But non oncogenic HPV is also tested for.

Pap smear was only cytology based (**looking for abnormal cells**) - the CST also looks for the virus!!!

**Results**

|  |  |
| --- | --- |
| **Test Result** | **Appropriate Management (describe briefly)** |
| HPV not detected | Return to screening in 5 years |
| HPV detected (but not types 16 or 18) | Reflex LBC\* →   * Negative or LSIL → repeat HPV in 12 months * HSIL → referral to gynaecologist (for **colposcopy\*\***) |
| HPV (16/18) detected | Reflex **LBC** AND referral to gynaecologist (for **colposcopy**)  (Refer to gynae regardless of cytology result) |
| Unsatisfactory HPV test | Repeat in 6-12 weeks |

![Diagram

Description automatically generated]()

\*LBC = liquid based cytology. Reflex liquid based cytology is when the same liquid sample collected for the initial HPV test is then used by the lab to perform a cytology.

Look up more info here. Important for DHC and DKHI!

http://www.cancerscreening.gov.au/internet/screening/publishing.nsf/Content/healthcare providers

\*\* Colposcopy is an examination of the cervix using a colposcope (microscope) to identify abnormal cells through gross examination and by looking at cell uptake of acetic acid (abnormal cells appear more white (“acetowhite change”)) +/- iodine. It may be used to look at the vagina or vulva or anus as well. You may see this next year during your placements.

**BONUS QUESTION (this is beyond Year 2 level, but interesting). How would the cervical screening test process change if a pre-menopausal woman presented with intermenstrual or post-coital bleeding?**

Order a co-test! This means both the HPV test and liquid based cytology are performed at the same time, regardless of the result of the HPV test!

**Please provide feedback for this case at:** [https://forms.gle/R64a83Cf7UgRYc168](https://forms.gle/R64a83Cf7UgRYc168?fbclid=IwAR2IJMsL2N2nkuJ3T7Dh-1XAPZthHc-uun2qlesNUR0AaT4lPut1r5BKg6E)