South African Family Practice 2015; 57(3):8-11

S Afr Fam Pract
ISSN 2078-6190 EISSN 2078-6204

REGISTRARS

Mastering your Fellowship

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Abstract

The new series, "Mastering your Fellowship", will provide examples of the question format encountered in the written examination, Part I of the FCFP(SA) examination. Examples of these question types (according to a theme) will be given in each printed edition of the journal. Women's health is the theme for the first article. Model answers will be available online, but not in the printed edition.

Keywords: FCFP(SA) examination, registrars, women's health

1. MCQ (multiple choice questions): maternal health

You are on call in a district hospital when the midwife asks you to assess a 17-year old primigravida who is 36 weeks pregnant and presented with lower abdominal pain. Her blood pressure is 170/110 mmHg, her heart rate is 130 beats per minute and her haemoglobin (Hb) is 7.2 g/dl. On examination, you find a gravid uterus, lower abdominal and uterine tenderness (no peritonism), 3/5 head above pelvic brim and a 4 cm dilated cervix. There is no evidence of vaginal bleeding or neurological abnormalities on history or examination. Urine dipsticks reveal 3+ proteinuria. The cardiotocography (CTG) is shown in Figure 1.

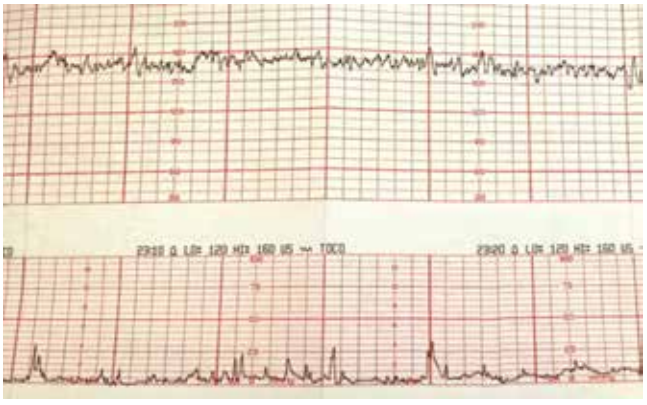

Figure 1: Cardiotocography of the patient scenario (question 1)

What would be the next most appropriate step in her management plan?

A	Give her 10 mg nifedipine orally
B	Administer 250 µg salbutamol intravenously
C	Load her with a total dose of 14 g magnesium
D	Prepare her for an emergency Caesarean section
E	Arrange for 1 unit Rhesus-negative emergency blood

2.1 What are the initial priorities in this consultation?

2.2 She requests a termination of the pregnancy. Describe your approach by highlighting the steps used when dealing with an ethical dilemma.

2. EMQ (extended matching question): the family physician's role as care provider

During an outreach visit to the primary care clinic, the clinical nurse practitioner asks your opinion on the further management of a 37-year-old female patient. During your consultation with this patient, you notice that she becomes tearful when discussing her newly diagnosed first trimester pregnancy. She has two children, aged 10 and eight years, from her previous marriage, and has been in a new relationship for the past eight months. She works at a local supermarket and her partner visits her on weekends. (He is a long-distance truck driver).

3. Critical appraisal of research

Answer the following questions on the methods used in the linked article: Ama NO, Ngome E. Challenges faced by older women in Botswana in accessing services that address sexual and reproductive health, and family planning needs, in Botswana. S Afr Fam Pract. 2013;55(3):281-288. Available from: http://www.safpj.co.za/index.php/safpj/article/view/3315/4601

3.1 How would you define the type of study design?

3.2 How was the study population defined, and were there any methodology limitations with this definition?

3.3 What type of sample size calculation was used, and was it adequately described?

3.4 What were the strengths and weaknesses of the approach to sampling?

Model answers to the questions

Model answers to the questions are available online -

visit URL

Question 1

Short answer: Option C. Load the patient with magnesium as part of the emergency management of severe pre-eclampsia.

Long answer: The first priority is to manage this patient's severe pre-eclampsia, defined as a diastolic blood pressure of 120 mmHg or more, and/or a systolic blood pressure of 170 mmHg or more, on one occasion, and proteinuria. Eclampsia and an intracerebral haemorrhage are the two greatest threats to this patient's life. Magnesium is indicated as the initial priority in the emergency management, i.e. a total dose is 14 g, of which 4 g is given as intravenous infusion, followed by a 5 g deep intramuscular injection in each buttock. A urinary catheter should be inserted to monitor urine output. If on repeat measurement, the diastolic blood pressure is still 110 mmHg or more, and/or the systolic blood pressure 160 mmHg or more, oral nifedipine (Adalat®) or dihydralazine (Nepresol®) should be given.

This primigravida patient may have a sealed-off (no visible vaginal bleeding) *abruptio placenta*e. The raised blood pressure, maternal tachycardia, foetal tachycardia on CTG with a hyperactive uterine pattern, as well as low Hb, suggest an *abruptio placentae*. Foetal tachycardia on CTG is defined as a baseline foetal heart rate of more than 160 beats per minute, and indicates an increased risk of foetal distress. Intravenous salbutamol is helpful as a tocolytic agent in the management of foetal distress secondary to excessive contractions. (However, salbutamol is contraindicated in the presence of shock or hypovolaemia). A Caesarean section is the likely definitive treatment in this patient, but the management of her severe pre-eclampsia and raised blood pressure are a greater priority. She may need emergency blood for the low Hb as part of the resuscitation pre-anaesthesia, but the first priority is to address her raised blood pressure (more than 160/110 mmHg). However, the anaemia may not be acute, and there is a risk of fluid overload in a patient with pre-eclampsia.

Further reading: Perinatal Education Programme. Maternal care: a health professional's guide to pregnancy and childbirth [homepage on the Internet]. 2014. Available from: http://pepcourse.co.za/books/maternal-care Bettercare; 2014. A free online edition of this book is available from: http://www.scribd.com/doc/30841979/Maternal-Care-Free-Online-Edition

Question 2

2.1 The initial priorities include establishing rapport with the patient, and exploring her three-stage assessment (bio-psycho-social) in a private room. Respond to the cue of tears, and allow her to express her emotions. Explore her context and family, and draw a genogram, if indicated. Consider the aspects of antenatal care. Her human immunodeficiency virus, Rapid Plasma Reagin and Rhesus (Rh) status must be determined, the duration of the pregnancy assessed and enquires made about her previous medical, surgical, gynaecological and obstetric history. Appropriate side room and special investigations, if not already performed by the nurse, should be considered, and the level of risk of her pregnancy, i.e. low, intermediate and high, needs to be determined.

2.2. The request for termination of pregnancy may pose an ethical dilemma to the health professional.

Follow these steps to resolve an ethical dilemma.

Step 1: Identify and articulate the dilemma

The main competing issues include the autonomy of the patient, i.e. her right to have a termination of pregnancy (TOP) and to have choice and control over her own body; the autonomy of the doctor, i.e. his or her right to freedom of conscience; and the potential autonomy of the unborn child, i.e. his or her right to life. Other relevant ethical principles include non-maleficence, i.e. the potential harm of performing a TOP for the patient; and beneficence, i.e. the potential benefit of performing a TOP for the patient. The principle of justice is relevant in terms of the legal position outlined herein.

Step 2: Establish all the necessary information

Medical information

Determine the duration of her pregnancy, and engage with the patient to explore alternative management options, i.e, including the options that are acceptable and unacceptable to her, together with a discussion of the potential harms and benefits.

Legal position

The Choice on Termination of Pregnancy Act No 92 of 1996 is South Africa's law, and permits a TOP during the first 12 weeks on request by a woman at any age, without parental or partner consent. There are specific indications for a TOP for a gestation from 13-20 weeks, including risk of the pregnancy to the woman's physical or mental health, substantial risk to the foetus as a result of severe physical or mental abnormality, if the pregnancy resulted from rape or incest, and if the pregnancy is likely to significantly affect the social or economic circumstances of the woman. As the treating doctor, after consultation with the patient, you must be certain that at least one of these indications is present. The three indications for TOP after 20 weeks of gestation are if continued pregnancy would endanger the woman's life, result in severe malformation of the foetus, or pose a risk of injury to the foetus.

If the patient is still in her first trimester, she is permitted by law to choose a TOP. The law also provides guidance to the doctor on whether or not he or she wishes to perform the TOP. It is stated in Section 10 of the Choice on Termination of Pregnancy Act No 92 of 1996 that any person who "prevents the lawful termination of pregnancy, or obstructs access to a facility for the termination of pregnancy, shall be guilty of an offence, and liable on conviction to a fine or to imprisonment

for a period not exceeding 10 years". The Constitution supports the right to "freedom of conscience, religion, thought, belief and opinion" (Section 15.1). Therefore, the treating doctor may refuse to perform the TOP procedure, but must refer the patient to a facility or colleague who is willing to assist the patient with her TOP request.

The unborn child is not legally considered to have the same rights of a person until he or she is born.

Ethical questions

What is the ethical standpoint? How do the four principles of patient autonomy, beneficence, non-maleficence and justice interact? A four-quadrant approach may be useful and the arguments in terms of the four principles should be described in detail.

Patient preferences

This information may be elicited in a patient-centred manner. The patient's reasons for considering a TOP, as well as any ambivalence she may feel about it, must be explored.

Doctor's personal value system

What are you own personal beliefs and values with regard to TOP?

Socio-political norms

Although many religious and cultural groups in South Africa find TOP unacceptable, the law and medical profession have adopted a more liberal approach to TOP being accessed.

Step 3: Analyse the information gathered in step 2

Analyse the information gathered in step 2 by balancing the various components according to the different weight assigned to each one. Different approaches to the core problem should be considered before a balanced conclusion is reached.

Step 4: Make recommendations to the patient

During this step, you make recommendations to the patient, agree on a solution and implement it. It may be a good idea to consider involving her partner, other relatives or other professionals, such as social workers, in the decision-making process, provided that the patient agrees.

Step 5: Implications for policy

You may decide to draw up or revise the guideline or policy at your institution to help with similar dilemmas in the future. The development of such a guideline requires consultation with different role players, may require periodic revision, and can be incorporated into the standard operating procedures of your institution. Remember that a standardised decision-making approach will usually need to be adapted to a particular patient scenario.

Further reading:

- Moodley K. Medical ethics, law and human rights: a South African perspective. Pretoria: Van Schaik, 2011.
- Moodley K. Family medicine ethics. In: Mash B, editor. Handbook of family medicine. 3rd ed. Cape Town: Oxford University Press, 2011; p. 381-405.

Question 3

3.1 Although not explicitly stated, the study design used in this study as a descriptive survey by means of a questionnaire. Surveys are used to obtain information on or to measure the distribution of selected characteristics in a group or population of interest.

3.2 The study population represents the sampling frame from which a representative group of respondents may be sampled. It is important to define the study population clearly before considering how to sample from this population. Some researchers also define a target population, which is the broadest population to which they would like to generalise their findings, and then their study population, which is the population to which they actually have access. Often, it is not possible to collect data from the entire study population, and a representative sample must be selected from whom data will be collected. The study population should be described in terms of people (who should be included?), place (where are these people?) and sometimes time (over what period?).

In this study, the population was defined as women aged 50 years or older, who "had no physical disabilities, such as blindness, lameness, hearing defects or dumbness", and who lived within four health districts of Botswana between February and November 2011. As the study was concerned with the challenges faced by women in accessing health services, it was a limitation that women with a physical impairment, i.e. who were more likely to experience such challenges, were excluded from the study. How these terms were applied is also not clear, for example, what amount of "lameness" would lead to their exclusion, and why would such impairment preclude the ability to complete the questionnaire? In addition, it is not clear how the four health districts were selected, and whether or not they were representative of the country as a whole.

3.3 It is important to calculate what a representative sample size would be out of the study population. If collecting quantitative data with a view to testing a hypothesis or assessing the prevalence of a disease or problem, a minimum sample size should be calculated. It is important to note that the formula for calculating sample size is different depending on whether the study is a descriptive survey or an observational cross-sectional study, with analysis of the comparison groups.

If a purely descriptive survey is planned, then the only concern is to estimate the variables of interest with sufficient precision so that a reasonably accurate picture of the

situation in the larger target population can be obtained. The type of variable of interest will influence the sample size calculation. A sufficient sample size is required for a continuous variable, such as the age of the women, in order to measure its mean value. However, if the main variable of interest is a categorical variable, such as obtaining a cervical smear ("yes" or "no"), then a sufficient sample size is required to measure the proportion of people with this variable. The sample size facilitates measurement of the point estimate of the variable within a certain confidence interval (CI). A 95% CI is usually chosen, and clearly, the larger the sample size, the smaller the width of the 95% CI, and the more accurate the measurement. The calculation requires definition of the variable upon which it is based, the desired width of the 95% CI and the standard deviation (SD) of the variable.

In this study, the researchers stated that the sample size of 454 was calculated using an Internet-based programme. They appear to have calculated the sample size for a proportion using a 95% CI with a 5% width. However, the variable used to make this calculation and how the SD was obtained were not defined. Therefore, the reader does not have all the information needed to understand how the sample size calculation was performed.

3.4 Sampling is selecting a group from a much larger population (study population) that is representative of the population. Findings made from studying the group can then be generalised to the larger population. The required size of the sample was calculated, but the sampling dealt with the actual selection of the group. Without careful planning and choosing an appropriate method for sampling, it is very easy to obtain a biased sample that does not represent the population. When this happens, it is difficult to extend the findings to the larger population, and the validity of the research decreases. Therefore, in order to produce meaningful results, researchers must ensure that they have chosen an appropriate sampling method with which to select a representative sample of participants. Random sampling is commonly used, in which each person of interest has an equal chance of being selected. Sometimes, systematic sampling is used, whereby every "nth" person is selected from a list or queue. Provided that the order of people in the list or queue is random, systematic sampling also provides each person with an equal chance of being selected. Non-probability sampling is any sampling procedure that cannot specify the probability that each member of a population has of being selected. Non-probability sampling techniques include convenience samples (including whoever happens to be available), quota sampling (a convenience sample of different subgroups, such as men and women), purposive sampling (people selected on the basis of predefined criteria), and snowball sampling (people interviewed who identify other people with the desired characteristics).

The strength of the approach to sampling in this study was the way in which the sample size was stratified between the different districts according to the expected total population of older women. The weakness of the approach to sampling was that a non-probability snowballing method was used. Using this approach, older women did not have an equal chance of being selected, but were selected on the basis of being known to another respondent in the study. While this was an efficient and practical method of finding older women, there is a possibility that the selected women were not representative of all older women. For example, these women may have had some unknown characteristics that made them known to one another.

Further reading:

- Ama NO, Ngome E. Challenges faced by older women in Botswana in accessing services that address sexual and reproductive health, and family planning needs, in Botswana. S Afr Fam Pract. 2013;55(3):281-288.
- Govender I, Mabuza LH, Ogunbanjo GA, Mash B. African primary care research: performing surveys using questionnaires. African Journal of Primary Health Care & Family Medicine. 2014;6(1):7 pages.