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Jangka

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25/6/24

**POSTGRADUATE INSTITUTE OF MEDICINE**  
**UNIVERSITY OF COLOMBO**

**SELECTION EXAMINATION FOR MD (COMMUNITY**  
**MEDICINE/ COMMUNITY DENTISTRY) – JUNE 2024**

**Date:- 26<sup>th</sup> June 2024**

**Time:- 9.00 a.m. - 10.00 a.m.**

**STRUCTURED ESSAY QUESTION PAPER**

**Answer both questions.**

**Answer each question in a separate book.**

1. A total of 500 adults over 60 years of age, living in city 'X' underwent a detailed clinical examination by a neurologist. Fifty (50) were found to have dementia. Of those with dementia, 25 were positive on a brief screening test for dementia. Ten (10) who did not have dementia were also positive on the brief screening test.

1.1 Calculate the following for the brief screening test for dementia:

1.1.1 Sensitivity (20 marks)

1.1.2 Positive predictive value (20 marks)

1.2 The same screening test was applied to adults over 60 years of age in city 'Y', where the prevalence of dementia in this age group was approximately two times higher than that of city 'X'.

Mention the changes expected in the following measures of the screening test in city 'Y', when compared to city 'X'.

1.2.1 Specificity (5 marks)

1.2.2 Negative predictive value (5 marks)

Contd/2

1.3 An age and sex matched case control study was conducted to determine the risk factors of dementia. The case to control ratio was 1:4. The odds ratio (OR) of the association between depression and dementia was 2.1 with a 95% confidence interval of 1.6 - 2.7.

1.3.1 Mention the reason for carrying out a **matched case control study** to determine the risk factors. (10 marks)

1.3.2 Mention the basis for having a case to control ratio of 1:4. (10 marks)

1.3.3 Interpret the results using the OR and the 95% confidence interval. (30 marks)

Contd/3

2. Global studies indicate the possibility of using Tenecteplase (TNK) instead of Alteplase (ALT) in the management of patients with ischaemic stroke having minor neurological impairment, due to its wide availability and cheaper price, compared to ALT.

A consultant neurologist requests your advice in conducting a multi-center study to determine the effectiveness of TNK compared to ALT in reducing disability among these patients.

- 2.1 Name the most suitable study design to determine the effectiveness of TNK in managing patients with ischaemic stroke compared to ALT, giving reasons for your choice. (30 marks)

- 2.2 Briefly describe three (03) ethical issues that you would consider in conducting this study. (30 marks)

- 2.3 The outcome of the study was assessed by the score obtained by the patients for the Modified Ranking Scale (MRS) which assesses the level of disability. Higher MRS scores indicate greater disability levels.

Mean MRS score of the intervention arm = 2.4 (SD = 0.6)

Mean MRS score of the control arm = 2.6 (SD = 0.4)

Name a suitable statistical test that can be used to determine the effectiveness of TNK compared to ALT, giving reasons

(20 marks)

- 2.4 Following the application of the statistical test, the researcher reported a  $p$  value of 0.009. Interpret this  $p$  value. (20 marks)