Continuing Professional Development Questions – 'A comparison of compliance in the estimation of body fluid status using daily fluid balance charting and body weight changes during continuous renal replacement therapy'

Multiple choice questions

1. Which of the following assessment activities did the researchers suggest could provide a more accurate method of monitoring body fluid status in critically ill patients?
   a) charting inputs and outputs on a daily fluid balance chart
   b) measurement of daily body weight change
   c) bioelectrical impedance analysis
   d) measurement of urinary output hourly
   e) daily blood tests to monitor electrolytes; blood urea nitrogen (BUN) and creatinine.

2. From the following list select the correct aims of the study reported in this paper:
   I. evaluate the relationship between calculated fluid balance and bodyweight changes in patients receiving continuous renal replacement therapy (CRRT)
   II. evaluate nurses' understanding of the taring procedure to obtain net weight of patients receiving CRRT in the ICU
   III. evaluate the reliability of a purpose-designed fluid balance chart for recording inputs and outputs in patients receiving CRRT in the ICU
   IV. investigate the accuracy of electronic bed weighing scales verses conventional scales in the ICU
   V. investigate ICU nurses' accurateness in calculating fluid balance totals in patients receiving CRRT in the ICU
   VI. investigate the frequency of compliance in weighing patients daily using electronic bed scales
      a) I.; II.; IV.
      b) I.; VI.
      c) II.; III.; V.
      d) IV.; V.; VI.
      e) V.; VI.

3. The design of this study was described by the researchers as a:
   a) retrospective cohort interventional observation study
   b) prospective point prevalence cohort study
   c) quasi-experimental design
   d) prospective cohort interventional observation study
   e) none of the above.

4. In this study to account for insensible water loss (IWL) each fluid balance chart daily total was prospectively corrected by including an additional output using the formula of 10 ml/kg/day.
   a) True
   b) False.

5. In this study how often were fluid totals calculated on the fluid balance chart?
   a) 1 hourly
   b) 4 hourly
   c) 6 hourly
   d) 8 hourly
   e) 12 hourly

6. In the patient population studied, what was the mortality percentage?
   a) 5.5%
   b) 13%
   c) 19%
   d) 21.3%
   e) 70.5%

7. In which patient study population did more bodyweight gain and cumulative positive fluid balance occur?
   a) those receiving the highest concentration of noradrenaline
   b) those receiving both mechanical ventilation and CRRT
   c) those with the lowest mean arterial pressure over a 24-hour period
   d) those who survived the ICU
   e) the nonsurvivors.

8. What was the median length of hospital stay for survivor patients in this study?
   a) 5.5 days
   b) 6 days
   c) 6.7 days
   d) 13 days
   e) 16.7 days

9. In this study the researchers used scatterplots to illustrate results. Which of the following statements about scatterplots is incorrect?
   a) scatterplots show the relationship between two quantitative variables measured for the same individuals
   b) in a scatterplot an outlier is an individual value that falls outside the overall pattern of the relationship
   c) the overall pattern of a scatterplot can be described by the direction, form, and strength of the relationship between the two quantitative variables measured
   d) in a scatterplot when the y variable tends to increase as the x variable increases, there is a negative correlation between the variables

e) in a scatterplot when the y variable tends to increase as the x variable increases, there is a positive correlation between the variables.

10. Which of the following was a finding of this study:
    a) compliance in weighing patients daily using electronic bed scales was moderate but not performed consistently to be considered reliable
    b) compliance in weighing patients daily using electronic bed scales was high and performed consistently to be considered reliable
    c) the relationship between body weight and fluid balance was sufficient to be a trustworthy predictor of change in the fluid status of patients receiving CRRT in the ICU

d) the charting of inputs and outputs cannot account for fluid shifts that occur in critically ill patients receiving CRRT in the ICU
e) nurses in the ICU make multiple mathematical errors when calculating fluid balance on paper-based charts.

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