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ORIGINAL RESEARCH COMMUNICATION

Simplified nutritional screening tools for patients on maintenance hemodialysis^{1, 2, 3}

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Background: Malnutrition is a prevalent complication in patients on maintenance hemodialysis. Nutritional screening tools may be useful to identify those patients at nutritional risk from among hundreds of hemodialysis patients in a large facility.

Objective: We tested several simplified nutritional screening tools on hemodialysis patients to validate the potential application of the tools.

Design: The simplified nutritional screening tools were chosen from references published between 1985 and 2005. Nutritional assessments, including history taking, and anthropometric and biochemical measurements were performed on 422 hemodialysis patients. These results were applied to obtain the score of each nutritional screening tool and the malnutrition-inflammation score (MIS), a comprehensive nutritional assessment tool, as the reference standard. The usefulness of each nutritional screening tool for identifying nutritional risk was assessed by comparison with the MIS value and various individual nutritional measures.

Results: Five reliable nutritional screening tools were found by the literature search. Among them, the geriatric nutritional risk index (GNRI) was considered to be the most accurate in identifying hemodialysis patients at nutritional risk, because the area under the receiver operating characteristic curve generated with the MIS value was the largest. The GNRI showed a significantly negative correlation with the MIS ($r = -0.67$, $P < 0.0001$), and the most accurate GNRI cutoff to identify a malnourished patient according to the MIS was <91.2 . The GNRI's sensitivity, specificity, and accuracy of <91.2 in predicting malnutrition according to the MIS were 0.730, 0.819, and 0.787, respectively.

Conclusion: The GNRI was the simplest and most accurate risk index for identifying hemodialysis patients at nutritional risk according to the MIS.

Key Words: Geriatric nutritional risk index • hemodialysis • nutritional assessment • nutritional screening • malnutrition-inflammation score • nutritional risk

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