NUTRITIONAL ASSESSMENT IN PATIENTS UNDERGOING HEMODIALYSIS USING SKINFOLDS AND BIOIMPEDANCE: A COMPARATIVE METHOD

RESUMO

Pacientes com insuficiência renal em hemodiálise (HD) apresentam desnutrição proteico-energética e necessitam de maior atenção na avaliação do seu estado nutricional, especialmente no tangente à utilização dos melhores métodos, sejam eles o método das dobras cutâneas ou a bioimpedância elétrica (BIA). O objetivo deste estudo foi revisar a literatura relacionada à avaliação nutricional pelos métodos citados em pacientes submetidos à HD visando qualificar o melhor método. A revisão sistemática foi realizada nas bases de dados Pubmed / Scielo levando-se em consideração o tema “avaliação nutricional dos pacientes em HD”. Os resultados sugerem uma vantagem comparativa na confiabilidade para o método de dobras em comparação com a BIA.

Palavras-chave: Avaliação Nutricional • Diálise • Pesos e Medidas Corporais • Pregas Cutâneas

ABSTRACT

Renal failure patients on hemodialysis (HD) have protein-energy malnutrition and need greater attention in nutritional assessment by the use of better methods of assessment, whether skinfold or bioelectrical impedance analysis (BIA). The objective of this study was to review the literature on nutritional assessment comparing the methods described above in patients undergoing HD. A systematic review was performed by searching the Pubmed database / Scielo using keywords associated with “nutritional assessment in HD patients”. The result suggest that it has comparative advantage in the reliability of the results for the skinfold method in comparison with the BIA.

Key words: Nutritional Assessment • Dialysis • Body Weights and Measures • Skinfold Thickness

1 Professores do Departamento de Saúde da UNINOVE
2 Aluna do curso de Especialização em Nutrição Clínica da UNINOVE
INTRODUCTION

Renal failure comprises the renal inability to perform their functions satisfactorily. It is important to evaluate patients undergoing hemodialysis (HD) using the methods of skinfolds or bioelectrical impedance because these methods have a simple application and offer fewer risks and limitations in application, and low cost to assess body composition in HD patients due to protein-energy malnutrition.

The procedure of nutritional evaluation seeks to obtain results with greater precision as possible. Because of the inconsistency in the studies variables and according to Stenvinkel (2000)\(^1\), patients with chronic renal failure on HD often suffer nutritional abnormalities (referring to 10% to 70% of patients maintained on hemodialysis and 18% to 56% of patients on CAPD), present any sign of malnutrition. A similar prevalence has been observed in another study; 69% of women and 79% of men showed important decrease in anthropometric parameters\(^2\).

Regarding anthropometric measurements using skinfold and bioimpedance, these are methods with low cost, good practicality and when used to certain diagnoses of body compartments tend to show variability in the aspects that denote the nutritional status of HD patients. Studies by Woodrow \textit{et al.} (1996)\(^3\) showed that the variability between the methods of bioelectrical impedance analysis and X-ray absorptiometry dual energy were higher for the measurement of body fat than the fat-free mass. The sum of skinfold showed similar to absorptiometry of dual-energy X-rays in the measurement of body fat even when analyzed separately by gender. This latest study suggests that the sum of skinfold presented more accurate results regarding to electrical bioimpedance in assessment of body fat in hemodialysis patients and the authors emphasize the importance of conducting a comparative study of body composition by gender\(^4\).

METHODS

A systematic review was performed by searching the Pubmed/SciELO database using the following search strategy: (nutritional assessment), (patients hemodialysis) and (anthropometric methods). Initially, 9 articles were identified for analysis and were excluded those which were unrelated to the theme of the review. After a careful revision of the original selected, two articles were identified that fit the inclusion criteria: presented results from nutritional assessment using the skinfold method compared with bioimpedance in patients undergoing hemodialysis. Another inclusion criteria was to be a cohort study and measure the skinfold with a \textit{Lange} adipometer. The selected information in the articles to compose the analysis were: general purpose, methods used for anthropometric measurements, outcome of the study, control variables used and main findings of the study. Finally, after articles analysis, it was identified the following reasons in each article to justify its exclusion:
Results

Among the selected articles, Kamimura (2004)\textsuperscript{4} and a study conducted by Woodrow et al. (1996)\textsuperscript{3} indicate that the nutritional assessment with the skinfold method of the device using adipometer Lange is more reliable than the bioimpedance method when analyzing the different body compartments, showing certain advantage in the reliability of the results. However, in another article, Wang (1998)\textsuperscript{11} was emphatic in asserting that diagnostic technique of skinfolds is the best when used to determine the density of body fat using the equation of Durnin & Womersley (1974)\textsuperscript{12}, and also to estimate the percentage of body fat (\% BF ), using the formula of Siri, and here also shows that this method also corresponds to a high degree of satisfaction in the results comparable to other methods used, as bioimpedance and DEXA (dual energy X-ray absorptiometry).

Summary of evidence

The comparison between the nutritional assessment methods of skinfold and bioimpedance in patients undergoing HD related here verifies the characteristics of each method and advantages / disadvantages in the use of these. Considering the variability of the nutritional status, we conclude that the method of skinfold proved to be better than the method of bioelectrical impedance and should therefore be preferred.

REFERENCES


