

Plasma albumin levels correlate with decreased microcirculation and the development of skin defects in hemodialyzed patients.

[Mistrík E¹](#), [Dusilová-Sulková S](#), [Bláha V](#), [Sobotka L](#).

Author information

Abstract

OBJECTIVES:

Difficulty healing wounds and skin defects is a frequent problem in patients on chronic hemodialysis (HD) because of malnutrition, inflammation, and atherosclerosis (MIA) syndrome. The aim of the present study was to estimate the influence of peripheral blood flow changes during HD on the development of foot defects and its relationship to plasma albumin levels.

METHODS:

Peripheral skin blood flow was measured using a laser Doppler line scanner in 10 different areas of the dorsal part of the instep and the toes of each foot before and during HD with ultrafiltration (897 +/- 465 mL/procedure) in 31 HD patients (10 female, 21 male; age 36-79 y, body mass index = 28 +/- 5.0). No skin defects or apparent acute disease or infection were detected in any patient at the time of laser Doppler line scanner measurement. The feet of the patients were clinically re-examined carefully over the next 18 mo.

RESULTS:

We found a significant and constant decrease of skin blood flow during the HD procedure ($P < 0.001$). Skin blood flow was significantly correlated with serum albumin level both before HD ($r = 0.36$, $P = 0.05$) and during HD ($r = 0.47$, $P = 0.007$). Skin defects developed in 11 patients, with significantly lower skin blood flow during the 18-mo follow-up period. A significantly larger number of patients who had normal perfusion remained defect-free in comparison to patients with critical perfusion (93% versus 38%, $P = 0.002$, Kaplan-Meier analysis).

CONCLUSION:

Skin blood flow may be impaired in HD patients. The apparent malnutrition and inflammation in HD patients are likely responsible for the decreased skin blood flow and the development of the difficulty to heal skin defects and wounds.