

## عنوان مقاله:

Structural brain changes in patients who receive different durations of hemodialysis

## محل انتشار:

تازه های پزشکی بالینی، دوره 2، شماره 4 (سال: 1402)

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## خلاصه مقاله:

Background: Hemodialysis patients are particularly vulnerable to cerebral vascular disease. Both hemodialysis duration and cerebral small vessel disease are crucial in this patient population, and additional research is necessary to further understand their relationship. Objectives: This study aimed to investigate the structural brain changes in patients who receive different durations of hemodialysis. Methods: We recruited a total of ۸۰ hemodialysis patients and categorized them into two groups to scrutinize the effects of hemodialysis treatment. Group ۱ included ۴۱ patients who received hemodialysis for more than six months, and Group ۲ consisted of ۳۹ patients who underwent hemodialysis treatment for less than six months. The structural and vascular modifications of the brain in these two groups were studied using a ۱.۵ Tesla MRI machine to perform brain scans by our research team. Results: Patients who underwent hemodialysis treatment for a more extended period, with a median treatment duration of up to ۴ years, showed minor vessel disease, compared to those who received hemodialysis for a shorter period of ۳ to ۵ months. The ischemic effects were predominantly found in areas such as the pre-ventricular, subcortical, and white matter, with mean± SD of ۱.۳۳±۰.۴۷۱, ۱.۲۳±۰.۴۲۰, and ۱.۳۹±۰.۴۹۰, respectively. Additionally, we identified other brain abnormalities, such as pons irregularities, global brain atrophy, thinning in the corpus callosum, and frontal lobe atrophy, with a significant value of  $P < ۰.۰۵$ ). Conclusion: The study indicates that extended periods of hemodialysis reveal discernible signs of subcortical and periventricular white matter disease among patients. This finding provides critical insight into the potential long-term impacts of hemodialysis treatment, highlighting the need for further investigation and advanced treatment measures.

**کلمات کلیدی:**

Hemodialysis, Hemodialysis Duration, Brain Changes, MRI

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