

Systolic Blood Pressure and fluid state during the peridialytic and interdialytic period

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Abstract

Objectives

Low systolic blood pressure (BP) and fluid overload (FO) are associated with the highest mortality risk in haemodialysis (HD) patients, however only assessed during the peridialytic period. The aim of this study was to evaluate BP and fluid status (FS) during the interdialytic period.

Methods

In this cross-sectional two-centre study, BP and FS were measured during a mid-week HD session and at home during the interdialytic period. Systolic hypertension was defined as $> 140\text{mmHg}$, systolic hypotension $< 90\text{mmHg}$. FS was assessed using the body composition monitor and categorized as normal [$\text{FO/extracellular volume (ECW)} < 6\%$ or $> -6\%$], fluid depleted ($\text{FO/ECW} \leq -6\%$), or fluid overloaded ($\text{FO/ECW} \geq 6\%$).

Results

A total of 68 HD patients were enrolled, mean age was 70.8 years. The prevalence of interdialytic systolic hypotension was 16.1%, with 33.3% being fluid depleted and 20% FO. Only 2.9% of all subjects had postdialytic systolic hypotension, all of them had a normal FS. Prevalence of interdialytic systolic hypertension was 38.7%, of which 33.3% was FO and 8.3% was fluid depleted. Interdialytic systolic BP was not associated with postdialytic BP. Overall, 32.1% of the subjects with postdialytic normal FS developed interdialytic FO.

Conclusion

Home measurements showed a higher prevalence of interdialytic systolic hypotension and FO compared to postdialytic measurements. Interdialytic systolic BP was not correlated to interdialytic nor postdialytic FS. Home measurements of BP and FS during the interdialytic period provide valuable information to the haemodynamic profile of HD patients and might be detected more easily by remote monitoring techniques in the near future.



Biography:

Dr. Melanie Schoutteten has completed her Internal Medicine and Nephrology studies from Maastricht University in The Netherlands. At present, she is PhD candidate from Hasselt University in Belgium in cooperation with imec The Netherlands on the topic of fluid dynamics in patients with chronic kidney disease.

Speaker Publications:

1. Towards personalized fluid monitoring in haemodialysis patients: thoracic bioimpedance signal shows strong correlation with fluid changes, a cohort study, December 2020, BMC Nephrology 21(1)
2. Wearable Monitoring and Interpretable Machine Learning Can Objectively Track Progression in Patients during Cardiac Rehabilitation, June 2020, Sensors 20(12):3601

[24th European Nephrology Conference](#); October 12-13, 2020.

Abstract Citation:

M.K. Schoutteten, Systolic Blood Pressure and fluid state during the peridialytic and interdialytic period, Euro Nephrology 2020, 24th European Nephrology Conference; October 12-13, 2020
(<https://europe.nephroconferences.com/speaker/2020/melanie-schoutteten-hasselt-university-belgium>)