

This is a Fresenius Medical Care summary of:

High-efficiency postdilution online hemodiafiltration reduces all-cause mortality in hemodialysis patients

Maduell F et al. Spain, J Am Soc Nephrol 2013;24(3):487-497

Introduction

The Catalan Society of Nephrology endorsed this randomised controlled study, the so-called ESHOL study (Estudio de Supervivencia de Hemodiafiltración On-Line).

Objective

The primary objective of the study was to assess the impact of post-dilution hemodiafiltration (HDF) compared with hemodialysis (HD) on all-cause mortality in patients on thrice-weekly dialysis.

Design

The primary outcome measure was time to death from any cause. Main secondary outcomes included cardiovascular (CV) mortality, other causes of mortality, and hospitalisation. Patients receiving standard HD were randomised to continue HD or to start high-efficiency post-dilution HDF.

Limitations of the study included the small portion of patients treated with low-flux dialysers in the HD group, and between-group differences in patient baseline characteristics. The latter were addressed by baseline adjustments, with results in line with the main analysis.

Results

Of 906 randomised patients, 450 were assigned to receive HD and 456 patients to receive HDF. Median follow up time was 2.08 years. HDF patients reached a median quarterly convective volume ranging from 22.9 to 23.9 L/session.

Compared to standard HD, patients in the HDF group showed:

- 30% significant risk reduction of all-cause mortality (the primary study outcome)
- 61% significant risk reduction in mortality from stroke, but no significant differences for other specific causes of CV mortality
- 55% significant risk reduction in infection-related mortality
- 22% significant risk reduction of all-cause hospitalisations
- 28% significant risk reduction of intradialytic hypotensive episodes.

No significant differences between groups were observed in pre- or post-dialysis blood pressure, iron dose, ESA (erythropoietic-stimulating agents) dose, dry body weight and serum albumin. A non-significant 33% risk reduction in CV mortality was observed in favour of HDF. In the post hoc analysis, HDF patients in the intermediate (23-25 L) and highest (>25 L) convection volume tertiles had a risk reduction in mortality of 40% and 45%, respectively. Overall, all patient groups benefitted from HDF.

Conclusion

These results indicate that when compared with standard HD, high-efficiency postdilution HDF reduces the risk of mortality. The study provided evidence for the need to administer high convection volumes to reduce all-cause mortality.

