LEFT VENTRICULAR HYPERTROPHY AND CARDIOVASCULAR DISEASE

McCullough PA, Chan CT, Weinhandl ED, Burkart JM, Bakris GL. Intensive Hemodialysis, Left Ventricular Hypertrophy, and Cardiovascular Disease. *American Journal of Kidney Diseases, Volume 68, Issue 5, S5 - S14.*

The evidence is clear: intensive hemodialysis reduces left ventricular hypertrophy and may reduce risk of cardiovascular complications

Cardiovascular death is significantly more likely in dialysis patients than in age-matched, community-dwelling adults in the U.S., despite dramatic increase in the use of cardioprotective medications.[1] New strategies are clearly needed to improve cardiovascular health in dialysis patients. Because Left Ventricular Hypertrophy (LVH) is an important predictor of cardiovascular mortality and morbidity, strategies to reduce LVH are likely to reduce cardiovascular disease risk in patients.[2]

Topics discussed in this summary include:

- Prevalence of LVH
- Strategies to help mitigate LVH
- Lowering adverse cardiac events

Intensive dialysis reported to reduce LVH

Multiple randomized clinical trials show that intensive hemodialysis reduces left ventricular mass:

- In the Frequent Hemodialysis Network trials, short daily and nocturnal schedules, each for six sessions per week, reduced left ventricular mass by 10% and 8%, respectively, relative to three sessions per week.[3,4]
- Comparable efficacy was observed in an earlier Canadian trial of nocturnal hemodialysis.[5]

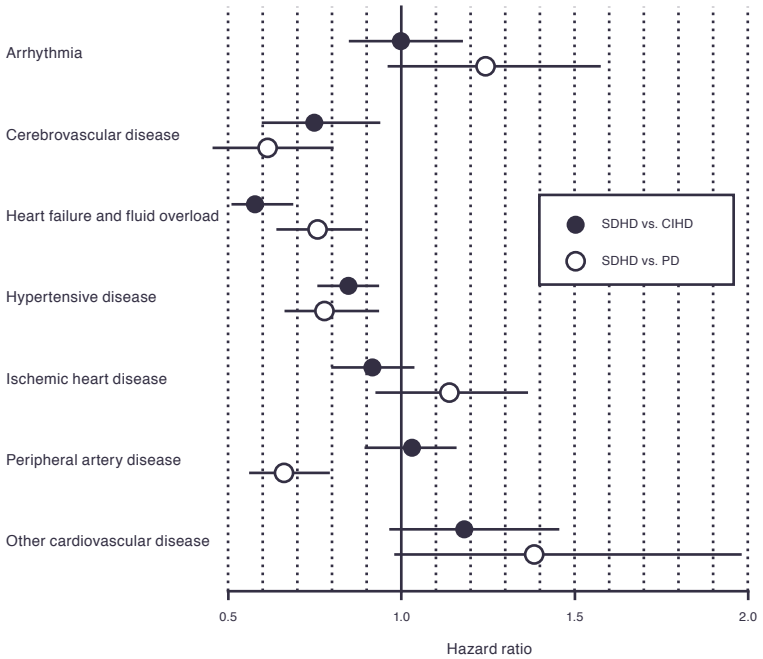
LVH related to cardiovascular risk

Clinical benefits have been reported in observational studies:

- Daily home hemodialysis was associated with 17% and 16% lower risks of cardiovascular death and hospitalization, as compared to conventional hemodialysis.[6]
- Relative to peritoneal dialysis, daily home hemodialysis was likewise associated with lower risk of cardiovascular hospitalization.[7]

CHAPTER 1, FIGURE 4:[8]

Relative hazards of cause-specific cardiovascular hospitalization for short daily hemodialysis versus in-center hemodialysis[6] and versus peritoneal dialysis.[7] Solid lines represent 95% confidence intervals around estimated hazard ratios (solid dots). Abbreviations: CIHD, in-center hemodialysis; PD, peritoneal dialysis; SDHD, short daily hemodialysis.



Conclusion

More intensive hemodialysis is a strategy to improve cardiovascular health for dialysis patients. Multiple controlled trials have consistently shown significant reductions in LVH with intensive hemodialysis. LVH reduction has been associated with improved cardiovascular outcomes and survival.

All forms of hemodialysis, including treatments performed in-center and at home, involve some risks. In addition, there are certain risks unique to treatment in the home environment. Patients differ and not everyone will experience the reported benefits of more frequent hemodialysis.

Certain risks associated with hemodialysis treatment are increased when performing nocturnal therapy due to the length of treatment time and because therapy is performed while the patient and care partner are sleeping.

About this review

This summary is from a six-part series on intensive hemodialysis, covering the impact of intensive hemodialysis on cardiovascular disease, hypertension, mineral and bone disease, health-related quality of life, treatment tolerability, and potential risks. It was originally published as a supplement in the November 2016 issue of the *American Journal of Kidney Disease*.

For details, methodology, and full references for this summary—as well as the other topics in the series—visit **AdvancingDialysis.org**.

AdvancingDialysis.org is dedicated to providing clinicians and patients with better access to and more awareness of the reported clinical benefits and improved quality of life made possible with home dialysis, including more frequent, more intensive, and nocturnal therapy schedules.

AdvancingDialysis.org is a project of NxStage Medical, Inc.

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