

# THE EFFECT OF EXTENDED DURATION THRICE-WEEKLY IN-CENTER HEMODIALYSIS SESSIONS ON PREVALENT ESRD PATIENTS

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## Introduction and Aim

Nocturnal hemodialysis (HD) at home has been correlated with favorable outcomes due to longer treatment time. We conducted a retrospective study to assess the impact of increased length sessions upon end-stage renal disease (ESRD) patients treated with three times per week, in-center HD.

## Methods

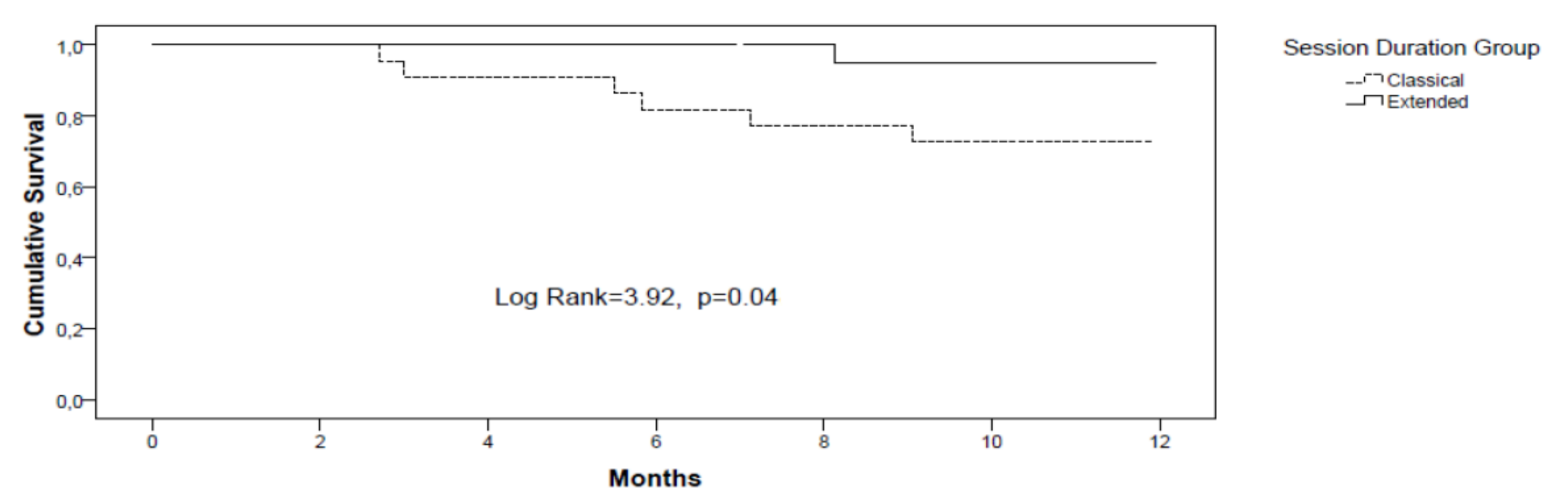
Using data from a cohort of forty three, stable chronic ESRD patients from the same institution, we compared twenty one patients undergoing 6-hour in-center HD sessions thrice weekly with twenty two patients on conventional 4-hour HD sessions also thrice weekly. The two groups were managed equally regarding HD prescription parameters such as membrane type, blood and dialysate flow. The primary outcome was all-cause mortality. In addition, important clinical events, hospital admissions and hospitalization days were recorded. Follow up assessment and laboratory tests were performed monthly during the study period as per center's protocols.

|                            | Classical Duration Group (n=22) | Extended Duration Group (n=21) |
|----------------------------|---------------------------------|--------------------------------|
| Age (years)                | 70,0 ±15,1                      | 65,7 ±15,0                     |
| Sex: Males (%)             | 63,6                            | 85,7                           |
| Females (%)                | 36,4                            | 14,3                           |
| Diabetes (%)               | 22,0                            | 33,3                           |
| HD vintage (months)        | 25,2 ±14,4                      | 20,4 ±12,0                     |
| Causes of ESRD:            |                                 |                                |
| Diabetic nephropathy (%)   | 18,2                            | 28,6                           |
| Glomerulonephritis (%)     | 13,6                            | 4,7                            |
| Hypertension (%)           | 18,2                            | 19,0                           |
| Other/unknown (%)          | 50,0                            | 47,7                           |
| Cardiovascular disease (%) | 50,0                            | 57,1                           |
| Hemoglobin (g/dl)          | 11,11 ±1,16                     | 11,43 ±1,24                    |
| URR (%)                    | 71,58 ±3,25                     | 72,93 ±4,48                    |
| Calcium (mg/dl)            | 9,12 ±0,76                      | 9,23 ±0,97                     |
| Phosphorus (mg/dl)         | 4,93 ±1,38                      | 5,43 ±1,79                     |
| CRP (mg/dl)                | 1,11 ±1,63                      | 0,80 ±0,76                     |
| Albumin (mg/dl)            | 3,85 ±0,36                      | 3,99 ±0,21                     |
| Cholesterol (mg/dl)        | 172,06 ±36,12                   | 165,05 ±35,55                  |
| Ferritin (ng/ml)           | 192,60 ±137,05                  | 153,76 ±99,20                  |
| Parathormone (pg/ml)       | 197,00 ±173,43                  | 221,12 ±204,70                 |

1. Baseline demographic, clinical, laboratory data (p>0,05 for all comparisons).

## Results

All-cause mortality rate was lower in extended HD than in conventional HD group (0,41 versus 2,66 per 100 patient-months respectively, p=0,04) over a follow-up period of 10,9±2,5 months. Additionally, serum albumin was higher (3,87±0,13 versus 3,67±0,24 mg/dl, p=0,002). Extended HD patients exhibited lower hospital admission rates, hospitalization days and resistance index to erythropoiesis-stimulating agents; however, these results did not attain statistical significance.



2. Kaplan-Meier survival curves.

|                      | Classical Duration Group | Extended Duration Group | p-value |
|----------------------|--------------------------|-------------------------|---------|
| Hemoglobin (g/dl)    | 11,04 ±1,02              | 11,30 ±0,96             | 0,41    |
| URR (%)              | 71,18 ±2,70              | 73,29 ±3,66             | 0,07    |
| Calcium (mg/dl)      | 9,16 ±0,51               | 9,19 ±0,68              | 0,87    |
| Phosphorus (mg/dl)   | 4,63 ±1,09               | 5,02 ±1,23              | 0,28    |
| CRP (mg/dl)          | 0,95 ±0,99               | 0,98 ±0,96              | 0,92    |
| Albumin (mg/dl)      | 3,67 ±0,24               | 3,87 ±0,13              | 0,002   |
| Cholesterol (mg/dl)  | 159,01 ±29,46            | 162,20 ±27,63           | 0,72    |
| Ferritin (ng/ml)     | 157,28 ±67,91            | 161,50 ±83,16           | 0,86    |
| Parathormone (pg/ml) | 187,00 ±126,71           | 201,79 ±142,42          | 0,72    |

3. Time-averaged laboratory results.

## Conclusion

The prolongation of in-center HD session time to 6 hours seems to be associated with a survival benefit and better nutritional status. It may represent a reasonable alternative in case long HD at home is unfeasible.

## References

- Laurent G, Charra B. The results of an 8 h thrice weekly haemodialysis schedule. *Nephrol Dial Transplant.* 1998;13 Suppl 6:125-31.
- Pauly RP, Gill JS, Rose CL, et al. Survival among nocturnal home haemodialysis patients compared to kidney transplant recipients. *Nephrol Dial Transplant.* 2009;24(9):2915-9.
- Chertow GM, Levin NW, Beck GJ, et al. In-center hemodialysis six times per week versus three times per week. *N Engl J Med.* 2010;363(24):2287-300.
- Rocco MV, Lockridge RS Jr, Beck GJ, et al. The effects of frequent nocturnal home hemodialysis: the Frequent Hemodialysis Network Nocturnal Trial. *Kidney Int.* 2011;80(10):1080-91.
- Hakim RM, Saha S. Dialysis frequency versus dialysis time, that is the question. *Kidney Int.* 2014;85(5):1024-9.

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