

FACING DIALYSIS HYPOTENSION: TOOLS AND CLINICAL ISSUES

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OBJECTIVES

Intradialytic hypotension (IDH) is a frequent complication of hemodialysis (HD), occurs in 15-60% of the treatments, and is associated with under-dialysis and increased patient (pt) mortality and cardiovascular events.

Aim of this study was to evaluate whether biofeedback-controlled HD and convective therapies reduce the frequency of IDH.

METHODS

Between 01/01/2014 and 02/15/2014, we prospectively collected data for 1,985 HD sessions involving 113 chronic pts: 39 F and 74 M, aged 17 to 93 years (mean 68.4 ± 13.6), 24 receiving hemodiafiltration and 89 bicarbonate HD. Sodium concentration in dialysis solution was 138 - 144 mmol/l and constant dialysate temperature at 36°C was maintained.

All HD treatments were performed with blood volume controlled ultrafiltration rate.

We defined IDH when systolic blood pressure (SBP) was less than 90 mmHg and the delta-SBP was more than 20 mmHg, with or without need to treat.

RESULTS

IDH was observed in 110/1,985 HD sessions (5.5%) and in 31/113 pts (27.4%).

In **table 1** baseline characteristics of the hypotension prone group are reported.

Mean age was 68 ± 14 years and HD duration was 79 ± 7 months.

15/31 pts (48.5%) received anti-hypertensive medications.

Interdialytic weight gain was 2.5 kg (min 0.1 kg, max 4.5 kg) and ultrafiltration rate was 605 ± 198 ml/h.

In the hypotension prone group the percentage of sessions complicated by IDH was 20.2% (min 2.6%, max 71.4%) as reported in **figure 1**.

Pre-dialysis SBP was 122.8 ± 19.9 mmHg, pre-dialysis diastolic blood pressure (DBP) was 66.2 ± 12.3 mmHg. Lower intradialytic SBP was 84.6 ± 11.4 mmHg, lower intradialytic DBP was 49.3 ± 7.6 mmHg.

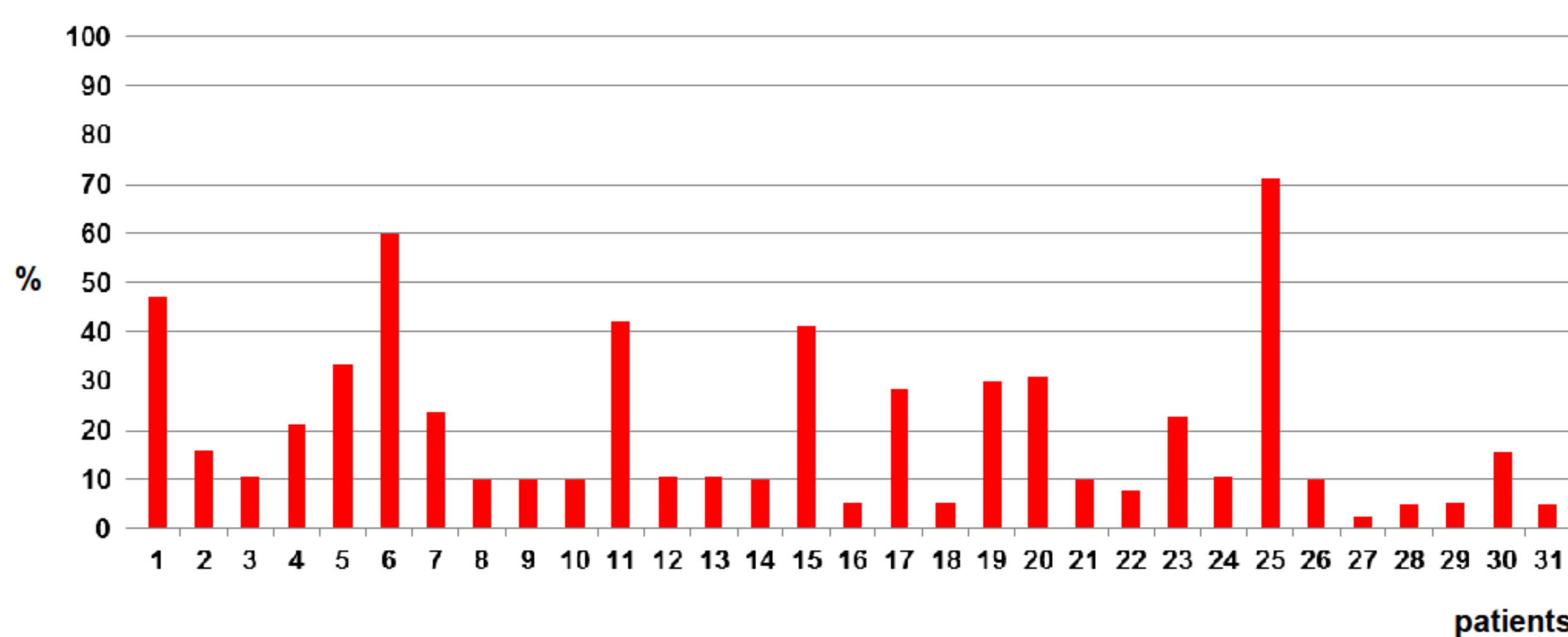
In the hypotension prone group 25 pts were on bicarbonate HD with high-flux membranes, 5 on online hemodiafiltration and 1 on hemofiltration with endogenous reinfusion (HFR).

Mean IDH in bicarbonate HD were 6.5 sessions per pts versus 2 in hemodiafiltration.

Table 1. Baseline characteristics of the hypotension prone group

	Total cohort (n = 31)
Male, %	58.1
Age, years	68 ± 14
Vintage, months	79 ± 7
Diabetes, %	12.9
Anti-hypertensive tp, %	48.5
UF rate, ml/h	605 ± 198
Predialysis SBP, mmHg	122.8 ± 19.9
Predialysis DBP, mmHg	66.2 ± 12.3
Lower SBP, mmHg	84.6 ± 11.4
Lower DBP, mmHg	49.3 ± 7.6
Dialysis treatment, %	
BHD	80.6
HDF	16.2
HFR	3.2

Figure 1. Percentage of sessions complicated by IDH



CONCLUSIONS

In summary, data of this prospective study showed a lower incidence of IDH (5.5% versus 15-60% reported in other studies). In our opinion this is due to an accurate and frequent assessment of dry weight and to an adequate hypertension management.

Integrated dialysis procedures such as biofeedback-controlled dialysis and hemodiafiltration have been shown to improve the hemodynamic tolerability of dialysis and to reduce the risk of IDH, thus resulting in a lower likelihood of cardiac injury.

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