FACING DIALYSIS HYPOTENSION: TOOLS AND CLINICAL ISSUES

Introduction and Aims: 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%). 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%). 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. Mean IDH in bicarbonate HD were 6.5 sessions per pts versus 2 in hemodiafiltration.

Conclusions: In summary data of this prospective study show 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 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.