Background and Purpose: Recently, it has been reported that CLS function is effective for treatment of blood pressure drop during dialysis in bradycardiac dialysis patients. In a 78-year-old maintenance dialysis patient who has chronic renal failure and sinus bradycardia of heart rate 35 bpm, a cardiac pacemaker with CLS function (Entovis SR/CLS, Nihon Kohden, BIOTRONIK) was implanted. We investigated changes in blood pressure and heart rate during dialysis under almost matched water removal conditions in both pacing modes.

Results: After water removal increases in systolic pressure ($P_s$), mean blood pressure ($P_m$) and pacing rate ($P_{rate}$) were greater in VVI-CLS than VVI by 17.0 mmHg, 8.9 mmHg and 3.7 ppm, respectively.

Discussion: In non-bradycardia patients, when circulating blood volume is reduced due to water removal, the heart rate or peripheral vascular resistance increases and the blood pressure recovers but in bradycardia patients these compensation mechanisms are hardly expected. Because $P_s$, $P_m$ and $P_{rate}$ increased more in CLS than VVI setting, we believe that CLS function detected intracardiac impedance changes which reflect relative augmentation in ventricular contractile dynamics and increased ventricular pacing rate accordingly, and thereby increased blood pressure. Conclusion: The patient confirmed that during dialysis, hypotension decreased and symptoms improved. This suggests that a PM with CLS function is effective for hypotension during dialysis.

Keywords: CLS, blood pressure, heart rate