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## Favorable Outcome of combined Antihypertensive Agents for Patients Undergoing Hemodialysis

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**Background:** Various antihypertensive agents are currently available. Some of them, including angiotensin receptor blockers, not only lower blood pressure but also have a favorable effect on life prognosis. However, the pleiotropic effects of anti-hypertensive agents in patients undergoing hemodialysis remain unknown.

**Methods:** Patients undergoing hemodialysis during 2011 and 2012 at Nagasaki Renal Center were followed up until June 2021. Multivariate Cox regression analyses were conducted, including patients' demographic data, such as blood pressure and the number of antihypertensive agents received.

**Results:** A total of 339 patients (mean age: 67.3 years, 57% men, median dialysis vintage: 4.7 years) were included. The prescription ratios of angiotensin receptor blockers, beta-blockers, and calcium blockers were 41%, 19%, and 50%, respectively. According to the multivariable Cox regression analysis, angiotensin receptor blockers (Hazard ratio [HR]: 0.69, 95% confidential interval: 0.51-0.95, P=0.02) and calcium channel blockers (HR: 0.58, 95% confidential interval: 0.43-0.77, P<0.001) were associated with a better prognosis. Compared with patients who did not receive antihypertensive agents, patients who were prescribed one, two, and three or more antihypertensive agents showed an adjusted relative risks of death of 0.79, 0.59 (p=0.01), and 0.48 (p<0.001), respectively.

**Conclusion:** Our study showed that the number of antihypertensive agents received was negatively correlated with prognosis, indicating their pleiotropic effect. Therefore, physicians should combine antihypertensive agents to lower the blood pressure of patients undergoing hemodialysis to improve the prognosis.