

Abstract Submission No. : 9163

Association between blood pressure variability and renal outcome

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Blood pressure variability (BPV) is an umbrella term that refers to any dynamic changes in BP resulting from external environmental stimuli or intrinsic regulation. In the past, BPV was considered as a background noise or a randomly occurring phenomenon in BP measurement, but now it is thought to be the result of complex interactions between extrinsic environmental and behavioral factors and intrinsic cardiovascular regulatory mechanisms. Cardiovascular adverse events in hypertension are highly dependent on absolute BP values, but evidence from observational studies and post-hoc analysis of clinical trial data suggests that these findings may also depend on increased BPV. An increase in short-term and long-term BPV is associated with the development, progression, and severity of heart, blood vessel, and kidney damage, and is associated with an increased risk of cardiovascular events and mortality. Many studies have been conducted on the relationship between BPV and cardiovascular outcomes, and it is believed that consensus is being formed on the relationship. However, there are relatively few studies on the relationship between BPV and renal outcomes, and the results are also inconsistent. In addition, the exact mechanism by which BPV causes kidney damage is still unknown. In this lecture, the results of recent studies on the relationship between BPV and renal outcomes will be summarized, and the differences and limitations will be explored.