

## **BP behaviors approach for hypertension management**

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Blood pressure fluctuates beat to beat, minute to minute, day and night, day by day and even over longer period. However, changes in blood pressure (BP) itself reflect body's ability to adapt. These fluctuation or variability makes it difficult to diagnose and treat hypertension. And therefore, even though the clinic BP was the standard of BP for more than 100 years, there were many attempts to find other BP effects which influence on prognosis independent from clinical BP since there was the breakout of white coat effect and masked effect in clinic BP. One of the efforts includes home BP which is popular in Asia, initially and more commonly from Japan and ambulatory BP monitoring which is more commonly used in Europe and North America. Since long ago, their importance in diagnosis and treatment of hypertension has been highlighted.

Another still-ongoing issue is BP variability. Morning and evening BP differ quite large. After the importance of morning hypertension (versus evening) has been emphasized by Japanese scholars, treatment approach targeting morning hypertension has been introduced. But still it is in controversy. And per-beat, per-minute, per-hour or per-day BP differ significantly. Some clinical studies found that the degree of BP variability influence more on prognosis of hypertension than mean BP. Short-term BP variability is monitored by using 24-hour BP monitoring devices and for longer-term BP variability more than 24 hours, it can be measured at clinic and home, such as day-by-day. Clinical studies show more impact of longer-term BP variability on cardiovascular morbidity and mortality.

Recent development of internet and healthcare devices allow us to find more detailed BP behaviors that were not available and even imagined before. There are watch-like wearable devices for 24-hour BP measurement and one can monitor individual's changes in BP from a distance. This patient self-care behaviors will contribute to better diagnosis and treatment of hypertension by changing patient's life style and non-adherence behaviors. In this era that allow us to examine comprehensive and dynamic BP behaviors, we are expecting a revolution in diagnosis and treatment of BP and thus, our approach to the disease should also be shifted.