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Blood pressure measurement and assessment of volume status in hemodialysis patients

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To provide adequate hemodialysis treatment to patients, multiple factors are considered as the modifiable factors. Blood pressure and volume status are two basic components when giving care to hemodialysis patients, which has its own challenges.

Blood pressure have U-shape hazard ratio pattern to maintenance hemodialysis patients, making it difficult to apply general principle of treating hypertension directly to this patients group. Differences between inter-dialytic and peri-dialytic blood pressure make interpretation of pre-dialysis or post-dialysis blood pressure difficult. Ambulatory blood pressure monitoring may provide the most relevant results of blood pressure status among this population, however it is time-consuming and difficult to apply as daily routine assessment. Heterogeneity in maintenance hemodialysis patients is another important issue to target blood pressure in this patient group, recent observational studies found the presence of distinct subgroup with intradialytic hypertension.

As volume overload status may impose additional independent risk of mortality among hemodialysis patients, assessment of volume status is also critical. Traditional history taking of patient symptom and physical examination of volume overload or volume deficit is the mainstay for routine volume assessment. To improve objectiveness in volume status assessment, several new tools have been tried, however, recent meta-analysis summarized the pooled benefit of experimental approach as insignificant for enhancing patient survival. In subgroup analysis of that meta-analysis, bioimpedance assessment was associated with reduced risk of hospitalization. Bioimpedance spectroscopy machine measure the impedance of biological tissue at a series of frequencies. Modest accuracy and reproducibility is the strength of bioimpedance measurement, however, lack of gold standard of volume status and confounding of nutritional factor (or even unknown confounders) should be interpreted carefully. In this talk, I will introduce the concept and review the study results of previous publications focusing on Korean data.