W.M. CHI, C. PEI, B.M. JU, C.H. CHEN, Y.F. LIOU. Bioelectrical impedance vector distribution in hemodialysis patients with dehydration procedure. Gerontechnology 2010;9(2):274; doi: 10.4017/gt.2010.09.02.134.00 **Purpose** To control and maintain their body weight within 5% of dry weight for chronic hemodialysis (HD) patients before each dialysis is a common view of nursing care. According to the report from a dialysis center of the famous hospital in Taiwan[1], there were about 6-8.3% patients who went back to hospitals with complications caused by too much body water. Eighty-four percent of HD patients gained 2.8~4.0 kg body weight during interdialysis. Over weight often happened at the first day of a weekly period. The major reason was that it is hard to control the diet and water ingestion in the three-day interdialytic interval. Too much body water would damage the patients' health. This investigation used bioelectrical impedance vector analysis (BIVA) to describe the patient gaining weight over, under, and within 5% of his/her dry weight. **Method** BIVA considers combined changes in resistance (R) and Reactance (Xc) of impedance vector on RXc graph, which is normalized by subject's height. An individual vector reading can be compared with the reference 50%, 75%, 95% tolerance ellipses calculated in the healthy population of a same race, gender body mass index and age class. Piccoli et al.[2,3] proposed vectors falling or migrating parallel to the major axis of tolerance ellipses indicating progressive changes in hydration and parallel to the minor axis contained in soft tissue. In a cross-sectional study with 60 chronic HD patients (20 males and 40 females), patients gave their informed consent to the diagnostic procedures performed. Body weight was measured to the nearest 0.1 kg, with the subjects dressed in light clothing. Bare foot standing height was measured to the nearest 0.1 cm by using a wall-mounted standiometer. The intradialytic period was divided into six time points, respectively dialysis started 0 min, 60 min, 120 min, 180 min, 240 min and after the end of dialysis 30 minutes. This investigation utilized the bio-impedance analyzer QuadScan 4000 to measure patients' resistance, reactance at 50 KHz and body weight at each time point. **Results & Discussion** The RXc graph in the intradialytic period could display the status of hydration of a patient. The patient gained weights within 5% of his/her dry weight during interdialytic period, then the vectors migrated towards an ellipse's central area because the soft tissue wasn't changed during the 270 min measuring period, the migrating of vectors were mostly along the major axis, which implied the shift of hydration. However, the patient gained weights over 5% of dry weight during interdialytic period; the vectors were moving in the edema zone and not stayed at the ellipse's central region. The patient gained weights less 5% of dry weight during interdialytic period (BMI was about 21.85, thin patients) the vectors were moving outward in the lean zone and did not stay at the ellipse's central region(*Figure 1*).

References

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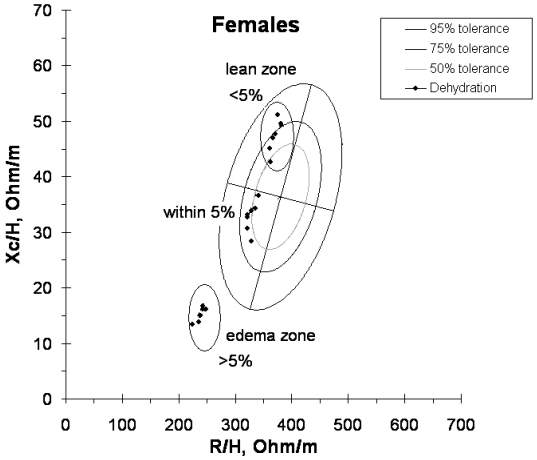

Figure 1. RXc point graph