

## **BIOIMPEDANCE ASSESSMENT OF VOLUME STATUS IN REFERRED PATIENTS WITH CHRONIC KIDNEY DISEASE: BASELINE DATA FROM BIO-CANPREDDICT**

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**BACKGROUND:** Volume status in patients with chronic kidney disease is difficult to assess. Establishing construct validity for new methods of assessment is challenging because no criterion measure exists. A modest correlation with other methods of assessment would suggest that the methods assess the same underlying construct, and confirm the potential for bioimpedance to provide more accurate information than the comparator studied.

**METHODS:** We measured bioimpedance, in triplicate, in patients with CKD who were already participating in CANPREDDICT. We analyzed the data according to the method of Piccoli, classifying patients based on the resistance (R) – reactance (Xc) graph.

**RESULTS:** We recruited 416 patients, median age was 70 (IQR 17) and 61 % were male. Median MDRD GFR was 28 mL/min/1.73 m<sup>2</sup> (IQR 16), median urine albumin-creatinine ratio was 107 mg/L (IQR 391), 44% had diabetes, 26% ischaemic heart disease and 10% a history of congestive heart failure. Median physician-assessed volume status was 1 on a 1-to-7 scale (IQR 1) and volume status by bioimpedance was 1 on a 0-to-3 scale (IQR 2). For both scales higher values reflect worse volume overload. By bioimpedance, 179 (44%) of patients had normal volume status (0), 91 (22%) status of 1, 108 (26%) status of 2 and 33 (8%) status of 3. Correlation between physician-assessed and bioimpedance-measured volume status was 0.31 (p< 0.001).

In multivariate analysis, volume status by bioimpedance was associated with age (OR 1.07 per year, 95% CI 1.05-1.10), gender (OR 0.56 for women, 95% CI 0.34-0.92) and diabetes (OR 2.3, 95% CI 1.26-4.09).

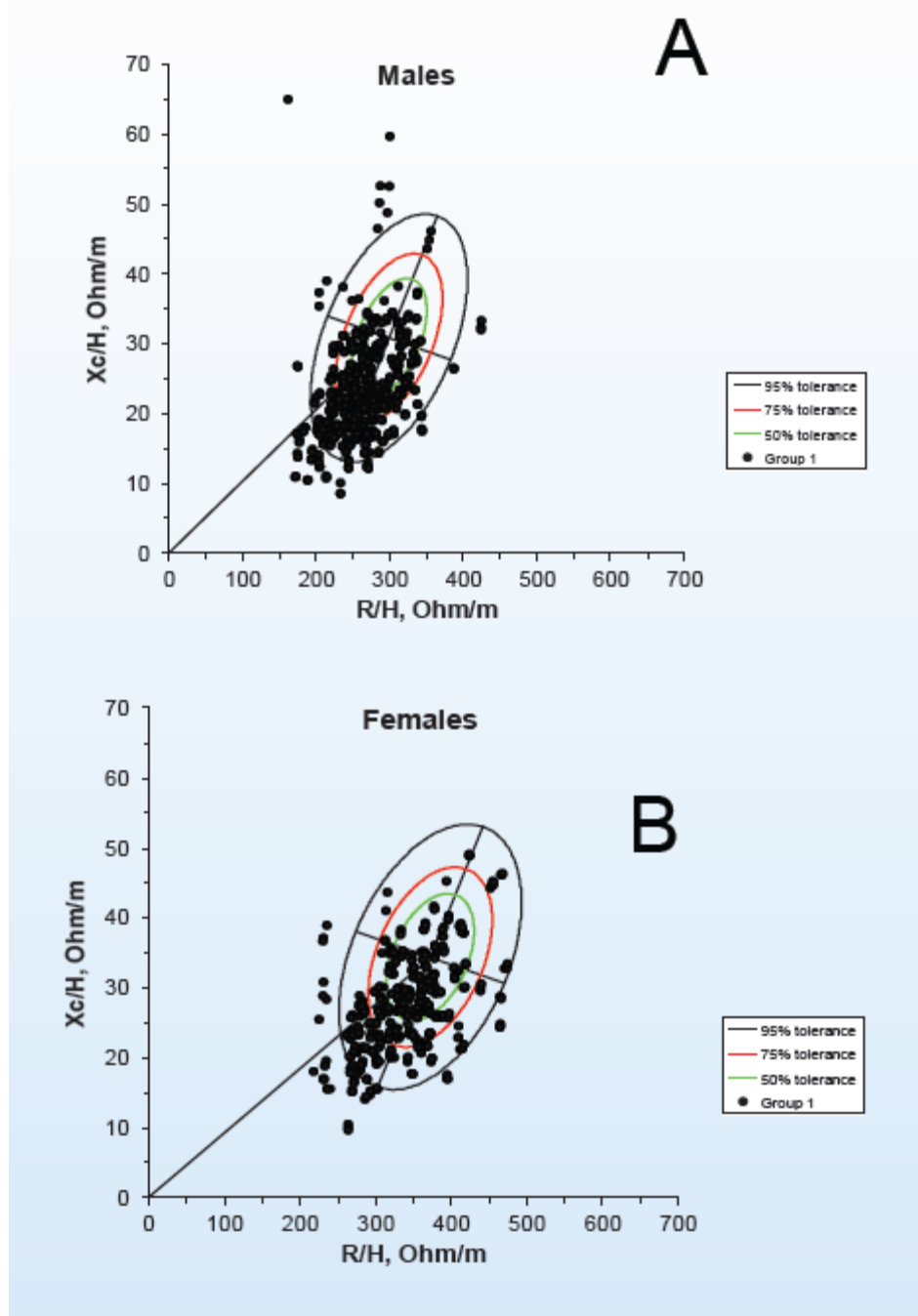


Figure 1. Piccoli graph of volume status for \* men (A) and \* women (B).

**CONCLUSION:** Volume overload by bioimpedance is prevalent in referred patients with CKD. The moderate correlation with physician-assessed volume overload establishes construct validity for this method.