



The 48th Annual Scientific Meeting of the Nutrition Society of Australia, 3-6 December 2024

Assessing hand grip strength as a nutritional indicator in hemodialysis patients: reliability and agreement between pre-dialysis and mid-dialysis measurements

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Handgrip strength (HGS) is a marker of protein-energy status in people on haemodialysis (HD). Best practice guidelines recommend measuring HGS before the commencement of the dialysis session, which is not always possible⁽¹⁾. No previous research has compared the reliability, reproducibility and agreement of HGS values pre- and mid-dialysis. Here we aimed to determine the reliability, reproducibility and agreement of HGS values pre- and mid-dialysis. Participants were recruited from four HD units (n = 47). Eligible participants were stable on HD for at least 3 months and not acutely unwell. HGS was measured in triplicate on the non-fistula arm before dialysis (pre-dialysis HGS) and two hours into dialysis (mid-dialysis HGS) for three consecutive weeks. Wilcoxon signed ranked tests were used to determine the difference between pre and mid-HGS. Friedman tests with Dunn's post hoc test were used to determine the repeatability of the HGS measures over three weeks. Bland Altman plots were used to determine the agreement between pre- and mid-measures. We observed that HGS measures taken pre- and mid-dialysis differed statistically (19.0 kg [IQR, 14.5–28.1] vs 19.9 kg [IQR, 15.0–28.4], p = 0.005), but not to a clinically relevant level^(2,3). There were no significant differences in pre-dialysis HGS measures (p = 0.34) nor mid-dialysis HGS measures (p = 0.16) over the 3 weeks. Bland Altman plots indicated agreement between pre- and mid-dialysis HGS measures, suggesting no systematic bias in HGS. This study found that HGS taken at either pre- or mid-dialysis were reliable and reproducible. These data indicate reasonable agreement between pre- and mid-dialysis HGS measures. Mid-dialysis HGS is a valuable tool for monitoring changes in the nutritional status of HD patients, providing HGS is consistently measured mid-dialysis.

References

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