

INTISARI

Latar Belakang: Hemodialisis (HD) merupakan salah satu terapi pengganti ginjal yang masih banyak digunakan sampai saat ini, namun sebagian besar pasien HD belum mencapai target adekuasi dialisis yang optimal. Menurut data *Indonesian Renal Registry* 2020 didapatkan bahwa capaian adekuasi hanya 14% dan 10% untuk adekuasi Kt/V dan Urea Reduction Ratio (URR). Pasien HD rutin juga beresiko mengalami malnutrisi energi protein yang dapat mempengaruhi rendahnya adekuasi dialisis. Pemberian intervensi latihan fisik intradialisis diketahui dapat mempengaruhi adekuasi dialisis dan komposisi tubuh, namun masih menunjukkan hasil yang bervariasi.

Tujuan penelitian: Mengetahui pengaruh latihan aerobik intradialisis terhadap adekuasi dialisis dan komposisi tubuh pada pasien HD rutin di RSUP Dr Sardjito.

Metode penelitian: Penelitian *Quasi-experimental, pretest-posttest with control group* pada pasien Penyakit Ginjal Tahap Akhir (PGTA) berusia > 18 tahun yang menjalani HD rutin 2 kali seminggu. Subyek dibagi menjadi dua kelompok yaitu kelompok perlakuan latihan aerobik menggunakan *ergocycle* selama 30 menit dengan intensitas sedang selama HD, sementara kelompok kontrol hanya mendapatkan perawatan standar. Kedua kelompok *follow up* selama 12 minggu. Dilakukan analisis adekuasi dialisis (Kt/V dan URR) dan komposisi tubuh (menggunakan alat *bioimpedance analysis* / BIA).

Hasil: Sebanyak 5 orang mengalami drop out dari total 54 subyek sehingga hanya 49 subyek yang dilanjutkan dalam analisis (25 subyek perlakuan dan 24 subyek kontrol). Didapatkan peningkatan signifikan adekuasi dialisis Kt/V ($\Delta 0,090 \pm 0,183$ vs $\Delta -0,120 \pm 0,186$, $p < 0,001$) dan URR ($\Delta 1,837 \pm 5,229$ vs $\Delta -2,273 \pm 4,220$, $p = 0,004$) pada kelompok perlakuan dibandingkan kelompok kontrol. Selain itu, berdasarkan parameter komposisi tubuh didapatkan peningkatan signifikan presentase massa otot ($\Delta 1,30 \pm 1,36$ vs $\Delta -1,62 \pm 2,09$, $p < 0,001$) dan penurunan presentase massa lemak ($\Delta -1,35 \pm 1,44$ vs $\Delta 1,69 \pm 2,24$, $p < 0,001$) setelah 12 minggu perlakuan pada kelompok perlakuan dibandingkan kelompok kontrol.

Simpulan: Latihan aerobik intradialisis selama 12 minggu terbukti secara signifikan dapat meningkatkan adekuasi dialisis (Kt/V dan URR), meningkatkan massa otot dan menurunkan massa lemak pada pasien HD rutin 2 kali per minggu.

Kata Kunci: Hemodialisis, Latihan Aerobik Intradialisis, Adekuasi Dialisis, Massa Otot, Massa Lemak

ABSTRACT

Background: Hemodialysis (HD) is one of the kidney replacement therapies that is still widely used today, but most HD patients have not achieved optimal dialysis adequacy targets. According to data from the Indonesian Renal Registry 2020, the achievement of optimal dialysis adequacy Kt/V and Urea Reduction Ratio (URR) were only 14% and 10%, respectively. Routine HD patients are also at risk of malnutrition (protein-energy wasting) which can affect low dialysis adequacy. Intradialytic aerobic exercise interventions are known to impact dialysis adequacy and body composition, but they have shown varied results.

Objective: To determine the effect of intradialytic aerobic exercise on dialysis adequacy and body composition (muscle mass and fat mass) in routine HD patients at Dr Sardjito Hospital.

Methods: Quasi-experimental study, pretest-posttest with control group in patients with end-stage renal disease who were over 18 years old and undergoing routine hemodialysis twice a week. Subjects were divided into two groups: the intervention group received aerobic exercise using an ergocycle for 30 minutes with moderate intensity during HD, while the control group only received standard care. Both groups were followed up for 12 weeks. Dialysis adequacy (Kt/V and URR) and body composition (using bioimpedance analysis/BIA) were analyzed.

Results: Out of 54 subjects, 5 dropped out, leaving 49 for analysis (25 in the intervention group and 24 in the control group). The intervention group showed a significant increase in dialysis adequacy Kt/V ($\Delta 0,090 \pm 0,183$ vs $\Delta -0,120 \pm 0,186$, $p < 0,001$) and URR ($\Delta 1,837 \pm 5,229$ vs $\Delta -2,273 \pm 4,220$, $p = 0,004$) compared to the control group. Furthermore, based on body composition parameters, there was a significant increase in muscle mass percentage ($\Delta 1,30 \pm 1,36$ vs $\Delta -1,62 \pm 2,09$, $p < 0,001$) and a decrease in fat mass percentage ($\Delta -1,35 \pm 1,44$ vs $\Delta 1,69 \pm 2,24$, $p < 0,001$) after 12 weeks of intervention compared to the control.

Conclusion: Intradialytic aerobic exercise for 12 weeks was proven to improve dialysis adequacy (Kt/V and URR), increase muscle mass and decrease fat mass in routine HD patients twice a week.

Keywords: Hemodialysis, Intradialytic Aerobic Exercise, Dialysis Adequacy, Muscle Mass, Fat Mass