

INTISARI

DAMPAK INTERVENSI LATIHAN AEROBIK DAN RESISTENSI SELAMA 12 MINGGU TERHADAP KADAR *INTERLEUKIN-6*, *INTERLEUKIN-10*, *CANCER-RELATED FATIGUE*, NILAI *METABOLIC EQUIVALENT OF TASK* PENDERITA KANKER PAYUDARA RESEPTOR HORMON POSITIF STADIUM I-III DI RSUP DR. SARDJITO YOGYAKARTA

Latar Belakang: Kanker payudara merupakan jenis kanker paling umum pada wanita dan menjadi penyebab utama kematian akibat kanker di dunia. Pasien kanker payudara kerap mengalami penurunan kapasitas fungsional dan cancer-related fatigue (CRF), yang berdampak pada kualitas hidup. Aktivitas fisik, seperti latihan aerobik dan resistensi, terbukti dapat mengurangi kelelahan dan meningkatkan kapasitas fungsional. Latihan fisik juga berpotensi memodulasi respons imun melalui pengaruh terhadap sitokin proinflamasi (IL-6) dan antiinflamasi (IL-10). Penelitian ini bertujuan mengevaluasi dampak latihan aerobik dan resistensi berbasis rumah selama 12 minggu terhadap kadar IL-6, IL-10, CRF, dan nilai MET pada pasien kanker payudara stadium I–III yang menjalani terapi hormonal.

Metode: Penelitian quasi-eksperimental dengan desain pre-post test satu kelompok dilakukan pada pasien kanker payudara reseptor hormon positif stadium I–III di RSUP Dr. Sardjito Yogyakarta. Intervensi berupa latihan aerobik dan resistensi berbasis rumah selama 12 minggu. Parameter yang diukur sebelum dan sesudah intervensi meliputi kadar IL-6, IL-10, tingkat CRF, dan nilai MET.

Hasil: Dari 48 pasien yang direkrut, 36 pasien bersedia berpartisipasi, dan 31 pasien berhasil menyelesaikan seluruh intervensi, dengan tingkat retensi mencapai 89%. Hasil penelitian menunjukkan perbedaan signifikan pada kadar IL-10 ($p = 0,000$) dan kadar IL-6 ($p = 0,001$) setelah intervensi, dengan 41,2% subjek mengalami peningkatan kadar IL-6 dan 79,4% subjek mengalami peningkatan kadar IL-10 setelah 12 minggu intervensi. Terdapat hubungan negatif signifikan antara perubahan kadar IL-10 dengan perubahan tingkat CRF ($r = -0,388$, $p < 0,05$), namun tidak ditemukan hubungan yang signifikan antara perubahan kadar IL-6 dengan perubahan tingkat CRF ($r = -0,205$, $p = 0.245$) dan antara perubahan kadar IL-6 dan IL-10 dengan nilai MET ($p > 0,05$).

Kesimpulan : Intervensi latihan aerobik dan resistensi selama 12 minggu dapat meningkatkan kadar IL-6 dan IL-10 pada pasien kanker payudara. Meskipun ada hubungan signifikan antara perubahan IL-10 dengan tingkat CRF, tidak ditemukan hubungan yang signifikan antara IL-6 dengan tingkat CRF atau antara kadar IL-6 dan IL-10 dengan nilai MET.

Kata Kunci: Latihan Aerobik, Latihan Resistensi, *Interleukin-6*, *Interleukin-10*, *Cancer-Related Fatigue*, *Metabolic Equivalent of Task*, Kanker Payudara.

ABSTRACT

THE IMPACT OF AEROBIC AND RESISTANCE EXERCISE INTERVENTION FOR 12 WEEKS ON INTERLEUKIN-6, INTERLEUKIN-10, CANCER-RELATED FATIGUE, AND METABOLIC EQUIVALENT OF TASK IN PATIENTS WITH HORMONE RECEPTOR-POSITIVE BREAST CANCER STAGE I-III AT RSUP DR. SARDJITO YOGYAKARTA

Background: Breast cancer is the most common type of cancer among women and remains the leading cause of cancer-related mortality worldwide. Patients with breast cancer often experience a decline in functional capacity and cancer-related fatigue (CRF), which negatively impacts their quality of life. Physical activity, such as aerobic and resistance exercises, has been proven to reduce fatigue and improve functional capacity. Exercise may also modulate immune responses through its influence on pro-inflammatory cytokines (IL-6) and anti-inflammatory cytokines (IL-10). This study aimed to evaluate the effects of a 12-week home-based aerobic and resistance exercise intervention on IL-6 and IL-10 levels, CRF, and functional capacity as measured by Metabolic Equivalent of Task (MET) in breast cancer patients (stage I–III) undergoing hormonal therapy.

Methods: This quasi-experimental study with a one-group pretest-posttest design involved patients with hormone receptor-positive stage I–III breast cancer undergoing hormonal therapy at Dr. Sardjito General Hospital, Yogyakarta. Participants completed a 12-week home-based aerobic and resistance exercise program. Outcome measures included serum levels of interleukin-6 (IL-6), interleukin-10 (IL-10), cancer-related fatigue (CRF), and functional capacity assessed by Metabolic Equivalent of Task (MET), evaluated before and after the intervention.

Results: Of the 48 patients recruited, 36 agreed to participate, and 31 completed the entire intervention, achieving a retention rate of 89%. The results showed significant differences in IL-10 ($p = 0.000$) and IL-6 ($p = 0.001$) levels after the intervention, with 41.2% of subjects showing increased IL-6 levels and 79.4% showing increased IL-10 levels after 12 weeks. There was a significant negative correlation between changes in IL-10 and changes in CRF level ($r = -0.388$, $p < 0.05$), but no significant correlation was found between changes in IL-6 and fatigue level ($r = -0.205$, $p = 0.245$) or between changes in IL-6 and IL-10 and MET values ($p > 0.05$).

Conclusion: The 12-week aerobic and resistance exercise intervention increased IL-6 and IL-10 levels in breast cancer patients. A significant correlation was found between changes in IL-10 and CRF, but no significant correlation was observed between IL-6, IL-10, and MET values.

Keywords: Aerobic Exercise, Resistance Exercise, Interleukin-6, Interleukin-10, Cancer-Related Fatigue, Metabolic Equivalent of Task, Breast Cancer.