

Efektivitas Terapi Latihan Diafragma Modifikasi Pada Dewasa Pasca Covid-19 Dengan Refluks Gastroesofagus, Kajian Terhadap: Tekanan Inspirasi Maksimal, Ekskursi Diafragma Dan Fungsi Paru = Effects of Modified Diaphragmatic Training on Gastroesophageal Reflux Disease Questionnaire Score, Diaphragmatic Excursion, and Maximum Inspiratory Pressure in Adults with Gastroesophageal Reflux Disease After COVID-19

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Abstrak

Penyakit refluks gastroesofagus (GERD) merupakan kondisi kronik yang terjadi akibat asam lambung naik ke esofagus. COVID-19 dapat memperburuk gejala GERD dan berdampak pada fungsi pernapasan. Latihan diafragma mampu memperbaiki gejala GERD, namun efektivitasnya pada orang dewasa dengan GERD pasca COVID-19 belum pernah diteliti. Penelitian ini bertujuan untuk menguji efektivitas latihan diafragma modifikasi terhadap gejala GERD, tekanan inspirasi maksimal (TIM), ekskursi diafragma, dan fungsi paru. Penelitian ini merupakan uji klinis acak tersamar tunggal pada bulan September 2022 sampai April 2023 di Rumah Sakit Persahabatan. Dari data rekam medis terdapat 364 pasien yang mengalami gejala gastrointestinal persisten. Dari data pasien tersebut, 302 pasien mengalami gejala sebelum COVID-19 dan 62 pasien setelah COVID 19. Sebanyak 55 pasien memenuhi kriteria inklusi dan lolos kriteria eksklusi. Selanjutnya dialokasikan secara random pada kelompok uji ($n = 25$) dan kontrol ($n = 25$), dan 5 pasien menjalani penelitian pendahuluan. Latihan diafragma selama empat minggu terdiri atas latihan diafragma modifikasi atau latihan diafragma standar. Evaluasi dilakukan 30 hari setelah latihan pertama. Dibandingkan dengan kelompok kontrol, kelompok uji menunjukkan peningkatan bermakna pada tekanan inspirasi maksimal (TIM; $42,68 \text{ cmH}_2\text{O} \pm 16,46$ vs. $55,40 \text{ cmH}_2\text{O} \pm 20,33$ dan $74,80 \text{ cmH}_2\text{O} \pm 20,33$ vs. $68,68 \text{ cmH}_2\text{O} \pm 21,25$), ekskursi diafragma kanan ($4,75 \text{ cm} \pm 0,98$ vs. $4,97 \text{ cm} \pm 0,93$ dan $6,84 \text{ cm} \pm 0,92$ vs. $5,57 \text{ cm} \pm 0,95$), dan ekskursi diafragma kiri ($4,42 \text{ cm} \pm 0,86$ vs. $4,70 \text{ cm} \pm 0,85$ dan $6,48 \text{ cm} \pm 0,78$ vs. $5,33 \text{ cm} \pm 0,90$). Selain itu, baik kelompok uji sebelum-dan-sesudah maupun kelompok kontrol mengalami penurunan bermakna pada skor GERDQ ($10,44 \pm 2,00$ vs. $1,84 \pm 2,17$ dan $8,64 \pm 0,57$ vs. $3,32 \pm 1,49$), dengan nilai $p < 0,001$. Latihan diafragma meningkatkan nilai kapasitas vital paksa (KVP), tidak meningkatkan nilai volume ekspirasi paksa detik pertama (VEP1) maupun rasio antara volume ekspirasi paksa detik pertama dan kapasitas vital paksa (VEP1/KVP), tidak bermakna secara statistik ($p > 0,05$). Latihan diafragma modifikasi pada orang dewasa setelah COVID-19 dengan GERD meningkatkan TIM dan ekskursi diafragma, serta mengurangi gejala refluks gastroesofageal yang terlihat dari perbaikan skor GERDQ.

.....Gastroesophageal reflux disease (GERD) is a common chronic condition characterized by stomach acid reflux into the esophagus. COVID-19 may worsen GERD symptoms and impact respiratory function. Diaphragmatic training has demonstrated potential effectiveness in managing GERD symptoms, but its effectiveness in adults with GERD after COVID-19 is unknown. This study aimed to examine the effectiveness of modified diaphragmatic training (MDT) on GERD symptoms, maximum inspiratory pressure (MIP), diaphragmatic excursion, and lung function in this population. This single-blinded

randomized control trial was conducted from September 2022 to April 2023 at Persahabatan Hospital. The research team evaluated the medical records of 364 patients presenting persistent gastrointestinal symptoms; among these potential participants, 302 reported symptoms before COVID-19 infection, while 62 developed symptoms after being infected with COVID-19. After applying the study's inclusion and exclusion criteria, a total of 55 patients were selected and randomly assigned to either the intervention group (n = 25) or the control group (n = 25), and 5 patients were enrolled in the preliminary research. The intervention phase consisted of four weeks of diaphragmatic training, wherein participants received either modified diaphragmatic training (MDT) or standard diaphragmatic training. Following the training period, a follow-up assessment was conducted 30 days from the initiation of the intervention. In comparison to the control group, the intervention group demonstrated significant improvements in maximum inspiratory pressure (MIP; 42,68 cmH₂O ± 16,46 vs. 55,40 cmH₂O ± 20,33 and 74,80 cmH₂O ± 20,33 vs. 68,68 cmH₂O ± 21,25), right diaphragmatic excursion (RDE; 4,75 cm ± 0,98 vs. 4,97 cm ± 0,93 and 6,84 cm ± 0,92 vs. 5,57 cm ± 0,95), and left diaphragmatic excursion (LDE; 4,42 cm ± 0,86 vs. 4,70 cm ± 0,85 and 6,48 cm ± 0,78 vs. 5,33 cm ± 0,90). Additionally, both the pre–post-intervention group and the control group exhibited significant reductions in GERDQ scores (10.44 ± 2.00 vs. 1.84 ± 2.17 and 8.64 ± 0.57 vs. 3.32 ± 1.49, respectively), with a p-value < 0.001. Diaphragmatic training resulted in increased forced vital capacity (FVC), forced expiratory volume in the first second (FEV₁) and the ratio of forced expiratory volume in the first second to forced vital capacity (FEV₁/FVC), these differences were not statistically significant in both groups (p > 0,05). MDT in adults post-COVID-19 with GERD enhanced MIP and diaphragmatic excursion, along with a reduction in symptoms of GERD as evidenced by improvements in GERDQ scores.