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We use this protocol and it's working

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Aerobic Intradialytic Exercise

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ABSTRACT

Currently, intradialytic exercise interventions are rarely performed in hemodialysis centres in Indonesia, particularly at Dr Sardjito Hospital. Physical exercise during hemodialysis (HD) provides many benefits, one of the most important being increases blood flow in the muscles and increases the surface area of small blood vessels, thereby increasing the transfer of urea and toxins from the tissues to the blood vessels that will be delivered to the HD machine. These will increase the success of the HD procedure (by its dialysis adequacy) and ultimately improve the patient's quality of life significantly.

PROTOCOL REFERENCES

Riebe D, Ehrman JK, Liguori G, Magal M, et al. American College of Sports Medicine. ACSM's guidelines for exercise testing and prescription. 10th edition. Philadelphia: Wolters Kluwer; 2018.

"Latihan Aerobik Intradialisis (Khusus Pasien Gagal Ginjal Yang Menjalani Hemodialisis)." YouTube, uploaded by Department of Internal Medicine UGM, 28th August 2023, https://youtu.be/yqQrRCE99yU?si=RU6clw7ZdvJkKpyV

GUIDELINES

The subjects of this study were patients who had been diagnosed with end-stage renal disease, and undergoing routine haemodialysis for at least 3 months at Dr. Sardjito Hospital who had been given information about the study and signed a consent form to participate as research subjects who were included in the inclusion criteria.

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Keywords: Intradialytic exercise

MATERIALS

We will need:
a. Tensimeter
b. Pulse oxymetry
c. Stopwatch
d. Borg 20 scale
e. Cycle ergometer

SAFETY WARNINGS

Exclusion criteria:
a. Patients were in clinical condition of acute infection or sepsis.
b. Pregnant or breastfeeding
c. Patients undergoing haemodialysis for acute dialysis indication
d. Malignancy or autoimmune disease
e. Diseases of the nervous system (neurology) especially in the inferior extremities that make patients unable to perform intradialytic exercise
f. Musculoskeletal system disorders, especially in the inferior extremities, that make the patient unable to perform intradialytic exercises

ETHICS STATEMENT

The study protocol was approved by The Medical and Health Research Ethics Committee, Gadjah Mada
University with reference number KE/FK/0994/EC/2023. All participants provided written informed consent before being enrolled. The researchers provided the participants with information regarding the study's aims and methods, the right to withdraw at any time without reprisal, and their right to privacy.

BEFORE START INSTRUCTIONS

Inclusion criteria:
a. Patients aged > 18 years
b. Have undergone conventional HD therapy regularly for > 3 months.
c. Stable condition with no history of condition aggravation (extra HD) in the last 1 month
d. Using AV fistula/graft vascular access
e. Willing to be a research subject and sign the informed consent sheet

1 The subject wears comfortable clothes that do not interfere with the movement of the feet and brings thick socks

2 Measure the patient's blood pressure, pulse, and saturation before the exercise.

3 The subject is given information on how to use the cycle ergometer and how to determine the intensity of exercise using the Borg scale.

4 Aerobic exercise using a cycle ergometer in the first 2 hours of haemodialysis session, starting with light intensity for 5 minutes (Borg scale 10 - 11) for warm-up, followed by core exercise for 20 minutes with light-moderate intensity (Borg scale 12-13), ending with light intensity exercise for cooling for 5 minutes. Target total duration of exercise 30 minutes

5 Increased exercise progressivity in the form of increasing pedalling speed or adding weights is done by considering the subject's condition.

6 Subjects can exercise interspersed with rest with a maximum exercise: rest ratio of 1: 1 (Riebe et al., 2018). For example, exercise 3 minutes, rest 3 minutes and then continue training until a total exercise time of 30 minutes is reached.

7

Exercise
is temporarily stopped if the following conditions are found in the subject:

a. Feeling fatigue/chest pain/dizziness
b. Calf pain/joint pain with VAS > 4
c. Shortness of breath with breathing frequency > 26 times per minute
d. Increased systolic blood pressure > 250 mmHg and / or diastolic > 115mmHg.
e. Subject requests to rest

8 Exercise was paused until the patient was able to perform the exercise again. Completion of exercise time was limited to the first 2 hours after haemodialysis started.

9 Pulse, blood pressure and saturation checks were conducted again during the transfer of exercise sessions, immediately after exercise and 1 hour after exercise

10 During exercise and 1 hour after exercise, the patient is accompanied by a health worker (nurse / doctor)

11 An evaluation of the Borg Rating of Perceived Exertion (RPE) scale would be performed every 4 weeks to reassess whether research subjects were still engaging in intradialytic exercise at a moderate intensity. This was done assuming improvements in functional capacity or leg muscle strength due to the exercise effect, requiring adjustment of the RPE scale to ensure all subjects reached a moderate intensity from the beginning to the end of the study.