**Estatística Aplicada**

Na aula teórica serão apresentados os problemas como se fosse alguém pedindo consultoria aos alunos. Será dado um tempo de 10 min para os alunos pensarem sobre o problema e escreverem o que entenderam. Ou seja, os alunos vão pedir consultoria a professora. Eles explicaram o problema com suas palavras. Ao final, abre-se uma discussão sobre o tema e possíveis análises. Até o final da aula, os alunos farão o planejamento da análise, anotando quais análises estatísticas serão feitas, organização do banco de dados, etc.

**Problema 1: Atividade física e pacientes em hemodiálise: Banco Cris. (análise pareada)**

**Pacientes submetidos à hemodiálise (HD) apresentam inflamação persistente e perda de energia protéica (PEW), o que contribui para altas taxas de mortalidade. Este estudo teve como objetivo avaliar os efeitos de um programa de treinamento de exercícios resistidos (RETP) sobre inflamação e PEW em pacientes em HD.**

**Métodos:**

**Pacientes realizaram 6 meses de RETP intradialitico. Os níveis de moléculas de adesão plasmática (ICAM-1 e VCAM-1) foram medidos utilizando o ensaio imunoenzimático, e interleucina-6 (IL-6), proteína C-reativa e fator de necrose tumoral-alfa por ELISA. Antropometria, capacidade física e PEW (presença simultânea de: IMC <23 kg / m2, albumina sérica <3,8 g / dL e área muscular reduzida do braço) foram analisados.**

**PCR**

**DEP**

Vascular cell adhesion molecule-1 (VCAM-1) (Human VCAM-1, Boster Immu- noleader, EK0537) and intercellular adhesion molecule-1 (ICAM-1) (Human ICAM-1, Boster Immunoleader, EK0370)

Additionally, the ratio between fat-free mass (FFM) and cytokines was calculated as FFM/TNF-a and FFM/IL-6 ratios.

anthropometric parameters:

body weight (kg),

height (m),

waist circumference (WC, cm) – circunferencia da cintura

skinfold measurement (mm) – dobras cutaneas (biceps, triceps, subscapular, and suprailiac)

Arm muscle area (AMA):

MAC is muscular arm circumference.

Body fat (gordura corporal) was calculated from the skinfold measurement according to Durnin and Womersley [17], and the percentage of body fat was calculated by Siri’s equation [18].

The fat-free mass (kg) was calculated by subtracting fat mass (kg) from body weight (kg). A trained staff member performed all the measurements after the HD session.

The nutritional status was evaluated by specifically trained professionals using the adapted subjective global assess- ment (SGA) proposed by Kalantar et al. [19], which is a fully quantitative scoring system (the dialysis malnutrition score) consisting of seven variables: weight change, dietary intake, gastrointestinal symptoms, functional capacity, comorbidity, subcutaneous fat, and signs of muscle wast- ing. For each component was assigned a score from 1 (normal) to 5 (very severe), and the sum of all seven components in the malnutrition score lies between 7 (nor- mal) and 35 (severely malnourished). The patients were classified according to their nutritional status as well nourished, at nutritional risk, moderate malnourished, severe malnourished, and very severely malnourished.

The PEW was diagnosed if the patient presented three positives criteria, which were BMI \23 kg/m2, serum albumin \3.8 g/dL, and reduced AMA circumference (reduction of 10 % in relation to the 50th percentile of the

The muscle strength (Força Muscular) was assessed using an isokinetic dynamometer (Cybex NormÒ). This test measures in Newton (N m) the maximum peak strength of the muscle (flexion and extension) in both thighs individually.

The sit-to-stand (STS) test was also performed to evaluate functional capacity. The STS-60 test consisted of standing and sitting in a chair as many time as possible in 60 s. The STS-10 consisted of standing and sitting in a chair 10 times in a chair within the shortest possible amount of time [20]. These tests have been recommended to quantify lower-extremity muscle strength (force-generating capac- ity) in patients with lower-extremity weakness [21].

**Variáveis para pesquisar no banco:**

**Anthropometric parameters:**

**BMI (Kg/m2)**

**Arm muscular área (cm)**

**Fat mass (%)**

**Fat-free mass (Kg)**

**Biochemical parameters**

**CRP (pg/mL)**

**ICAM-1 (pg/mL)**

**VCAM-1 (pg/mL)**

**IL-6 (pg/mL)**

**FFM/IL-6 (ratio)**

**TNF-a (pg/mL)**

**FFM/TNF-a (ratio)**

**Albumin (g/dL)**

**Creatinine (mg/dL)**

**Hemoglobin (g/dL)**

**Kt/V**

**C-reactive Protein**

**Physical capacity and strength parameters**

**STS-10 (s)**

**STS-60 (repetitions)**

**Left extensor torque (N m)**

**Right extensor torque (N m)**

**Left flexor torque (N m)**

**Right flexor torque (N m)**

**Presence of PEW**