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Which is the best cutoff of body mass index to identify obesity in female patients with rheumatoid arthritis? A study using dual energy X-ray absorptiometry body composition

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ABSTRACT

Introduction: Standard anthropometric measures used to diagnose obesity in the general population may not have the same performance in patients with rheumatoid arthritis.
Objective: To determine cutoff points for body mass index (BMI) and waist circumference (WC) for detecting obesity in women with rheumatoid arthritis (RA) by comparing these standard anthropometric measures to a dual-energy X-ray absorptiometry (DXA)-based obesity criterion.
Patients and method: Adult female patients with more than six months of diagnosis of RA underwent clinical evaluation, with anthropometric measures and body composition with DXA.
Results: Eighty two patients were included, mean age 55 ± 10.7 years. The diagnosis of obesity in the sample was about 31.7% by BMI, 86.6% by WC and 59.8% by DXA. Considering DXA as golden standard, cutoff points were identified for anthropometric measures to better approximate DXA estimates of percent body fat: for BMI value ≥ 25 kg/m^2 was the best for definition of obesity in female patients with RA, with sensitivity of 80% and specificity of 60%. For WC, with 80% of sensitivity and 35% of specificity, the best value to detect obesity was 86 cm.

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Conclusion: A large percentage of patients were obese. The traditional cutoff points used for obesity were not suitable for our sample. For this female population with established RA, BMI cutoff point of 25 kg/m^2 and WC cutoff point of 86 cm were the most appropriate to detect obesity.

Qual o melhor ponto de corte de índice de massa corporal para diagnosticar a obesidade em mulheres com artrite reumatoide? Um estudo que usa a composição corporal pela absorciometria com raios X de dupla energia

Palavras-chave:
Artrite reumatoide
Mulheres
Obesidade
Densitometria óssea
Composição corporal
Índice de massa corporal
Diagnóstico

RESUMO

Introdução: Medidas antropométricas universalmente usadas para diagnosticar obesidade na população geral podem não apresentar a mesma performance em pacientes com artrite reumatoide.
Objetivos: Determinar pontos de corte do índice de massa corporal (IMC) e da circunferência de cintura (CC) para detecção de obesidade em mulheres com artrite reumatoide (AR) por meio da comparação dessas medidas antropométricas habituais com os índices de adiposidade obtidos pela densitometria óssea por dupla emissão de raios X (DXA).
Pacientes e método: Mulheres adultas com mais de seis meses de diagnóstico de AR foram submetidas a avaliação clínica com medidas antropométricas e à DXA com exame da composição corporal.
Resultados: Foram incluídas 82 pacientes, média de 55± 10,7 anos. O diagnóstico de obesidade na amostra foi de 31,7% pelo IMC, 86,6% pela circunferência de cintura e 59,8% pela DXA. Considerando a DXA o padrão-ouro, o valor de IMC acima de 25 kg/m^2 foi o mais adequado para definição de obesidade nas pacientes com AR, apresentou sensibilidade de 80% e especificidade de 60%. Da mesma forma, para a CC, com 80% de sensibilidade e de 35% de especificidade, o valor encontrado foi de 86 cm para se detectar a obesidade.
Conclusão: Foi elevado o porcentual de pacientes obesas. Os pontos de corte tradicionalmente usados para obesidade não foram adequados para nossa amostra. Para essa população de pacientes femininas com diagnóstico de AR, o ponto de corte de 25 kg/m^2 para IMC e de 86 cm para CC foi o mais adequado para definir obesidade.

Introduction

Obesity and rheumatoid arthritis (RA) have been shown to be related in different ways. The first condition seems to be related to an increased risk of development of the second disease. Recent meta-analysis that included 11 studies showed that obese subjects with BMI $\geq$ 30 kg/m^2 had a higher relative risk for developing RA.[1]

In patients with the established disease, the inflammatory process is able of altering body composition, leading to obesity with increased abdominal fat and loss of lean body mass.[2] This decrease in lean body mass, along with the increase in fat mass and in central obesity, may be related to the increased cardiovascular morbidity and also with functional decline.[3]

In cases of RA, the occurrence of body fat accumulation without a significant increase in body weight is a condition known as rheumatoid cachexia,[4,5] whose estimated prevalence ranges from 10 to 67%.[6] In a setting of chronic inflammation, high levels of cytokines cause metabolic changes, which can result in the alterations above mentioned.[7,8]

Moreover, according to the US Center of Disease Control (CDC),[9] the prevalence of obesity in patients with rheumatoid arthritis is 54% higher than in RA-free individuals. A multicenter study found a prevalence of 18% of obesity in a population with RA,[10] while another study found a prevalence of 31%.[11]

Epidemiological data considered RA as an independent risk factor for cardiovascular disease (CVD), and one of the main causes of death in patients with that disease.[12–14] A meta-analysis of 24 studies of patients with RA showed an increase of 50% in the risk of death from cardiovascular causes in general.[15]

Obesity can contribute to increasing the risk of CVD development as well as of type II diabetes mellitus (DM II), dyslipidemia, and hypertension (HBP).[16,17]

Overweight in RA patients has been associated with increased mortality, increased pain, worse quality of life, an increase in indications for the use of joint prostheses, and increased costs with the disease.[18,19] Obesity can also

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