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GUEST EDITORIAL

Obesity, anaemia and indicators of iron deficiency among women: a complex problem requiring action

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The soaring prevalence of obesity among women is well documented globally,[1] on the African continent,[2] in sub-Saharan African,[3] as well as South Africa.[4] An association between obesity and the development of non-communicable diseases of lifestyle is also widely recognised internationally,[1,5,6] in sub-Saharan Africa,[7] and South Africa.[4,8] Furthermore, obesity is recognised as a pandemic characterised by low-grade systemic inflammation.[9-11] Hepcidin, a peptide predominantly produced by the liver, is a vital regulator of systemic iron homeostatis, with concentrations being regulated by iron status, anaemia, and inflammation. Hence, hepcidin expression is increased by elevated iron stores and inflammation and decreased by anaemia and hypoxia.[10,12] Given the chronic inflammatory nature of obesity and its resultant effect on hepcidin, there is a growing body of evidence regarding anaemia of inflammation,[10,12] with body mass index (BMI) being postulated as a biomarker for anaemia due to increased hepcidin levels.[12,13] Based on the above, the relationship between obesity and the prevalence of iron deficiency anaemia among women of reproductive age is starting to gain traction.[14,15]

The study by Jordaan, Van den Berg, Van Rooyen and Walsh, determined the prevalence of obesity and anaemia, in addition to indicators of iron deficiency, inflammation and body composition. The associations between these variables were explored in a sample of 134 rural women aged 25 to 49 years sampled from three towns in the Free State, South Africa. As the women surveyed were of reproductive age, contraception use was also documented.

Due to the high prevalence of obesity among South African women of reproductive age, this study not only highlights the important relationship between BMI, inflammation and anaemia in a sample of local women, but also serves as a South African first. Although the authors acknowledge study limitations such as a limited sample size and the inclusion of older women, a number of trends that require further investigation became evident. These included the inverse associations between mean corpuscular volume, mean corpuscular haemoglobin (MCH) and transferrin saturation with categories of BMI, waist circumference and body fat percentage. Of further consideration is that nearly a third of the study sample presented with elevated ferritin levels. However, elevated C-reactive protein (CRP) levels in almost half of the sample and a significant association between whether CRP levels, were elevated or not, and ferritin levels, could imply that the prevalence of iron deficiency was underestimated.

Despite the median BMI (28.7 kg/m^2) of the study being indicative of an overweight status, cognisance should be taken of the fact that numerous local studies have documented a higher prevalence of overweight/obesity among urban South African women when compared to their rural counterparts. As a result, studies of a similar nature should be conducted among both rural and urban communities, while including younger women, as women of reproductive age is defined as those aged 15 to 49 years.[16]

As a quarter of the women surveyed had higher levels of MCH, as is evident in macrocytic anaemia due to a vitamin B12 or folate deficiency, consideration should be given to the food security status of obese women, as food insecurity, a lack of dietary diversity and obesity are intertwined.[18]

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