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Overweight and Obesity Reduction Efficacy in Breast Cancer: A Letter to the Editor

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Dear Editor,

According to the International Agency for Research on Cancer (IARC), Asia has the highest death rates and incidence of breast cancer; 27% of all cancers that occur among women in Iran are attributed to breast cancer. The role of obesity in breast cancer development has been known for decades. S strong evidence exists on the idea that obesity and weight gain during adulthood are associated with increased risk of postmenopausal breast cancer. Furthermore, growing evidence is available on the association of obesity with breast cancer and overall mortality rate in women's premenopausal and postmenopausal periods (1).

Evaluation of the breast cancer risk helps identification of the women with the high risk of developing breast cancer in the future. Some strategies to reduce this risk involve adopting a healthier lifestyle as well as involving diet and exercise in everyday life (2).

Obesity and overweight are defined by Body Mass Index (BMI). The effect of high BMI on breast cancer was assessed in selected studies using the odds ratio (OR). The results of the data analysis using the random effects method showed that the risk of breast cancer was higher among the people with obesity (BMI $\geq$ 30): Pooled OR = 1.81, 95% CI = 1.24 - 2.64 and for overweight (30 > BMI $\geq$ 25): Pooled OR = 1.46, 95% CI = 1.13 - 1.89(3).

According to the care plan for risk factors in non-communicable diseases (Steps 2016), the prevalence rates of obesity and overweight were 29.77% and 34.96% among Iranian women, respectively. Furthermore, population-attributable fractions of these diseases were 13.32% and 11.01%, respectively, which indicates that by eliminating obesity and overweight factors, we can expect 24.33% reduction in the population's breast cancer.

For instance, a well-designed randomized controlled trial in children with a particular disease found that 20% of the control group developed bad outcomes compared with only 12% of the individuals who received treatment. Absolute risk reduction (ARR) – also called risk difference (RD) – is the most useful way of presenting research results to help your decision-making. In this example, the ARR is 8% (20% - 12% = 8%), which means that, if 100 children were treated, 8 would be prevented from developing bad outcomes. Another

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way of expressing this is the number needed to treat (NNT); that is the number of people who must be treated to benefit one person. It is the inverse of absolute risk reduction. If 8 children out of 100 benefit from a treatment, the NNT for one child to benefit is about 13 (100 ÷ 8 = 12.5)(4).

A randomized, controlled, primary prevention trial was conducted in 40 US clinical centers from 1993 to 2005. In this study, a total of 48,835 postmenopausal women, aged 50 to 79 years, without prior breast cancer were enrolled. Women were randomly assigned into the dietary modification intervention group (40% [n = 19,541]) and the control group (60% [n = 29,294]) (5). The baseline characteristics of BMI and breast cancer incidence indicated that overweight ARR rate equals 0.0025 that is 0.25% (NNT: 400), obesity ARR equals 0.0012 i.e., 0.12% (NNT: 833.33) and obesity grade 2 and more equals 0.0033 that is 0.33% (NNT: 303.03). In other words, by treating 400 patients suffering from overweight and 833.33 patients suffering from obesity, we can prevent one case of breast cancer.

Overweight, obesity, and abdominal fat are associated with the risk of developing breast cancer in women during the premenopausal and postmenopausal periods. Therefore, in order to prevent breast cancer and its complications, an intervention program should be implemented to control obesity and a breast cancer screening program should be conducted among the obese and overweight women (6).

Governments are responsible for maintaining, restoring, and promoting health in the community. In order to make the right decisions and direct resources of the health sector, the most common cancer in women should be investigated as a priority for the health system. Therefore, a special study of breast cancer is necessary considering the mortality rate and disability. In this regard, we decided to investigate the most relevant risk factor and evaluate the risk associated with breast cancer by reviewing articles related to breast cancer. Later, we examined the most effective interventional strategies in this area. Consequently, given high prevalence of the overweight and obesity, intervention plans should be implemented to reduce the risk factors of the breast cancer.

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