Do GLP-1 Receptor Agonists Increase the Risk of Breast Cancer? A Systematic Review and Meta-Analysis

Giovana Fagundes Piccoli. *Hospital de Clinic de Porto Alegre*

Giovana Fagundes Piccoli, MD[1], Leonardo A. Mesquita, MD[1], Cinara Stein, PhD[2], Marina M. Aziz, MSc[2], Maira Zoldan, MD[1], Nathalia A. H. Degobi, MD[1], Bernardo Frison Spiazzi, Medical Student[3], Gilberto L. Lopes Junior, MD[4], Veronica Colpani, PhD[5], Fernando Gerchman, MD[6].

[1]Hospital de Clinic de Porto Alegre, Porto Alegre, Brazil, [2]Hospital Moinhos de Vento, Porto Alegre, Brazil, [3]UFRGS, Porto Alegre, Brazil, [4]Sylvester Cromprehensive Cancer Center at University of Miami, Miami, FL, USA, [5]Hospital de Clínicas de Porto Alegre, Porto Alegre, Brazil, [6]Federal University of Rio Grande do Sul - School of Medicine, Porto Alegre, Brazil.

Background: Risk of cancer is a major concern in the development of drugs for the treatment of obesity and diabetes. In randomized controlled trials (RCTs) of the liraglutide development program, a glucagon-like peptide-1 receptor agonist (GLP-1RA), subjects treated with the active drug had a higher absolute number of breast cancer events. Aim: To assess whether patients treated with GLP-1RAs had a higher risk of breast neoplasms.

Methods: We searched MEDLINE, Embase, Web of Science, and CENTRAL from inception to February 8, 2020. Three pairs of reviewers examined and retrieved abstractsand full-text articles for RCTs of GLP-1RAs versus non-GLP-1RA controls(active or placebo) in adults with overweight, obesity, prediabetes, or diabetes,with a minimum follow-up period of 24 weeks and which reported at least oneevent of breast cancer or benign breast neoplasm. Divergences were dealt withby consensus. Researchers extracted study-level data and assessed within-study risk of bias with the RoB 2.0 tool and quality of evidence with GRADE. This study follows PRISMA reporting guidelines.

Results: We included 52 trials, of which 50 reported breast cancer events and 11 reported benign breast neoplasms. Overall methodological quality was high. Among 48267 subjects treated with GLP-1RAs, 130 developed breast cancer compared to 107 of 40755 controls (relative risk [RR], 0.98; 95% confidence interval [CI], 0.76 to 1.26). Subset analyses according to follow-up, participant/investigator blinding, and type of GLP-1RA did not reveal any differences. The risk of benign breast neoplasms also did not differ between groups (RR, 0.99; 95% CI, 0.48 to 2.01). Trial sequential analysis provided evidence that the sample size was sufficient to avoid missing alternative results.

Conclusion: Treatment with GLP-1RAs for obesity and diabetes does not increase the risk of breast neoplasms.

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