A Retrospective Cohort Study on Mitigating Chemotherapy Side Effects in Breast Cancer Patients: The Role of GLP-1R Agonists

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Introduction

•Chemotherapy-related toxicity remains a significant barrier to optimal outcomes in breast cancer, contributing significantly to treatment discontinuation, morbidity, and diminished quality of life

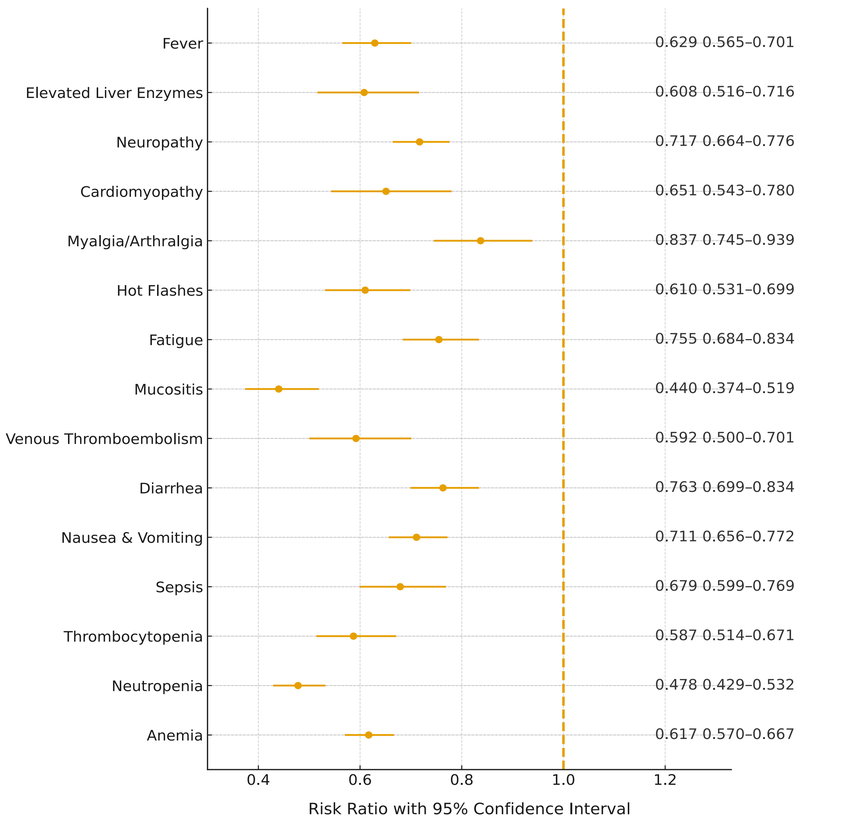
•Glucagon-like peptide-1 receptor agonists (GLP-1 RAs), widely used for glycemic control and weight loss, are increasingly recognized for their anti-inflammatory, cytoprotective, and organ-preserving properties

•This retrospective cohort study investigates the adjunctive role of GLP-1 RAs in breast cancer patients undergoing chemotherapy, focusing on their potential to attenuate treatment-related side effects.

Methods

- Study Sample: Global Collaborative Network to conduct this study. ICD-10 codes, were used to identify BC patients on GLP-1RAs who received any one or more of the following chemotherapy agents: Doxorubicin, Cyclophosphamide, Paclitaxel, Docetaxel, Carboplatin, Capecitabine, or Gemcitabine.
- Exposure: Patients were allocated to
  - Cohort A (BC patients receiving chemotherapy on GLP-1 RAs) and
  - Cohort B (BC patients receiving chemotherapy not on GLP-1 RAs).
- The primary outcome: Incidence of chemotherapy-related side effects and complications.
- Patients were propensity score matched to adjust for confounders.
- Multivariate logistic regression analysis was used to determine the association (risk ratios [RR], 95% CIs).

Results



Results

- Each cohort consisted of 5,685 patients.
  - The mean age for cohort A was 62 years (62.2% White, 18.6% Black, 9.5% Hispanic), with females comprising 96%.
  - The mean age for cohort B was 63 years (62.7% White, 18.5% Black, 8.9% Hispanic), with females representing 96%.
- BMI was higher in cohort A (35.3 ± 7.5) than cohort B (29.3 ± 7.1)
- GLP-1 RA use was associated with a significant reduction in hematologic, GI, and systemic toxicities

Conclusion

- Our findings suggest that GLP-1 RAs may have a protective role in reducing the incidence of chemotherapy-induced side effects and complications in BC patients.
- By demonstrating statistically significant reductions in hematologic, gastrointestinal, cardiovascular, and systemic toxicities, our study highlights the potential of these agents as adjuncts in oncology care.
- While further prospective studies are needed to validate these observations and elucidate the underlying mechanisms, this research contributes to a growing body of evidence supporting innovative approaches to improving chemotherapy tolerability and patient well-being.
- Integrating GLP-1 RAs into supportive care protocols could represent a meaningful advancement in mitigating treatment-related morbidity and enhancing overall cancer care outcomes.

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