Revisiting the Glucagon-Like Peptide-1 and Pathologic Complete Response Link in Triple-Negative Breast Cancer: Contrasting Outcomes in a High Body Mass Index, Majority Hispanic Cohort

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Introduction

Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) are widely used for weight and glycemic control and may have immunomodulatory effects relevant to cancer therapy.

A recent study by Santos et al. found that GLP-1 RA use was significantly associated with lower pathologic complete response (pCR) rates in Triple Negative Breast cancer patients (TNBC) undergoing neoadjuvant chemoimmunotherapy (30.8% vs 64.4%, p=0.001).

Given the high prevalence of obesity and predominance of Hispanic patients at our center, we sought to evaluate this relationship in our population.

Methods and Materials

We conducted a retrospective analysis of stage II–III TNBC patients treated with pembrolizumab-based neoadjuvant chemotherapy (KEYNOTE-522 regimen) between January 2018 and June 2025 at UT Health San Antonio Mays Cancer Center, which serves a predominantly Hispanic population with high rates of obesity.

The KEYNOTE-522 regimen consisted of neoadjuvant pembrolizumab plus paclitaxel and carboplatin, followed by doxorubicin or epirubicin and cyclophosphamide, with pembrolizumab continued postoperatively.

Clinical data collected included age, BMI, race/ethnicity, GLP-1 RA use, and pCR status (ypT0/Tis ypN0). Associations with pCR were assessed

Results

- Seventy-seven patients were included; 16.7% (n=13) received GLP-1 RAs.
- Median BMI was 29.5 for users vs 30.0 for non-users.
- The cohort was 61.5% Hispanic, 16.7% non-Hispanic White, 5.1% Asian, and 5.1% non-Hispanic Black.
- pCR rates were similar between groups: 46.2% in GLP-1 users vs 51.6% in non-users (OR 0.81; p=0.77).
- BMI showed no association with pCR (p=0.95). Race/ethnicity was significantly associated with pCR (p<0.001), with Asian patients achieving a 100% pCR rate.

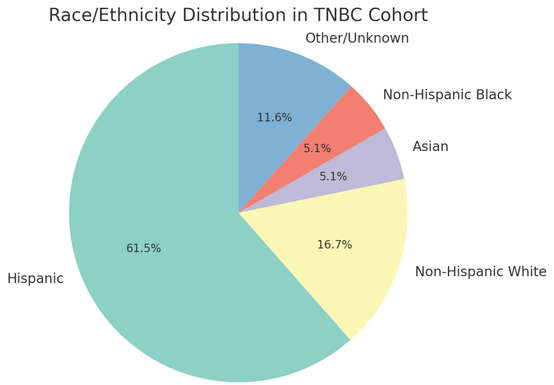


Figure 1. Race and Ethnicity Distribution in the TNBC Cohort (N=77)

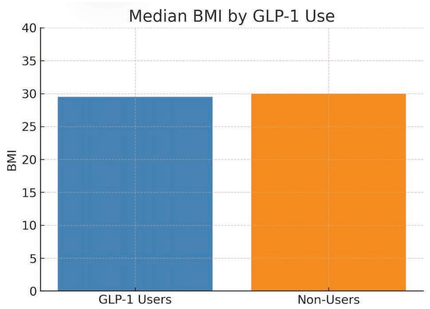


Figure 2. Comparison of Median BMI by GLP-1 Receptor Agonist Use

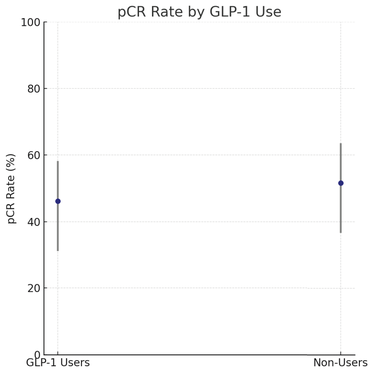


Figure 3. Pathologic Complete Response Rates by GLP-1 Receptor Agonist Use

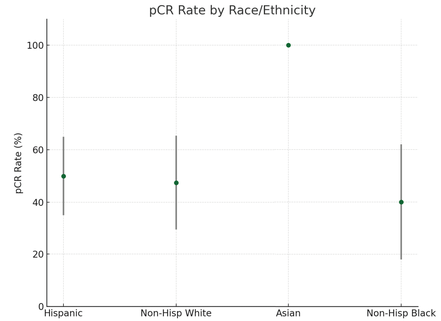


Figure 4. Pathologic Complete Response Rates by Race and Ethnicity

Conclusions

In contrast to prior findings, GLP-1 RA use was not associated with decreased pCR rates in our predominantly Hispanic, high-BMI TNBC cohort. These results suggest that GLP-1's effect on treatment response may vary across patient populations. Given the limited sample size of this study, a larger multi-center analysis will be critical to more definitively assess the relationship between GLP-1 use and pCR outcomes in diverse TNBC populations.

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References

1. Santos A, Lee J, Gupta R, et al. Impact of GLP-1 receptor agonist use on response to neoadjuvant chemoimmunotherapy in triple negative breast cancer. *J Clin Oncol*. 2025;43(16_suppl):1115.

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