Muhammad Asad Shabbir

Women Health Institute
USA

Tamoxifen Associated Weight Gain-Intervention Success with GLP1: A Case Report

Abstract:

This case demonstrates that Liraglutide, a GLP-1 receptor agonist, was an effective option for reversing Tamoxifen-associated weight gain in a breast cancer survivor.

Introduction: Weight gain is a frequently reported but often underappreciated side effect of adjuvant endocrine therapy in breast cancer survivors, particularly among postmenopausal women receiving Tamoxifen. Beyond its psychological impact, excessive weight gain can exacerbate comorbidities such as type 2 diabetes, hypertension, and dyslipidemia. Tamoxifen, a selective estrogen receptor modulator (SERM), has been associated with changes in fat distribution and metabolic slowing, potentially leading to gradual but significant weight gain over time. In many cases, conventional lifestyle interventions such as diet modification and increased physical activity fail to achieve meaningful weight reduction. Liraglutide, a glucagon-like peptide-1 (GLP-1) receptor agonist, has been approved for weight management and glycemic control in patients with type 2 diabetes. Its appetite-suppressing and weight-reducing properties have shown effectiveness in obesity management, though its use in reversing weight gain related to cancer therapies is another potential benefit. This report presents a case of significant Tamoxifen-associated weight gain in a breast cancer survivor, with marked and sustained weight loss achieved after patient initiation of Liraglutide therapy. The case also underscores the importance of considering pharmacologic weight loss options when standard lifestyle interventions are insufficient.

Case description: A 60-year-old female with a history of estrogen receptor-positive breast cancer presented with significant weight gain following adjuvant endocrine therapy. After self-detecting a left breast lump, she underwent a lumpectomy, followed by a second lumpectomy one year later due to residual disease. Post-surgical management included six weeks of radiotherapy and initiation of Tamoxifen 20 mg nightly, which she continued for over five years. Prior to her cancer diagnosis, the patient weighed 219 lbs. and maintained an active lifestyle, walking approximately 2 miles daily. Despite continuing this routine, her weight progressively increased to 290 lbs. during the course of Tamoxifen therapy, with no other identifiable contributing factors. She had no changes in diet or activity level and expressed frustration at the inability to lose weight despite consistent effort. Given the suspected asso-

ciation between Tamoxifen and weight gain, and the need for metabolic risk reduction, she was prescribed Liraglutide 1.8 mg daily six months ago. Since then, she has lost 32 lbs., with her current weight at 258 lbs. She continues to lose weight with no significant adverse effects from Liraglutide reported.

Discussion: Weight gain can be an adverse effect in breast cancer treatment and can significantly impact on a patient's quality of life and long-term prognosis. Post-treatment weight gain has been associated with a higher risk of recurrence and increased all-cause mortality among survivors. Hormone receptor-positive breast cancers, which rely on estrogen or progesterone for growth, are commonly treated with endocrine therapies such as Tamoxifen, a selective estrogen receptor modulator (SERM). Tamoxifen acts by blocking estrogen receptors in breast tissue and is FDA-approved for long-term use (typically five years) as part of adjuvant therapy following surgery and radiotherapy. Studies indicate that Tamoxifen use in some individuals is linked to an increase in clinically significant weight gain. Maintaining a healthy weight can be a considerable challenge for breast cancer survivors, as multiple barriers impede lifestyle changes. These include individual factors (e.g., mental health, motivation, or limited knowledge), social influences (e.g., family or healthcare advice), and environmental limitations (e.g., time, cost, or access to resources). Despite awareness of these barriers, research exploring survivor experiences and behavior change remains limited. A better understanding of these factors is essential to developing personalized and effective weight management strategies for this population. Glucagon-like peptide-1 (GLP-1) receptor agonists were first approved in 2005 for type 2 diabetes management and have since shown consistent benefits in promoting weight loss. Liraglutide has demonstrated the ability to reduce body weight by up to 10% annually. It is indicated for the treatment of type 2 diabetes, polycystic ovary syndrome (PCOS), and obesity (BMI ≥ 30). While the weight-reducing effects of GLP-1 agonists are well documented in metabolic disorders, there are limited data regarding their use in managing endocrine therapy-associated weight gain. This case demonstrates a real-world instance in which standard lifestyle interventions, such as regular physical activity, failed to produce weight loss in a breast cancer survivor receiving Tamoxifen. The patient achieved a significant 32-pound reduction over six months after initiating Liraglutide, highlighting the drug's potential utility in this setting. The improvement occurred without notable side effects, further supporting its tolerability and safety in this context. Limitations of this report include the lack of detailed metabolic and hormonal profiling, as well as the inability to establish definitive causality in a single patient case. Moreover, long-term outcomes and sustainability of Liraglutide-induced weight loss in cancer survivors remain unknown. Nevertheless, this case underscores the need to explore pharmacologic options like GLP-1 receptor agonists when conventional weight management strategies fail, particularly in hormonally treated breast cancer patients.

Conclusions: This case highlights the potential role of GLP-1 receptor agonist in assisting in patients who experience weight gain associated with Tamoxifen therapy for breast cancer. When lifestyle interventions alone fail to achieve weight loss, pharmacologic therapy may offer an effective and well tolerated alternative. Further studies are needed to explore the broader application, long term outcomes, and safety of GLP-1 agonists in this patient population.

Biography

Muhammad Asad Shabbir is a graduate from Pakistan. He is currently serving as a Research Volunteer at the Women's Health Institute at RWJ under the supervision of Dr. Bachmann. Alongside his research role, he also volunteers with the NJ Reentry Corporation, actively contributing to community support initiatives.