Dicle Tıp Dergisi / Dicle Med J (2025) 52 (4) : 821-826

www.diclemedj.org

Original Article / Özgün Araştırma

Evaluation of Short-Term (1st and 3rd Month) Anthropometric Results in Obesity Patients Initiating Semaglutide Treatment: Experience of Two Tertiary Centers

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Received: 13.10.2025; Revised: 02.12.2025; Accepted: 04.12.2025

Abstract

Objective: This study aimed to evaluate the weight and Body Mass Index (BMI) changes at the 1st and 3rd months in obese patients with high treatment adherence who started semaglutide treatment at two tertiary hospitals in Diyarbakır, Türkiye

Methods: This retrospective cohort study included 170 patients who started semaglutide treatment, regularly attended their 1st and 3rd-month follow-ups, and did not discontinue treatment. The patients' initial, 1st-month, and 3rd-month weight and BMI values were recorded. Statistical analysis was performed using the repeated measures ANOVA test.

Results: The patients' initial mean weight was 104.97 ± 14.53 kg, and the mean BMI was 37.07 ± 4.38 kg/m^2. At the end of the 3rd month of treatment, the mean weight decreased to 96.04 ± 13.92 kg, and the mean BMI decreased to 33.92 ± 4.20 kg/m^2. A statistically significant difference was found between the baseline, 1st-month, and 3rd-month measurements for both weight and BMI values ($p<0.001$). Patients lost an average of 8.51% of their initial body weight after 3 months.

Conclusion: Semaglutide treatment provides a high rate of clinically significant weight loss in the short term in obese patients with high treatment adherence.

Keywords: Obesity, Semaglutide, GLP-1 Receptor Agonists, Body Mass Index

DOI: 10.5798/dicletip.1841074

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Semaglutide Başlanan Obezite Hastalarında Kısa Dönem (1. ve 3. Ay) Antropometrik Sonuçların Değerlendirilmesi: İki Üçüncü Basamak Merkez Deneyimi

Öz

Amaç: Bu çalışmanın amacı, Diyarbakır'daki iki üçüncü basamak hastanede semaglutid tedavisine başlanan ve tedaviye yüksek uyum gösteren obezite hastalarında 1. ve 3. aylardaki kilo ve Vücut Kitle İndeksi (VKİ) değişimlerini değerlendirmektir.

Yöntemler: Bu retrospektif kohort çalışmaya, semaglutid tedavisine başlanan, 1. ve 3. ay kontrollerine düzenli gelen ve tedaviyi kesmeyen toplam 170 hasta dahil edildi. Hastaların başlangıç, 1. ay ve 3. ay kilo ve VKİ değerleri kaydedildi. İstatistiksel analiz Tekrarlayan Ölçümler ANOVA testi ile yapıldı.

Bulgular: Hastaların başlangıç ortalama kilosu 104,97 ± 14,53 kg ve ortalama VKİ'si 37,07 ± 4,38 kg/m^2 olarak bulundu. Tedavinin 3. ayı sonunda ortalama kilo 96,04 ± 13,92 kg'a, ortalama VKİ ise 33,92 ± 4,20 kg/m^2'ye düştü. Kilo ve VKİ değerlerinin başlangıç, 1. ay ve 3. ay ölçümleri arasında istatistiksel olarak anlamlı bir fark saptandı ($p<0,001$). Hastalar 3 ay sonunda başlangıç kilolarının ortalama %8,51'ini kaybetti.

Sonuç: Semaglutid tedavisi, yüksek uyumlu obezite hastalarında kısa dönemde klinik açıdan anlamlı düzeyde kilo kaybı sağlamaktadır.

Anahtar kelimeler: Obezite, Semaglutid, GLP-1 Reseptör Agonistleri, Vücut Kitle İndeksi.

INTRODUCTION

Obesity is a complex, chronic disease that is increasingly prevalent worldwide and contributes significantly to increased morbidity and mortality[1]. It is a major underlying risk factor for numerous chronic conditions, including type 2 diabetes, hypertension, and dyslipidemia, which has accelerated the search for effective pharmacological treatments[1]

Semaglutide, a glucagon-like peptide-1 (GLP-1) receptor agonist, has demonstrated effective results in obesity treatment by reducing appetite and energy intake[2], and by slowing gastric emptying to prolong satiety[3]. Clinical trials indicate that this agent can lead to a substantial long-term body weight loss of around 15-20%[4].

Diyarbakır, located in the Southeastern Anatolia Region of Türkiye is one of the central provinces for healthcare services in the region. The General Internal Medicine outpatient clinics of two major tertiary healthcare institutions in this province, Gazi Yaşargil Training and Research Hospital and Dicle University Medical Faculty Hospital, serve a significant number of obese patients. Investigating the early effects (1st and 3rd month) of semaglutide treatment in these two centers will provide valuable data on real-world clinical practices and treatment success. Particularly, measuring the rapid initial response in a cohort with high treatment adherence is a crucial indicator of the drug's efficacy.

The primary aim of this study is to evaluate the weight and BMI changes at the 1st and 3rd months in obese patients with high adherence who started semaglutide treatment at the General Internal Medicine outpatient clinics of these two major hospitals in Diyarbakır.

METHODS

Study Design and Setting

This study was designed as an observational cohort study conducted retrospectively. It was carried out in the General Internal Medicine outpatient clinics of two different tertiary hospitals in Diyarbakır province.

Study Population and Sample Selection

The main cohort of the study consisted of 820 patients who presented to the outpatient clinics within the specified dates, were diagnosed with obesity (BMI ≥30 kg/m^2), and were started on semaglutide treatment.

Inclusion Criteria: To be included in the study, patients had to meet all the following criteria:

• Having a diagnosis of obesity.

• Having been started on semaglutide treatment.

• Having regularly attended both follow-up controls at the 1st and 3rd months after the initiation of treatment.

• Not having discontinued semaglutide treatment for any reason during the follow-up period (high treatment adherence).

Exclusion Criteria: Patients who discontinued treatment, did not attend the 1st or 3rd-month follow-up, or underwent major surgical intervention were excluded.

After applying all selection criteria, 170 out of the initial 820 patients were included in the final analysis.

Data Collection

Patient data were collected retrospectively from outpatient clinic records and hospital information management systems (HIMS).

Anthropometric Measurements: The primary variables recorded were:

• Baseline (Month 0) Weight and BMI: The initial measurements taken on the date semaglutide treatment was started.

• 1st Month Follow-up Weight and BMI: The values measured at the 1st-month control visit.

• 3rd Month Follow-up Weight and BMI: The values measured at the 3rd-month control visit.

BMI was calculated using the formula: BMI = Weight (kg) / Height (m^2).

Statistical Analysis

Continuous variables are presented as mean ± standard deviation (Mean ± SD). Changes in weight and BMI values across the three different time points (Baseline, 1st Month, 3rd Month) were examined. The repeated measures ANOVA test was used to detect significant differences among the three measurements. The significance level was accepted as $p<0.05$. The percentage of weight loss was calculated based on the initial weight.

Ethical Considerations

Since the study was conducted as a retrospective record review, necessary approval was obtained from the relevant ethics committee (Gazi Yaşargil Training and Research Hospital's ethics committee approval was received on 19/09/2025 under the number 601.). Patient data confidentiality was ensured.

RESULTS

Descriptive Characteristics of the Study Population

The baseline demographic and anthropometric measurements of the 170 patients included in the study are presented in Table 1. The mean age of the patients was 45.6 ± 11.2 years, and the majority were female (72.9%, n=124). The mean baseline BMI of the patients was 37.07 kg/m^2, indicating that the study population largely fell within the range of Class II and Class III (morbid) obesity.

Table I: Baseline Demographic and Anthropometric Characteristics of the Study Population (N=170)

Variable	N	Mean (± SD) or n (%)	Median (Min–Max)
Age (years)	170	45.6 ± 11.2	47(22–68)
Gender (Female)	170	124 (72.9%)	-
Height (m)	170	1.68 ± 0.09	1.69(1.50–1.85)
Weight (kg)	170	104.97±14.53	103.50(75.00–150.00)
BMI (kg/m^2)	170	37.07±4.38	36.70(30.00–47.90)

Time-Dependent Changes in Weight and BMI

The comparative results of the patients' baseline, 1st-month, and 3rd-month measurements are presented in Table 2. The

Repeated Measures ANOVA test revealed a statistically significant difference in the weight and BMI values across the three different time points ($p<0.001$ for both).

Table II: Weight and BMI Results at Baseline, 1st Month, and 3rd Month Follow-up (N=170)

Time Point	Mean Weight (± SD) [kg]	Mean BMI (± SD) [kg/m²]	Total Weight Loss (kg)	Total Weight Loss (%)
Baseline	104.97 ± 14.53	37.07 ± 4.38	-	-
1st Month	99.60 ± 14.21	35.13 ± 4.33	5.37	5.12%
3rd Month	95.75 ± 14.17	33.74 ± 4.31	9.22	8.78%

As seen in Table 2, patients lost an average of 4.11 kg (3.92%) of their body weight by the end of the first month of treatment. This loss cumulatively reached 8.93 kg by the end of the 3rd month, corresponding to 8.51% of the initial body weight. In parallel, BMI values decreased from 37.07 kg/m^2 to 33.92 kg/m^2.

Adverse Events

Treatment was generally well-tolerated. Only one patient (0.6%) discontinued treatment due to adverse events. The most common adverse events were gastrointestinal in nature. Nausea was reported by 70 patients (41.2%), constipation by 10 patients (5.9%), diarrhea by 15 patients (8.8%), abdominal bloating by 7 patients (4.1%), and vomiting by 5 patients (2.9%). These side effects were mostly mild to moderate in intensity and transient.

DISCUSSION

This retrospective cohort study evaluated the short-term anthropometric responses and adverse event profile observed in obese patients with high adherence to semaglutide treatment at two major tertiary centers in Diyarbakır, Türkiye.

Our findings clearly demonstrate the potential of semaglutide treatment to induce rapid and clinically significant weight loss in obese patients. Patients lost an average of 8.51% of their initial body weight after just a 3-month follow-up period. This result is consistent with the findings of large-scale randomized controlled trials (RCTs), such as the STEP program, which reported weight losses of approximately 6-8% at 3 months[4]. Clinical guidelines consider a 5-10% loss of body weight within the first 6 months as clinically significant in obesity management, as it leads to meaningful improvements in cardiovascular risk factors, insulin resistance, and quality of life[5-8]. The highly adherent cohort in our study reached the upper limit of this target in only 3 months, underscoring the potent efficacy of semaglutide.

The rapid weight reduction, with 3.92% achieved in the first month despite the low initial dose (0.25 mg/week), is a noteworthy finding. This early success is crucial, as studies have shown that early weight loss is a strong predictor of long-term treatment success and can significantly enhance patient motivation and treatment persistence[7-9]. Persistence is one of the major challenges in the long-term management of a chronic condition like obesity[10].

The mechanism behind this efficacy is primarily attributed to semaglutide's potent glucagon-like peptide-1 (GLP-1) receptor agonism. It reduces appetite and energy intake by acting on central appetite-regulating centers in the hypothalamus and brainstem[2,11]. Furthermore, it slows gastric emptying, which prolongs satiety and contributes to reduced food intake[3,12]. The magnitude of weight loss achieved with semaglutide in our real-world cohort appears greater than that typically reported for other licensed anti-obesity medications (e.g., orlistat, phentermine-topiramate), positioning it as the most effective

pharmacological agent aside from bariatric surgery[4,13].

Regarding safety, the adverse event profile in our study was consistent with the known gastrointestinal side effects of GLP-1 receptor agonists[14]. Nausea was the most frequently reported symptom (41.2%), followed by diarrhea, constipation, bloating, and vomiting. However, these events were predominantly mild to moderate and transient, leading to a very low treatment discontinuation rate (0.6%). This is a critical point for clinical practice, as it suggests that with proper patient education and dose titration, most patients can tolerate the treatment well, allowing them to continue and benefit from the therapy[15,16]. Our low discontinuation rate due to side effects compares favorably with some RCTs, possibly reflecting effective patient management in a real-world setting or the selective nature of our highly adherent cohort[17].

Our study population, with a mean baseline BMI of 37 kg/m^2 and a high proportion of female patients (72.9%), reflects a typical demographic seeking intensive obesity treatment. This gender distribution is common in obesity pharmacotherapy studies and may be influenced by higher health-seeking behavior among women or greater societal pressure regarding body weight[18].

Limitations

This study has several limitations. The most important is the restricted follow-up period of 3 months, which does not provide information on long-term weight maintenance, durability of response, and potential late-onset side effects. Furthermore, the retrospective design limits the ability to assess causality. The inclusion of only 170 out of an initial 820 patients means that a high proportion of patients (79.3%) who discontinued treatment or were lost to follow-up were excluded. This indicates that our results represent the early response only in the group of patients with the highest level of adherence and who likely tolerated and benefited from the drug. Therefore, the results may not be generalizable to the entire obese patient population and likely reflect a "best-case scenario" in a real-world setting regarding early adherence, tolerance, and response. The assessment of adverse events was based on routine clinical records, which might lead to under-reporting compared to prospective trials with systematic data collection[19].

CONCLUSION

This study conducted in two tertiary hospitals in Diyarbakır confirms that semaglutide treatment provides a clinically significant average weight loss of 8.51% in a short period of only 3 months in highly adherent obese patients. The treatment was generally well-tolerated, with a low discontinuation rate due to adverse events, which were primarily mild-to-moderate gastrointestinal symptoms. This result reinforces the efficacy and tolerability of semaglutide in obesity management from a regional real-world perspective. More comprehensive prospective studies with longer follow-up periods are needed to examine long-term weight maintenance rates, metabolic effects, and the impact of early weight loss on long-term outcomes.

Ethical approval: Since the study was conducted as a retrospective record review, necessary approval was obtained from the relevant Ethics Committee (Gazi Yaşargil Training and Research Hospital's ethics committee approval was received on 19/09/2025 under the number 601.). Patient data confidentiality was ensured.

Conflict of Interest: The authors declared no conflicts of interest.

Financial Disclosure: The authors declared that this study has receive no financial support.

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