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Attempts to lose weight in an overweight and obese population referred to an endocrinology center in Colombia.

Intentos para perder peso en una población con sobrepeso y obesidad referida a un centro de endocrinología en Colombia

Tentativas de perda de peso de uma população com sobrepeso e obesidade encaminhada para um centro de endocrinologia na Colômbia

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ABSTRACT

Introduction. Excess weight is a prevailing condition in Colombia. This leads to many self-managed weight loss attempts with high risks, being a frequent reason for consulting primary and specialized healthcare.

Methodology. Cross-sectional study with secondary data from the endocrinology consultation of patients who made the appointment due to a perceived increase in weight. Eighteen conventional and popular ways of losing weight, their duration, the weight lost and the subsequent regained weight were investigated.

Results. One hundred people were included, 79% women with an average age of 41.1 years, a body mass index of $32.9 \pm 4.6 \text{ kg/m}^2$ and a waist circumference of $102.7 \pm 12.5 \text{ cm}$. Each person reported an average of four to five attempts to lose weight before consulting the endocrinologist, with a median history of being overweight of ten years. All of the attempts achieved some weight loss with subsequent regain of the total Weight loss, excluding the use of liraglutide. A significant association was not found between the anthropometric variables and the number of weight loss attempts.

Discussion. The most used weight loss methods by the assessed population are ones that are not approved or that lack strong scientific evidence.

Conclusions. Overweight or obese patients make multiple failed attempts to lose weight before consulting a specialist physician. Regain of the lost weight is frequent, regardless of the method used.

Keywords:

Obesity; overweight; weight loss; anti-obesity agents; liraglutide.

RESUMEN

Introducción. El exceso de peso es una condición prevalente en Colombia. Esto conlleva a realizar múltiples intentos para perder peso, muchos autodirigidos y con riesgos, siendo un motivo de consulta frecuente en atención médica primaria y especializada.

Metodología. Estudio de corte transversal con datos secundarios de la consulta de endocrinología de pacientes que consultaron por percepción de aumento de peso. Se indagó por 18 métodos convencionales y populares para perder peso, su duración, peso perdido y posterior re ganancia.

Resultados. Se incluyeron 100 personas, 79% mujeres, con un promedio de edad de 41.1 años, índice de masa corporal de $32.9 \pm 4.6 \text{ kg/m}^2$ y perímetro abdominal de $102.7 \pm 12.5 \text{ cm}$. En promedio se registraron entre 4 y 5 intentos para perder peso por persona antes de consultar al endocrinólogo, con una mediana de historia de exceso de peso de 10 años. Todos los intentos lograron alguna pérdida con posterior reganancia del total del peso perdido, excepto liraglutida. No se encontró asociación significativa entre variables antropométricas y el número de intentos para perder peso.

Discusión. Los intentos de pérdida de peso más empleados por la población evaluadas son los que no están aprobados o carecen de evidencia científica robusta.

Conclusiones. Los pacientes con sobrepeso y obesidad realizan múltiples intentos fallidos para perder peso antes de consultar al médico especialista. La reganancia es muy frecuente, independientemente del tipo de intento.

Palabras clave:

Obesidad; Sobrepeso; Pérdida de peso; Fármacos Antiobesidad; Liraglutida.

RESUMO

Introdução. Excesso de peso é uma condição prevalecente na Colômbia. Isso leva a várias tentativas de perda de peso, muitas auto-dirigidas e de risco, sendo motivo de consultas frequentes em atendimento médico primário e especializado.

Metodologia. Estudo transversal com dados secundários da consulta de endocrinologia de pacientes que consultaram para percepção do ganho de peso. Foram investigados 18 métodos convencionais e populares para perder peso, sua duração, peso perdido e subsequente reganho.

Resultados. Foram incluídas 100 pessoas, 79% mulheres, com idade média de 41,1 anos, índice de massa corporal de $32,9 \pm 4,6$ kg / m² e perímetro abdominal de $102,7 \pm 12,5$ cm. Em média, foram registradas entre quatro e cinco tentativas de perda de peso por pessoa antes de consultar o endocrinologista, com uma mediana de história de excesso de peso de 10 anos. Todas as tentativas alcançaram alguma perda com subsequente re-ganancia do peso total perdido, exceto o liraglutida. Não foi encontrada associação significativa entre as variáveis antropométricas e o número de tentativas de perda de peso.

Discussão. As tentativas de perda de peso mais utilizadas pela população avaliada são aquelas que não são aprovadas ou não possuem evidências científicas robustas.

Conclusões. Pacientes com sobrepeso e obesos fazem várias tentativas fracassadas de perder peso antes de consultar o especialista. A re-ganancia de peso é frequente, independentemente do tipo de tentativa.

Palavras-chave:

Obesidade; Sobrepeso ; Perda de peso; Fármacos anti-obesidade; Liraglutida.

Introduction

Obesity is a global public health problem. The World Health Organization (WHO) estimates that the prevalence of obesity in 2016 was triple that recorded in 1975, reporting 13% in the adult population: 11% in men and 15% in women (1), with the well-known, harmful effects on human health with respect to diabetes, cardiovascular disease and cancer (2). The outlook is not encouraging. It is estimated that if the trends in weight gain remain the same, the probability of achieving global targets regarding obesity will be virtually zero, with a global prevalence of more than 21% among women and 18% among men in 2025. (3)

U.S. data report a 40% prevalence of obesity among adults (4). Additionally, it is known that 43.6% and 34.4% of women make some attempt to lose or maintain weight, respectively (5). A report published by the National Health and Nutrition Examination Survey (NHANES) in the United States revealed that the factors associated with a higher number of weight loss attempts were being female, being under 60 years old, having a high financial income and being overweight (3). Similarly, among the North and Latin American young population, a large body size and a negative perception of their own body encourages the active pursuit of weight loss (6).

In Colombia, being overweight is a prevailing condition. The 2015 National Health Survey (ENSIN, for the Spanish original) reported that 37.7% of young people and adults are overweight and 18.7% are obese, with

a gender gap (22.4% of women are obese compared to 14.4% of men). Whether for cosmetic or health reasons, this pandemic leads to multiple orthodox and alternative attempts to lose weight, many of them self-managed and with risks, being a frequent reason for consultation or comorbidity in primary and specialized healthcare (7).

In turn, weight gain and obesity have a complicated physiopathology that involves factors including genetic and epigenetic mechanisms, an obesogenic environment, cultural preferences, perinatal nutrition and patterns of physical activity. Due to the multi-factor origin, different interventions are required with different therapeutic targets, many of them with low levels of efficacy and high rates of weight regain (8).

Consequently, it is necessary to propose professional treatment plans and alternatives that firstly require knowing about the phenomenon of the weight loss attempts in greater detail. As a result of the limited information available in Colombia, the objective of this study is to investigate and describe the weight loss strategies used by patients who consulted an endocrinology service.

Methodology

A cross-sectional study was conducted with anonymized data of the patients' endocrinology consultation, whose reason for consultation was perceived weight gain between June and December 2017. Demographic

variables included, gender, age, city of origin, age at which weight gain started and approximate weight gain since then. Additionally, the prior use of 18 conventional and popular weight loss methods, their duration, weight lost and subsequent regain during the intervention or up to six months after the method was suspended were investigated. Finally, the number of assessments by a nutritionist was recorded. Patients with obesity due to Cushing's syndrome, a background of bariatric surgery and pregnant women were excluded.

The information established in the medical record during the consultation was recorded in an Excel database and, subsequently, exported to the Stata statistical software.

The study is considered to be of minimal risk and it is based on the general principals of research ethics of the Nuremberg Code and the Declaration of Helsinki.

Statistical Analysis

A univariate analysis was conducted using central tendency and dispersion measures for the continuous variables (average and standard deviation for the

Table 1. Weight Loss Attempts Broken down by Method Used in 100 Overweight or Obese Individuals at a Referral Center

Attemp	n	Duration (months)	Weight loss (Kg)	Weight regain (Kg)*
Green tea	52	8.4 ± 2.6	4.8 ± 0.9	5.3 ± 1
Fruitplant	5	3.4 ± 2.1	6 ± 0.5	6.5 ± 0.5
Jamaica leaf	34	5.7 ± 1.5	3 ± 1.1	2.6 ± 1.2
Weight-loss massages	39	16.2 ± 7.4	5.2 ± 1.0	8.1 ± 2.1
Atkins diet and auriculotherapy	55	4.4 ± 0.5	8.1 ± 0.8	8.8 ± 1
Hidrolipoclasia	4	2.3 ± 0.8	8.5 ± 0.8	7.5 ± 3.5
Mesotherapy	13	6 ± 1.8	8.7 ± 3.8	11.2 ± 5.1
Liposuction	12	NA	9 ± 2	11 ± 2.3* *
Abdominoplasty	5	NA	13 ± 4	12.5 ± 2.5**
Lingual mesh	3	1.5 ± 0.2	11 ± 4.3	11 ± 4.3
Plaster therapy	3	0.5 ± 0.2	1.5 ± 0.5	2
Herbalife®	32	4.5 ± 0.8	6.6 ± 1	9 ± 2.1
Orlistat®	23	3.1 ± 0.6	3.3 ± 0.3	3.4 ± 0.4
Sibutramine	13	2.5 ± 0.6	7 ± 1.2	9 ± 1
Liraglutide	11	6.1 ± 2	7.5 ± 2.4	3
Ultra ZX® Zero Xtreme®	8	4.5 ± 3.2	5.6 ± 1.4	8
Lipoblue®	7	1	3.2 ± 0.8	5.5 ± 1.7
Gym	48	25.4 ± 10.4	12.4 ± 4.4	13.8 ± 6.1**

N/A: Not Applicable, kg: kilograms. The values are presented in averages ± standard deviation.

* Weight regain up to six months after suspending the attempt.

** Weight regain up to twelve months after suspending the attempt.

Source: Prepared by the authors

variables with normal distribution, and median and interquartile range for abnormal distribution). The categorical variables were described using absolute and relative frequencies.

A bivariate analysis was conducted between the weight loss methods and the sociodemographic and anthropometric variables (chi-squared for the categorical variables, and ANOVA or Kruskal-Wallis for the continuous variables).

Results

One hundred participants were included, 79% women with an average age of 41.1 ± 12.7 years, a body mass index (BMI) of 32.9 ± 4.6 kg/m² and a waist circumference of 102.7 ± 12.5 cm. In the population studied, 98% was overweight (74 patients were obese and 24 were overweight). The median duration of the history of being overweight was ten years with two or more weight loss attempts reported in 78% of

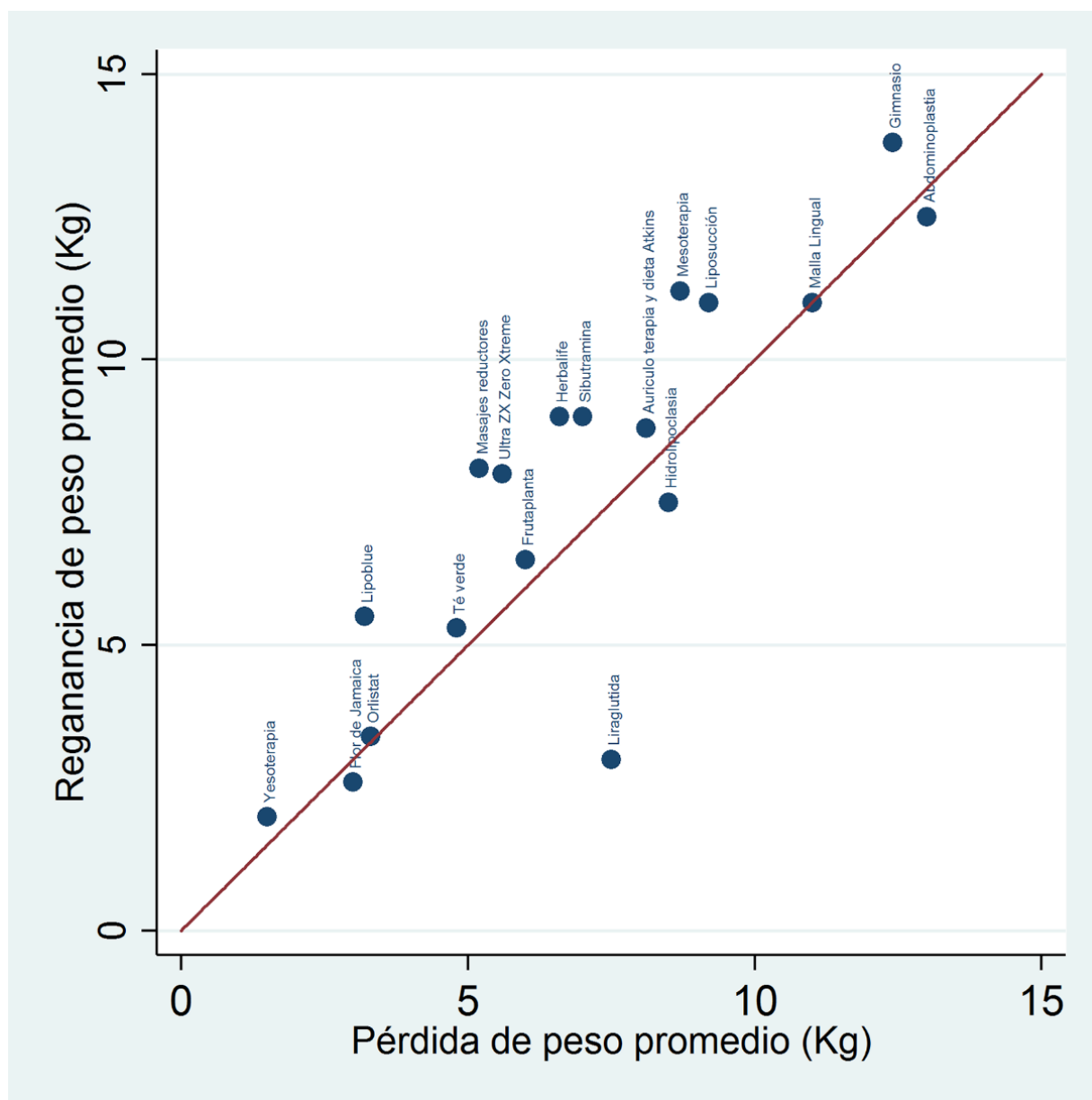


Figure 1. Weight Loss and Regain Behavior according to the Method Chosen in 100 Overweight or Obese Individuals at a Referral Center

Source: prepared by the authors.

the population and an average of four to five attempts before consulting the endocrinologist. Only five patients reported not having used any strategy. The average weight gain reported was 25 ± 1.9 kg. The weight loss attempts broken down by method are described in **Table 1** and the weight loss and regain behavior for each attempt is shown in **Figure 1**. There was no difference in the preference of attempts according to gender and in the bivariate analysis, no association was found with the statistical difference between the BMI, waist circumference, gender, age and bodyweight distribution, and the number of weight loss attempts. Out of the patients, 18% had never seen a nutritionist. The rest had been assessed by a nutritionist three times. Nineteen patients expressed that were not interested in having an appointment.

Discussion

This study evaluated the weight loss attempts in an overweight and obese population who consulted a specialist in endocrinology. It found that the people who consulted the obesity specialist had tried between four and five conventional or alternative weight loss methods. More than half of the people who consulted the specialist had tried the Atkins diet (low in carbohydrates and high in fat and protein) with or without auriculotherapy. A clinical trial demonstrated the superiority of this diet compared to a conventional diet at six months (4% difference in weight loss), however, this finding was not significant at 12 months (9). Similarly, patients of this series lost 8.1 kg, regaining 8.8 kg when they used the diet in the long term or suspended it.

Alternative treatments are frequently used by obese people. A series that included 31 Mexican-American women found that 70% had consumed green tea, 61% had consumed home remedies and 55% had received massage therapy (10). Similar results were found in this record of the Colombian population, with green tea being the most used alternative medicine with an average of eight months of use. A study by the Cochrane group concluded that the consumption of green tea produces a small, insignificant weight loss in overweight and obese people (11). In turn, the studies that assess massages as a weight loss therapy are limited in the short term and are always in combination with acupuncture or other therapies (12). The weight loss with green tea and massages in this population was significant but with subsequent regain of all the weight lost.

Strikingly, eight patients had taken Zero Xtreme® and Ultra ZX®, which, according to the warning by INVIMA

(13), contain sibutramine (a component prohibited in Colombia since 2010). The same situation is found for nutrelina bluevelle®, 7-day slim xtreme®, A1 slim®, bodyxtreme® and Xtreme ZX®. When asking about the consumption of Lipo blue®, seven patients had tried it without medical supervision. This product is not approved by INVIMA because of the presence of undeclared ingredients that could put its consumers' health at risk. The same list includes Lipoblue advance®, Ultra DX deluxe®, G180®, G360®, Pure life cleanse® and Nitrofit®. None of the aforementioned medications currently hold a health registration and their sale in Colombia is illegal (14). The consumption of this kind of substance is most frequently observed in the female population, in the population with a high level of education and family income, in people under 60 years and in people with a diagnosis or perception of obesity (15). No factor related to the consumption of said substances was identified in this series.

Additionally, it was found that patients take up to ten years to consult a specialist since they start gaining weight. Although weight loss attempts are highly frequent in obese people, only 20% in the United Kingdom (16) and 25% in Sweden (17) consult their family physician, and in Australia, only 10% of patients have received anti-obesity medication prescribed by physicians (18). The low proportion of physician-managed treatment may be explained by the absence of a self-perception of obesity and its connotation as a medical disease (19), as well as the widespread use of the internet, where patients can find information in their search for "miraculous solutions" for their problem often perceived as "cosmetic" (18).

A relevant finding is that in all the strategies described in **Table 1**, weight regain was observed up to the basal level or even higher (rebound effect), except with liraglutide. This is a treatment approved by the FDA and INVIMA for patients with a BMI higher than 30 kg/m² or higher than 27 kg/m² with comorbidity. In its pivotal study, liraglutide showed an average weight reduction of 8.4 ± 7.3 kg at 56 weeks. This achieved a bodyweight loss of 5% and 10% in 63.2% and 33.1% of the patients, respectively (21). The mechanisms involved in weight regain include homeostatic factors (increase in orexigenic peptides, decrease in anorexigens and decrease in the basal metabolic rate), environmental factors (increase in energy consumption) and behavioral factors (activation of the hedonic reward pathways, stress and discouragement) (22).

This article is the first approach to study the weight loss strategies used by overweight and obese patients

in the Colombian environment to warn clinicians about the use of unsupervised treatments with health risks. A limitation of the study is the potential bias in data recall, because prior struggles to lose weight that were made at any time during the history of being overweight were reported.

Conclusions

Overweight and obese patients take up to ten years to consult the specialist, they do it after an average of four to five attempts to lose weight. This study demonstrates the great variety of self-managed methods that the studied population uses and raises alarms about their use despite the risks and warnings made by government bodies. Furthermore, it is observed that all the attempts made presented a 100% regain of the weight lost, except for the use of liraglutide. Therefore, health professionals who attend obese patients need to be familiar with the approved pharmacological treatments for weight loss, as well as the popular methods, taking into account their high use and potential risks.

Conflicts of Interest and Funding

No funding of any kind was received for this study.

EAWS declares that he has participated in advisory boards on obesity treatments with Novo Nordisk.

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