

SHORT COMMUNICATION

What weight loss treatment options do geriatric patients with overweight and obesity want to consider?

M. MacMillan¹, K. Cummins² and K. Fujioka¹

¹MacMillan & Fujioka: Department of Diabetes and Endocrine, Scripps Clinic, La Jolla, CA, USA; ²Cummins K: Department of Psychiatry, University of California, San Diego, La Jolla, CA, USA;

Received 28 December 2015; revised 12 August 2016; accepted 18 August 2016

Address for correspondence: Ken Fujioka, MacMillan & Fujioka: Department of Diabetes and Endocrine, Scripps Clinic, La Jolla, CA, USA. E-mail: Fujioka.ken@scrippshealth.org

Summary

Introduction

Since the 1990s, a number of weight loss medications have been removed from the USA and or European market because of adverse events associated with these medications. These medications include fenfluramine (heart valve thickening), sibutramine (cardiovascular risk) and rimonabant (depression). This history may affect a patient's desire to consider weight loss medications as an option for weight management.

Objective

This descriptive study was designed to observe what treatment options the geriatric patient (age 65 or higher) seeking weight loss would like to consider, as well as the reasons they felt they struggled with overweight or obesity.

Methods

A questionnaire was given to 102 geriatric patients with overweight or obesity before starting a weight loss programme at a weight management centre. The questionnaire asked the patient why they felt they were overweight or obese and what treatment options they wished to consider. The geriatric patients were matched with younger patients in body mass index and sex.

Results

The three most common perceptions that geriatric patients felt were causes of their increased weight were 'lack of exercise' (76.2%), 'poor food choices' (59.4%) and 'cravings' (47.5%). When geriatric patients were asked what treatment options they would like to discuss, the four most common options requested were 'diet and healthy eating' (67.3%), weight loss medications (57.4%), a request for a 'metabolic work up' (55.4%) and 'exercise' (53.5%). These responses were no different from their younger cohorts. When geriatric patients with a body mass index of 35 or higher were given bariatric surgery as a treatment option, 21.9% marked it as a treatment option they would like to consider.

Conclusions

Over half of geriatric patients desired to discuss weight loss medications as a treatment option. Diet and exercise were also of strong interest, which is in line with current weight management guidelines.

Keywords: Geriatric, medications, obesity, treatment.

Introduction

Currently, over one third of US geriatric (age 65 years or older) Americans has obesity, and another third has

overweight. The number of elderly patients with obesity is at an all-time high and only expected to increase.^(1,2) Treatment guidelines to lose weight in the elderly have been difficult to define, yet it is very clear that obesity in

the elderly contributes to worsening of multiple parameters including metabolic problems, cognition, functionality and quality of life. (2–5)

The treatment options for weight management include diet with behaviour modification, weight loss medications and bariatric surgery with diet and behaviour modification as the cornerstone of treatment.(6) In the elderly population, weight loss is recommended in those with obesity (body mass index [BMI] 30 or higher) by a combination of diet and when possible exercise.(2) There is an emphasis on resistance training with a gradual weight reduction diet to protect lean muscle mass and bone mineral density during weight loss.(2) Very little is known about weight loss with medications in the elderly, and the only medication that is recommended is orlistat: a non-systemic lipase inhibitor that decreases intestinal fat absorption and has FDA approval.(3,4) At the time these reviews were written, there were only two medications available for weight loss.

The reasoning for very few weight loss medications being recommended in the geriatric population may be due to the poor past history of weight loss medications in general. Older weight loss medications that the elderly population would be familiar with (approved prior to the year 2000) have a history of undesirable side effects, and the majority of these medications were pulled from the market because of these side effects (all of these medications were FDA approved).(7,8) Fenfluramine, a serotonin agonist that was associated with heart valve thickening and pulmonary hypertension, was pulled from the US market in 1997. Sibutramine, a serotonin and noradrenaline reuptake inhibitor, was associated with more cardiovascular events in a long-term cardiovascular outcomes study and was eventually withdrawn in 2010 in the USA. Although not approved in the USA, Rimonabant, a cannabinoid-1 receptors antagonist, was available in over 50 countries. However, due to its association with psychiatric side effects including anxiety, depression and suicide ideation, it was withdrawn from the European market in 2009.

Years 2012 to 2015 saw a significant increase in available weight loss medications with four new medications approved by the FDA in the USA and two in Europe.(8,9) All four of these medications could potentially be used in the elderly with overweight or obesity. Some of these newer medications have very different mechanisms of action that are not sympathomimetic. Lorcaserin is a non-sympathomimetic weight loss medication that is approved in the USA but not Europe and is a selective 5HT_{2C} serotonin agonist. Its mechanism of action is to signal satiety or fullness. The other newly approved weight loss medication approved in the USA and not Europe is phentermine/topiramate combination weight

loss medication. Phentermine is a known sympathomimetic that lowers hunger and topiramate's mechanism of action that is not well known, but the combination has been shown to significantly lower weight. Bupropion/naltrexone is approved both in the USA and in Europe and is a combination of two medications. Bupropion is a dopamine and noradrenaline uptake inhibitor, and naltrexone is an opiate blocker, the mechanism of action is felt to be at several levels helping patients to have better control of food intake. Liraglutide, the other weight loss medication approved both in the USA and in Europe, is a GLP-1 analogue. Liraglutide has been shown to work through the known physiologic feedback system of the hypothalamus and other parts of the brain to increase satiety and lower hunger.

Many elderly patients who struggle with weight management have seen and heard of the past problems with weight loss medications. This history may influence elderly patients to not, want to use weight loss medications. The study was designed to assess what treatment options (including weight loss medications) were of interest to geriatric patients.

Methods

Participants of the study were consecutively drawn from Scripps Clinic Medical Group patients seeking weight loss and seen at the Center for Weight Management between September 2009 and March 2014. For 100 questionnaires from geriatric patients to be matched to younger patients, a total of 978 questionnaires were examined. Patients were excluded from the study if they were unable to complete the questionnaire. The Center offers all available weight loss options including diet, lifestyle modification, weight loss medications and bariatric surgery. This particular centre has 70% of its patients referred for weight loss by other practicing clinicians. Ninety-eight percent of the patients have their weight loss visits covered by their medical insurance. The majority of the medical insurance is managed care.

To help guide treatment at the first visit, all patients ($N=281$) completed a questionnaire in the clinic that asked the patient, 'Why do you think you are overweight?' and 'What weight loss options would you like to discuss?' All data used for this study were taken from this questionnaire (see questionnaire). To determine if the desired treatment options were any different from younger patients, geriatric patients with overweight or obesity (group 3) over the age of 65 were BMI and sex matched to younger patients below the age of 50 (group 1) and middle-aged patients between the ages of 50 and 65 (group 2).

Patients selected all applicable variables from the questionnaire; a variety of common responses were listed on the questionnaire to help answer these questions (a pilot of 20 patients helped in development of the questionnaire). An additional write-in variable for why the patient thought he/she was overweight was also provided, in case the provided options were not sufficient to explain the patient's perceptions. Less than 20% of geriatric patients were 'wrote-in' responses. The questionnaire also asked patients to describe any specific concerns regarding taking weight loss medications or weight loss surgery; just under 50% wrote in concerns regarding medications and surgery.

The means and standard errors of the patients' selected perceptions and desired treatment options were reported. During analysis, the responses of the three different age groups were further broken down into subcategories of sex and by a BMI cutoff of 35 (kg m^{-2}). The cutoff of 35 was chosen because this is the BMI that bariatric surgery becomes a consideration. Frequency of variable selection was thus measured by three sets of populations: by age group, by age group and sex, and by age group and BMI above and below 35.

This study was submitted to be reviewed and approved by the Scripps Clinic IRB, La Jolla California.

Results

The mean age of the geriatric patient was 70.1 ± 4.6 years with a BMI of $38.9 \pm 6.8 \text{ kg m}^{-2}$ and 68.3% women. The mean age of group 2 was 56.1 ± 4.1 years and 37.7 ± 8.2 years for group 1. Ages in group 1 ranged from 17 to 49 years. Ages in group 2 ranged from 50 to 64 years. Ages in group 3 ranged from 65 to 89 years. BMI in group 1 ranged from 29.2 to 54.5 kg m^{-2} . BMI in group 2 ranged from 29.2 to 58.3 kg m^{-2} . BMI in group 3 ranged from 29.0 to 59.3 kg m^{-2} . Groups 1 and 2 were matched for BMI and sex to the geriatric group; thus, the mean BMI ($38.4 \pm 6.1 \text{ kg m}^{-2}$ group 1 and $38.2 \pm 6.1 \text{ kg m}^{-2}$ group 2) and sex distribution (72.7% women group 1 and 70.7% group 2) were similar. Basic statistical analyses were performed, and the results were found to be similar, both for the demographic data and for the responses between geriatric patients and younger cohorts.

Why do you think you are overweight?

In Figure 1, $76.2\% \pm 4.3\%$ of the geriatric patients with overweight or obesity cited lack of 'enough exercise' as the most frequent reason for having overweight or obesity. The least cited reason was hunger and overeating at $21.8\% \pm 4.1\%$. This was very similar to both younger groups who both perceived lack of exercise as the most

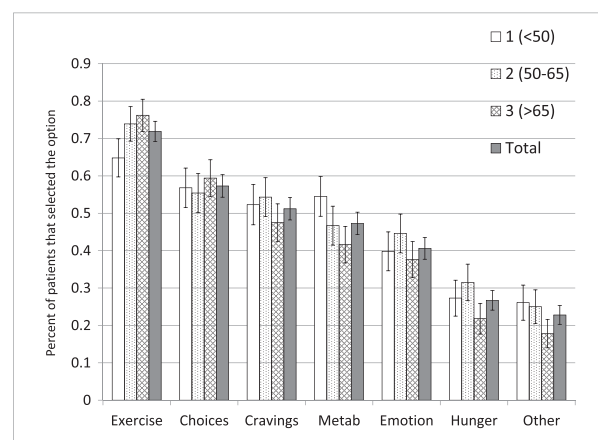


Figure 1 Why do you think you are overweight?

frequent problem and hunger and overeating as the least common cause.

Among geriatric patients, $47.5\% \pm 5.0\%$ felt that craving contributed to their weight, which was similar to the other two groups ($54.3\% \pm 5.2\%$ for ages 50–64 and $52.3\% \pm 5.4\%$ for patients less than 50 years of age). Also, $59.4\% \pm 4.9\%$ of the geriatric group felt that poor food choices were an issue with their weight and was similar to the two younger groups ($55.4\% \pm 5.2\%$ for ages 50–64 and $56.8\% \pm 5.3\%$ for <50 years of age). There was a trend for younger patients relative to geriatric patients to feel that a slow metabolism was a cause of having overweight ($54.5\% \pm 5.3\%$ of the patients <50 years of age, $46.7\% \pm 5.2\%$ age 50–64 and $41.6\% \pm 4.9\%$ for patients >65 years of age). 'Emotional eating' was felt to be a cause of having overweight in $37.6\% \pm 4.8\%$ of geriatric patients and was similar to 50- to 64-year-olds ($44.6\% \pm 5.2\%$) and <50-year-olds ($39.8\% \pm 5.2\%$).

What weight loss options would you like to discuss?

More than two-thirds of individuals from the three groups wished to discuss 'diet and healthy eating'. Figure 2 shows that the percentage of geriatric patients that wished to discuss this option ($67.3\% \pm 4.7\%$) was similar for ages 50–64 ($68.5\% \pm 4.9\%$) and for patients <50 years of age ($70.5\% \pm 4.9\%$). The least desired option to discuss of the non-surgical options was 'psychological counselling' ($29.7\% \pm 4.6\%$) for the geriatric population and was similar to the age group of 50–64 at $28.3\% \pm 4.7\%$ and <50 year old age group ($15.9\% \pm 3.9\%$).

The desire to discuss weight loss medications was $57.4\% \pm 4.9\%$ in the geriatric group and was similar to 50- to 64-year-olds ($55.4\% \pm 5.2\%$) and <50-year-olds ($64.8\% \pm 5.1\%$). A discussion of 'exercise' was desired

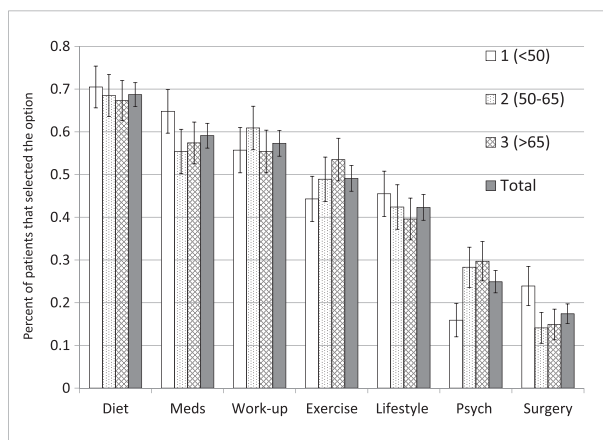


Figure 2 What weight loss options would you like to discuss?

by $53.5\% \pm 5.0\%$ of the geriatric patients and was similar to the other two groups, but there was a trend towards geriatric patients wanting to discuss it more relative to younger patients.

Weight loss options based on BMI

'Bariatric surgery' was appropriately higher in the patients with a BMI of 35 kg m^{-2} or higher vs. less than 35 kg m^{-2} ($21.9\% \pm 5.2\%$ vs. $2.7\% \pm 2.7\%$). Weight loss medications were of much more interest to the geriatric patients with a BMI of over 35 kg m^{-2} ($65.6\% \pm 6.0\%$ vs. $43.2\% \pm 8.2\%$) (Figure 3).

In the geriatric patients, $78.3\% \pm 6.9\%$ of the BMI group $<35 \text{ kg m}^{-2}$ wanted to discuss 'diet and healthy eating' vs. $60.9\% \pm 6.1\%$ of the patients with a BMI $>35 \text{ kg m}^{-2}$. Also, $48.6\% \pm 8.3\%$ of the BMI groups $<35 \text{ kg m}^{-2}$ wanted to discuss 'lifestyle instruction' vs. $34.4\% \pm 6.0\%$ of the $>35 \text{ kg m}^{-2}$ BMI group.

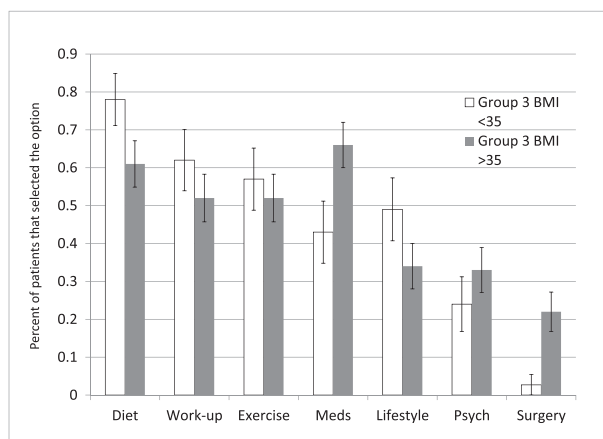


Figure 3 What weight loss options would you like to discuss? Geriatric patients with obesity, sorted by body mass index (BMI).

Discussion

The most common perceptions that geriatric patients felt were a cause of their increased weight were 'lack of exercise', 'poor food choices' and 'cravings'. The treatment options the geriatric patient wanted to discuss were 'diet and healthy eating', weight loss medications, a request for a 'metabolic work up' and 'exercise'. These responses were no different from their younger cohorts. When geriatric patients with a BMI of 35 kg m^{-2} or higher were given bariatric surgery as a treatment option, 21.9% marked it as a treatment option they would like to consider.

This descriptive study has several limitations. This particular population of patients had insurance coverage for their medical visits, and the majority were referred by their primary care provider or specialist. Thus, these patients do not represent the patient that pays cash for a weight loss programme; rather, they represent a patient population seen in a large medical provider group at risk for a large number of lives. Their obesity was moderate to severe with an average BMI of $38.9 \pm 6.8 \text{ kg m}^{-2}$. This level of obesity would allow that majority of these patients to qualify for bariatric surgery. In addition, the number of co-morbid problems related to their weight would be exceptionally high (over 90% of these patients had serious co-morbid problems). Unfortunately, this patient population is becoming more common, and if the average primary health care provider sees 20 patients per day, then he or she sees two to three of these patients daily (Scripps Clinic internal data).

Other limitations of this study include the limited number of patients in our study and the descriptive nature of the study. Another limitation is what geriatric patients actually do after they have started weight loss treatment. If these geriatric patients were followed over time, there may be a change in the treatment plan that may be very different from what they originally desired. An example of this would be a patient that just wants 'diet and exercise' but after failing diet and exercise may opt for weight loss medications or bariatric surgery.

Financial issues may also influence what treatment options a geriatric patient desires. If a patient desires dietary advice, seeing a dietitian may not be an option in this age group. Medicare will not cover a visit with the dietitian unless the patient has diabetes or renal failure. The cost of a dietitian is often an expense many patients cannot afford. The same is true for weight loss medications. The discount coupons that pharmaceutical companies give to US patients for various weight loss medications will lower the price to less than \$100 per month. Because Medicare is a government programme, patients that have Medicare typically are not eligible to use these discount coupons.

The non-discounted price for most of the newer weight loss medications are over \$200 per month and may not be affordable to many patients.

In general, the desired treatment options that geriatric patients wanted to explore were the same for younger patients. The most commonly cited reason for having overweight in geriatric patients ($76.2\% \pm 4.3\%$) was 'lack of enough exercise'. This is not surprising as post-menopausal women (68% female in our study population) are at high risk for obesity because of a decrease in physical activity.(10) Appropriately, the most desired treatment option was 'diet and healthy eating', which follows numerous current obesity treatment guidelines and is considered the backbone of any weight loss programme.(6,11)

The second most desired treatment option was weight loss medications with $57\% \pm 4.9\%$ of our elderly population desiring to discuss this option. These same individuals would have seen several weight loss agents removed from the market because of adverse events in the past. In the questionnaire, we allowed patients to write-in 'concerns' regarding weight loss medications, and $45.2\% \pm 49.9\%$ of the patients had concerns, but still wanted to consider weight loss medications as a treatment option. Younger patients were no different with just over half of the younger patients also desiring to discuss weight loss medications.

The relative safety of weight loss medications used specifically in the geriatric population has not been studied. Four new weight loss medications were approved for chronic long-term weight management over the last 4 years. The clinical trials that were conducted to approve these medications did allow patients over the age of 65 years to be in the studies. Approximately, 2% of the patients in the bupropion/naltrexone and lorcaserin studies were age of 65 or older.(12,13) A higher percentage of geriatric patients were in the pivotal trials for phentermine/topiramate and liraglutide with approximately 7% of the patients were age of 65 or older. No differences were observed in safety or effectiveness between geriatric patients and younger patients with phentermine/topiramate and liraglutide.(14,15)

Bupropion/naltrexone and lorcaserin did not include sufficient numbers of subjects aged 65 or older to determine whether geriatric patients respond differently from younger patients. Elderly patients have a higher incidence of renal impairment, and both bupropion/naltrexone and lorcaserin carry warnings about use and/or dose adjustment in the geriatric patient with regard to renal function.(12,13) Since the recent approval of four weight loss medications for chronic treatment of overweight and obesity, long-term cardiovascular outcome trials with these agents have been started. Their goal will be to address concerns of long-term safety in patients at risk for

cardiovascular disease.(16) These studies typically enrol patients over the age of 45 with diabetes, cardiovascular disease or both. These studies will include a high percentage of patients age 65 years or older and could provide data that would recommend for or against use of that specific weight loss agent in high risk populations such as the geriatric population.

To our knowledge, this is the first paper to demonstrate that approximately 22% of geriatric patients with serious obesity would consider bariatric surgery. This is important as the number of patients with serious obesity (BMI 35 kg m^{-2} or higher) continues to rise. The guidelines on appropriateness of bariatric surgery in the elderly are often governed by the 1991 National Health Institute guidelines. This document does not recommend bariatric surgery in the elderly. Since 1991, much has changed including surgical technique, understanding how bariatric surgery works, randomized clinical trials comparing surgical with medical therapy and in many situations insurance coverage. (17,18) In 2013, a recent set of guidelines were published on bariatric surgery by the American Society for Metabolic and Bariatric Surgery. This set of guidelines does not give recommendations for, or against bariatric surgery in the geriatric patient.(19)

A recent case-matched control study of patients having sleeve gastrectomy in the elderly vs. younger patients showed no statistically significant differences in morbidity or mortality. When comparing improvements in metabolic and co-morbid problems, the elderly did just as well as the younger patients at 24 months. The only statistical difference between the two groups was percent of excess weight loss (56.2% vs. 71.4% ; $P < 0.01$). (20)

In summary, this small comparative study did not see any obvious differences between younger patients and geriatric patients when looking at self-described factors contributing to their increased weight, and potential desired treatment options. When physicians are discussing weight loss options with the geriatric patient, they should keep in mind that elderly patients may wish to explore the same options as their younger cohorts.

Conflict of Interest Statement

No conflict of interest was declared.

References

1. Fakhouri THI, Ogden CL, Carroll MD, et al. *Prevalence of Obesity among Older Adults in the United States, 2007–2010*. NCHS Data Brief, No 106. National Center for Health Statistics: Hyattsville, MD, 2012.

2. Porter Starr KN, Bales CW. Excessive body weight in older adults: concerns and recommendations. *Clin Geriatr Med* 2015; **31**: 311–326. DOI: 10.1016/j.cger.2015.04.001.
3. Villareal DT, Apovian CM, Kushner RF, Klein S. Obesity in older adults: technical review and position statement of the American Society for Nutrition and NAASO, The Obesity Society. *Am J Clin Nutr* 2005; **82**: 923–34.
4. Han TS, Tajar A, Lean MEJ. Obesity and weight management in the elderly. *Brit Med Bull* 2011; **97**: 169–196. DOI: 10.1093/bmb/ldr002.
5. Beavers KM, Hsu F, Houston DK, et al. The role of metabolic syndrome, adiposity, and inflammation in physical performance in the health ABC study. *J Gerontol A Biol Sci Med Sci* 2013; **68**: 617–623. DOI: 10.1093/gerona/gls213.
6. Jensen MD, Ryan DH, Apovian CM, et al. 2013 AHA/ACC/TOS guideline for the management of overweight and obesity in adults. *J Am Coll Cardiol* 2014; **63**: 2985–3023. DOI: 10.1016/j.jacc.2013.11.004.
7. Greenway FL, Caruso MK. Safety of obesity drugs. *Expert Opin Drug Saf* 2005; **4**: 1083–1095. DOI: 10.1517/14740338.4.6.1083.
8. Krentz AJ, Fujioka K, Hompesch M. Evolution of pharmacological obesity treatments: focus on adverse side-effect profiles. *Diabetes Obes Metab* 2016 DOI: 10.1111/dom.12657 [Epub ahead of print].
9. Fujioka K. Current and emerging medications for overweight or obesity in people with comorbidities. *Diabetes Obes Metab* 2015; **17**: 1–12. DOI: 10.1111/dom.12502.
10. Simkin-Silverman LR, Wing RR. Weight gain during menopause. Is it inevitable or can it be prevented? *Postgrad Med* 2000; **108**: 47–50, 53–6. DOI: 10.3810/pgm.2000.09.1.1204.
11. Handelsman Y, Bloomgarden ZT, Grunberger G, et al. AACE/ACE diabetes guidelines. *Endocr Pract* 2015; **21**: 1–87. DOI: 10.4158/ep15672.gl.
12. BELVIQ® Prescribing Information. 2012. Available from URL: http://www.accessdata.fda.gov/drugsatfda_docs/label/2012/022529lbl.pdf. Accessed 26 May 2015.
13. Contrave Prescribing Information. 2014. Available from URL: http://www.accessdata.fda.gov/drugsatfda_docs/label/2014/200063s000lbl.pdf. Accessed 26 May 2015.
14. Qsymia® Prescribing Information. 2014. Available from URL: http://www.accessdata.fda.gov/drugsatfda_docs/label/2013/022580s004lbl.pdf. Accessed 26 May 2015.
15. Saxenda® Prescribing Information. 2015. Available from URL: http://www.accessdata.fda.gov/drugsatfda_docs/label/2015/206321s001lbl.pdf. Accessed 26 May 2015.
16. Cardiovascular outcomes study of naltrexone SR/bupropion SR in overweight and obese subjects with cardiovascular risk factors (the light study). ClinicalTrials.gov Web site (n.d). Available from: <https://clinicaltrials.gov/ct2/results?term=CVOT+Obesity+%&Search=Search>
17. Caceres BA. Policy implications of a literature review of bariatric surgery in older adults. *J Gerontol Nurs* 2014; **40**: 14–9.
18. Cummings DE, Cohen RV. Beyond BMI: the need for new guidelines governing the use of bariatric and metabolic surgery. *Lancet Diabetes Endocrinol* 2014; **2**: 175–81. DOI: 10.1016/S2213-8587(13)70198-0.
19. Mechanic JI, Youdim A, Jones DB, et al. Clinical practice guidelines for the perioperative nutritional, metabolic, and nonsurgical support of the bariatric surgery patient. American society for metabolic and bariatric surgery. *Surg Obes Relat Dis* 2013; **9**: 159–91. DOI: 10.1016/j.soard.2012.12.010.
20. Pequignot A, Prevot F, Dhahri A, et al. Is sleeve gastrectomy still contraindicated for patients aged ≥60 years? A case-matched study with 24 months of follow-up. *Surg Obes Relat Dis* 2015; **11**: 1008–13. DOI: 10.1016/j.soard.2014.11.015.