An Evaluation of Knowledge regarding Surgical Treatment of Obesity among Final Year Medical Students and Recent Graduate Physicians from King Abdulaziz University

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**Abstract**

**Aim:** To determine level of knowledge of medical students and recent graduates' physicians regarding the possibility of surgical treatment for obesity.

**Background:** Over the last few decades, the development of bariatric surgery has been observed. Which represents currently the only permanent and comprehensive method for the treatment of obese patients. However, knowledge about the possibility of surgical procedures among general practitioners is not sufficient. That might be due to lack of knowledge about bariatric surgery in university curriculum.

**Methods:** We administered a cross-sectional survey among 298 medical students and recent graduates physicians from King Abdulaziz University. The survey was conducted to evaluate their knowledge regarding methods of surgical treatment of obesity, and to evaluate the amount of information on metabolic surgery provided to students during surgery courses.

**Result:** Theoretical knowledge in the surgical treatment of obesity was possessed by 82% of medical students and 17.4% of interns. Results revealed a low level of knowledge on the possibility of applying metabolic surgery in treating morbid obesity. Most of participants expressed a need to improve their knowledge and favorably expanding the curriculum to include more information on the subject of metabolic surgery.

**Conclusion:** The knowledge and awareness of weight loss surgery among medical student and recent graduates in KAU is inadequate, and need to be improved.
Keywords: Knowledge, Bariatric surgery

Introduction

Over the last few decades, the world has been on a progressive trend of rising belt sizes and sedentary life styles. Unfortunately, the Kingdom of Saudi Arabia exemplifies this trend as one of the fastest-growing obesity rates in the world, indeed. A report published this [1] claims that 70-75% of Saudi adults are overweight, and around a third are obese. Saudi men are roughly the same size as their American counterparts: in both countries, 7 out of 10 men are overweight, including a third who are obese. Saudi women, however, compare unfavorably to Americans. Three quarters of Saudi women are overweight, and 44% are obese, compared to 62% of American women who are overweight, and a third who are obese [1].

The body mass index (BMI) is used to define and classify obesity, which is the body mass measured in kilograms divided by the square of the height measured in meters. The following divisions of obesity have been adopted depending on the value of the BMI index: class I obesity – 30–35 kg/m², class II obesity – 35–40 kg/m², class III obesity – above 40 kg/m². Morbid obesity, which is an indication for surgical treatment, is considered to be the state when (1) the BMI on its own exceeds 40 kg/m² or (2) the BMI is over 35 kg/m² and is accompanied by comorbidities. Among them most often observed are: type 2 diabetes, hypertension, dyslipidaemia, osteoarthritis, sleep apnoea and others. Regardless its impacts on personal appearance and body image, obesity also plays an essential role in the pathophysiology of many metabolic diseases as well as it increases the risk of cardiovascular disease [2]. The close relationship between obesity and diabetes is confirmed by the fact that among people with type 2 diabetes, as many as 90% are people with excess body mass [3]. Moreover, excess weight is also a risk factor of certain cancers (colon and prostate cancer in men, and breast, uterine and ovarian cancer in women). Obesity and the above-mentioned co-morbidities also have several economic consequences, which cannot be ignored in regard to the current status of global crisis. Treatment of patients with excess body mass is costing 10% higher than in the case of those with the correct body mass, whereas the costs are 36% higher for persons suffering from obesity [4]. It is a relatively popular conviction that obesity could be managed by lifestyle modification, diet, physical activity, or pharmacological treatment. However, it is worth noting the growing importance of the surgical treatment of obesity, which not only allows for weight reduction but also decreases the risk of death in patients as compared with those treated without surgery [5–7]. Bariatric surgery came into view since the last few decades, which represents currently the only permanent, comprehensive and effective method for the treatment of obese patients. The benefits of surgical treatment are not limited only to the reduction of body mass. Results of numerous studies have indicated the reduction of mortality risk in long-term follow-up in the group of patients treated surgically when compared with patients treated conservatively [6,8–11].

International Diabetes Federation, which brought together organizations from 160 countries in the world published several recommendations in 2011, concerning the principles of treating type 2 diabetes taking into account the role of bariatric surgery [12], in accordance with which bariatric surgery should be given priority in the treatment of patients with type 2 diabetes and BMI over 40 kg/m². Significant reduction of hypertension and the normalization of lipid disorders, which are, together with diabetes, criteria for the diagnosis of metabolic syndrome was observed after bariatric treatment. Consequently, results in a reduction of the risk of cardiovascular disease [13–18]. Thus, it gives bariatric surgeons a leading role in the treatment of morbidly obese patients. It has also been shown that there are beneficial influences of bariatric surgery on the occurrence of certain types of cancers [19–21].

Frustratingly, lots of physicians doesn’t recognize obesity as a chronic disease. Plus, others do recognize it as a disease but choose not to address obesity during their limited time with patients [22–25]. Although obesity has a
substantial impact on patient care in all disciplines in medicine, physician and medical student education about treatment of obesity is limited [26, 27]. The level of knowledge about the possibility of surgical treatment for obesity among general practitioners, who are the medical professionals most aware of the risks of various diseases in patients under their care, remains far from satisfactory [28]. The aim of this study is to determine the level of knowledge of general practitioners, junior and senior residents from different specialities, and Final year medical students in KAU about the possibility of surgical treatment for obesity, to assess their views on the instruction they have received on this subject during surgery course of study, and their willingness to improve their knowledge in the future.

**Material and Methods**

A self administrated cross-sectional survey was undertaken during the year of 2016 using 15 items questionnaire with various domains, modified from a previous researches which was developed in collaboration with the President of the Section for Metabolic and Bariatric Surgery of the Society of Polish Surgeons [29,30]. One answer permitted for each question. An ethical approval was obtained from King Abdulaziz University Hospital. Received data contained demographic data of the respondents, questions to assess their theoretical and practical knowledge and their opinions regarding advising the patient for bariatric surgery. Also it includes self assessment of their knowledge and their perceptions, attitudes, and believes regarding obesity treatment and their interest to improve their knowledge in the future. The surveys were conducted among sixth-year students who finished surgery course and Interns of medical school who recently graduate from King Abdulaziz University (KAU), Jeddah – Saudi Arabia. The period of data collection was 3 months (May 2016-August 2016).

The sample was calculated as two staged sampling technique in which within each selected cluster is randomly selected for on the basis of the size of registered medical school faculty at King Abdulaziz University (KAU). In total, 500 questionnaires were distributed, 298 questionnaires completed by 264 (82%) medical students and 52 (17.4) of interns. Statistical analysis of the responses was performed with SPSS Version 22 using descriptive method.

**Result**

The results obtained are presented in Table 1. In a total of 298 responds, 74 (24.8%) were male and 224 (75.2%) wear female. 246 (82%) of them are medical students 52 (17.4%) are interns. Table 2
Majority of participants 254 (98.7%) chose bariatric as it is the Medical discipline concerned with the treatment of obesity, 7.4% Lipology, 3.7% choose Balneology, 2.3% choose Orology. The study shows that the majority of participants 214 (71.8%) possess theoretical knowledge on the nature of bariatric surgery as indicated by Question 2, 218(73%) were able to know the indications for bariatric surgery and only 109 (36%) are able to apply this knowledge in practice. Regarding the influence of bariatric surgery on the frequency of the occurrence of cancer in patients suffering from obesity, only 26(8.7%) of the respondents demonstrated appropriate knowledge, while 147(49%) of them know its influence on the costs of healthcare for this group of patients. To Question 7, concerning the techniques of performing operations, the correct answer was given by 147 (49%) of participants, while 169(56%) of participants given a right answer in regard to expected duration of maximum weight loss after surgery as possess by question 8. Furthermore as for question 9 most of participants 235(78.9%) were know the serious complication of surgery (figure 1). On the other hand, more than half of participants 218(73%) will recommend bariatric surgery to whom meets the standard criteria, while 135 (45.3%) said it is a useful tool and 55 (18%) consider it as non safe option. (figure 2, 3 and 4). 41(13%) assessed their knowledge as completely satisfactory, 208(69%) assessed it as inadequate and 49(16%) don't have any idea about bariatric. (figure 5). Lastly, most of participants 264(88%) agreed that every graduate should know basics information in regard to bariatric surgery and 240(80.5%) recommended including bariatric surgery topic in the surgical curriculum during medical years.
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer A (n/%)</th>
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<tr>
<td>1</td>
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<td>254 (98.7%)</td>
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<td>214 (71.8%)</td>
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<td>3</td>
<td>23 (7.7%)</td>
<td>218 (73.2%)</td>
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<td>4</td>
<td>83 (27.9%)</td>
<td>56 (18.8%)</td>
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<td>5</td>
<td>11 (3.7%)</td>
<td>26 (8.7%)</td>
<td>93 (31%)</td>
<td>168 (56.4%)</td>
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<td>6</td>
<td>76 (25.5%)</td>
<td>147 (49.3%)</td>
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<td>55 (18.5%)</td>
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<td>7</td>
<td>44 (14%)</td>
<td>173 (58%)</td>
<td>57 (19%)</td>
<td>24 (8.1%)</td>
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<td>8</td>
<td>55 (18%)</td>
<td>60 (20%)</td>
<td>182 (61%)</td>
<td>6 (2%)</td>
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Table 1: Responses to individual questions. The result which is the correct answer is underlined (for questions 1–8)

![Figure 1](image-url): Anastomotic leak is one of the rare but serious complication after bariatric surgery
Figure 2: Shows the Participants opinion on bariatric surgery as a useful tool in treating obesity

Figure 3: Shows the Participants opinion on bariatric surgery “is it safe option or not?”
Figure 4: Participants opinion on recommending bariatric surgery to whom meets the standard criteria.

Figure 5: How Participants assessed their knowledge in Bariatric surgery.
Discussion

Morbid obesity and its complications can lead to patient death without proper treatment. The knowledge of Graduate physicians from KAU is insufficient to identify patients who should be seen by bariatric surgeon. As before many years, Surgeons were only responsible for management of obesity related complication such as diabetic foot, nephropathy, atherosclerosis, etc. Nowadays some complications can be resolve by Bariatric or Metabolic surgery by reducing excess body weight. [31–33]. It is difficult to compare the results of our research with other researches, as (to the best of our knowledge) there are few international publications on the subject, preceding our research. The curriculum at King Abdulaziz Medical school do not reflect sufficient attention to bariatric surgery. The first class introduced bariatric surgery were In Israel, and in 2005 the Ben Gurion University of the Negev introduced a multidisciplinary curriculum for second year students devoted to nutrition disorders, which included also classes on bariatric surgery [34, 35]. In long term Follow up, conservative management of morbid obesity has been shown to be ineffective. As evaluated in our study, the knowledge of bariatric surgery among final year medical students and interns in our city is not very high. In spite of the fact that the study group is relatively small, and did not involved other medical universities, which could be considered to be a research limitation, this is still the first such study in our country that gives us a general overview of the quality of knowledge in this field, or even the widely understood problem of obesity treatment.

The results of our study should be cause for concern, as we believe these results imply specific conclusions and recommendations, obesity's increasing incidence will make the disease a primary challenge for the next generation of medical doctors. We believe that it is obvious to acknowledge that medical students currently lack basic knowledge related to treatment of the disease, and that the medical community should urgently devote attention to this problem. It is worth noting that medical students in Saudi Arabia show significant interest in learning about the surgical treatment of obesity, as the present study shows. Close to 88 % of our respondents expressed willingness to participate in additional classes to improve their knowledge on this subject. It is favorable if medical education can develop new curriculum based on new guidelines with cooperation with surgical department in our university.

Take Home Messages

Notes On Contributors

Anfal Nawawi: MBBS, 2016 - King Abdulaziz University, Jeddah - Saudi Arabia. Member of Saudi General Surgery Society. Have interest in researches, evidence based medicine and medical educations.

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Appendices

Survey

Evaluation of Knowledge about Surgical Treatment of Obesity Among Final Year Medical Students and...
1. Medical discipline concerned with the treatment of obesity is:

2. What does it really mean "surgical treatment of obesity"?
   A- Reduction of the intake of food or its digestion absorption through operations on the stomach and intestines.
   B- Excision of excess intra abdominal fat, especially greater omentum.
   C- Excision of excess subcutaneous fat within the abdomen and lower extremities.
   D- Introduction of balloon into the stomach, which is filled with methylene blue solution or air, which restricts food intake.

3. What are the indications for surgery of obesity?
   A- The incidence of obesity related diseases with the weight of twice the normal.
   B- The incidence of obesity related diseases with a body mass index above 30.
   C- The incidence of obesity related diseases with a body weight of 40 Kg more than normal.
   D- None of the above.

4. In which patient should surgery be considered as a treatment option: a man his height is 200 cm, weight 141 Kg with type 2 diabetes mellitus, or a women with height 150 cm, weight 80 Kg with hypertension:
   A- The man.
   B- The women.
   C- Both.
   D- None of the above patient.
5- Surgical treatment of obesity leads to:
A- Increasing the risk for cancer.
B- Decreasing the risk for cancer.
C- Does not affect the risk of cancer.
D- The impact on the cancer risk has been established, but so far there is insufficient scientific evidence to conclude if surgical treatment of obesity leads to decreasing or increasing of it.

6- Surgical treatment of obesity leads to:
A- Increase in health care costs for patients suffering from obesity.
B- Reduction in health care costs for patients suffering from obesity.
C- Does not affect the health care costs for patients suffering from obesity.
D- above issues has not yet been explicitly investigated.

7- Which of the techniques, in accordance with scientific evidence, is the safest way to perform weight loss surgery?
A- Laparotomy- a wide opening of the abdominal cavity to allow precise insight into it.
B- Laparoscopic- mini-invasive technique also known as "Keyhole Surgery"
C- Endoscopic- allowing access to the abdominal cavity through natural orifices such as mouth, anus, vagina.
D- None of the above.

8- Patients who undergo bariatric surgery are expected to achieve their maximum weight loss within which of the following time frames?
A- (3-6 months)
B- (12–18 months)
C- (2-3 years)
D- None of the above
9- One of the rare but early and serious complications of Roux-en-Y gastric bypass is anastomotic leak (1-3%)

A- Correct    B- Incorrect

10- If a patient meets the standard criteria for bariatric surgery, I would recommend evaluation by a bariatric surgeon.

A- Strongly agree/agree   B- Neutral   C- Strongly disagree/disagree

11- I feel bariatric surgery is a useful tool for treating obesity

A- Strongly agree/agree   B- Neutral   C- Strongly disagree/disagree

12- I feel bariatric surgery is a safe option for treating obesity

A- Strongly agree/agree   B- Neutral   C- Strongly disagree/disagree

13- How do you assess your knowledge about the surgical treatment of obesity

A- Completely satisfactory.   B- Inadequate.   C- I don't have any idea.

14- Do you think it's important for every graduates to know basic informations in surgical treatment of obesity since it becomes recognized by general population:

A- Yes    B- No

15- Would it be useful to include bariatric surgery in surgical curriculum during medical years?

A- Yes    B- No
The author has declared that there are no conflicts of interest.

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