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Alcohol abuse and dependence before and after bariatric surgery: a review of the literature and report of a new data set

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Abstract

Background: To review the published data on alcohol abuse and alcohol dependence after bariatric surgery and to assess the prevalence of alcohol abuse and alcohol dependence in a sample of bariatric surgery patients, both before and after surgery. All participant data were collected from patients who had undergone gastric bypass at a Midwestern hospital.

Methods: The participants were contacted by mail 6–10 years after surgery and asked to complete the Post-Bariatric Surgery Appearance Questionnaire.

Results: The results of the analysis indicated that a small percentage of the sample appeared to spontaneously develop alcohol abuse or dependence after bariatric surgery.

Conclusion: The results of the present study will be useful in understanding the likelihood of bariatric surgery patients developing alcohol abuse and dependence after surgery. However, additional research is needed to fully understand the risk of this outcome. (Surg Obes Relat Dis 2008; 4:647–650.)

Keywords: Bariatric surgery; Alcohol abuse; Alcohol dependence

Bariatric procedures have become increasingly common procedures in the United States, with their rate increasing significantly from 7.0 per 100,000 patients in 1998 to 38.6 per 100,000 patients in 2002 [1]. Recently, considerable media attention has been given to anecdotal reports of the development of alcohol use problems among patients who have undergone bariatric surgery [2]. However, to date, little empirical evidence has been available to support the idea that patients who undergo bariatric surgery are at an increased risk of developing alcohol abuse or alcohol dependence.

The prevalence of psychiatric disturbance among the bariatric population has been examined in a number of studies. Black et al. [3] performed an analysis of the rates of psychopathology among a sample of morbidly obese patients seeking bariatric surgery. They identified a number of disorders that were significantly more common among the bariatric sample, including major depressive disorder, agoraphobia, simple phobia, post-traumatic stress disorder, bulimia nervosa, and tobacco dependence; however, the bariatric patients were not observed to have greater rates of alcohol-related disorders [3].

Kalarchian et al. [4] examined the rates of alcohol use problems in a sample seeking bariatric surgery. They found that, although the lifetime prevalence of alcohol abuse and alcohol dependence were relatively high (17.7% and 13.2%, respectively), the rates of alcohol abuse and alcohol dependence were substantially lower at the assessment (0.0% and 0.7%, respectively) [4]. To avoid false responding by their participants, Kalarchian et al. [4] provided assurances that the information disclosed for research purposes would not be taken into consideration when assessing their appropriateness for bariatric surgery.

Buffington [5] surveyed 318 patients who had undergone

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bariatric surgery regarding their alcohol consumption. The patients were directed to a Web site by healthcare professionals to complete the survey, which consisted of questions regarding the patients' sensitivity to alcohol, changes in alcohol use after surgery, and perceptions of changes in control over alcohol use. Of the patients surveyed, approximately 83% consumed alcohol after surgery. Additionally, 84% of those who consumed alcohol after bariatric surgery indicated that they were more sensitive to the effects of alcohol after surgery, with many indicating that they experienced intoxicating effects of alcohol after consuming a small amount of alcohol (ranging from "a few sips of 1 drink" to "1 alcoholic beverage" [4]). A sizable minority of respondents (29%) indicated that they experienced the intoxicating effects of alcohol for a longer time after consumption than they had before bariatric surgery. Perhaps most importantly, 28.4% of the sample (approximately 90 people) reported difficulties in controlling their intake of alcohol after bariatric surgery compared with 4.5% (approximately 14 people) before bariatric surgery.

Buffington et al. [6] also observed that the interval after bariatric surgery did not significantly affect the patients' sensitivity to alcohol. Their analysis also indicated that 14% of their sample drank considerably more alcohol than they had before surgery [6]. Conversely, 15% drank considerably less [6].

Klockhoff et al. [7] established that both the maximal blood-alcohol concentration and the time to the peak blood-alcohol concentration are significantly affected after bariatric surgery. Specifically, they found that women who had undergone bariatric surgery reached their maximal blood-alcohol concentration more quickly and maintained greater blood-alcohol concentrations at 10 and 20 minutes after consuming alcohol [7]. However, their blood-alcohol concentration was not significantly different from that of controls at 30 minutes after consumption [7]. The investigators suggested that those undergoing bariatric surgery should be cautioned against drinking alcohol quickly because of the findings of their study [7].

The purpose of the present study was to examine the rates of alcohol abuse and alcohol dependence in a sample of bariatric surgery patients 6–10 years after surgery. The individuals completed questionnaires that allowed for an assessment of alcohol-related disorders both before and after surgery. Specifically, the data were examined to determine different alcohol consumption patterns: (1) individuals who qualified for a diagnosis of an alcohol-related disorder before bariatric surgery but did not qualify for a diagnosis after the surgery; (2) individuals who qualified for a diagnosis before bariatric surgery who continued to meet the diagnostic criteria after bariatric surgery; and (3) individuals who developed symptoms of alcohol dependence or alcohol abuse after bariatric surgery, but had no symptoms before surgery.

Methods

Participants

The present analysis used the data from 70 individuals who had undergone Roux-en-Y gastric bypass surgery and were followed up by questionnaire 6–10 years after surgery. The response rate to the questionnaire was 28% (70 of 250 mailed).

Of the 70 respondents, 59 (85.5%) were women. A considerable majority of the respondents were white (90.0%). The mean age of the respondents was 49.9 years (SD 9.2). The mean body mass index of respondents when the questionnaires were administered was 34.1 kg/m^2. The respondents' mean greatest body mass index before surgery was 51.7 kg/m^2.

The data were obtained using the Post-Bariatric Surgery Appearance Questionnaire, which was developed for use in this study. The Post-Bariatric Surgery Appearance Questionnaire focuses largely on cosmetic concerns that have arisen after bariatric surgery. However, the end of the survey contains several questions about alcohol consumption. The questions are based on the diagnostic criteria for alcohol abuse and alcohol dependence and ask questions about alcohol consumption before and after bariatric surgery.

The mailings were compiled and sent by the surgical department where patients had undergone their procedure so as to maintain confidentiality. The packets mailed to the patients included a cover letter explaining the study, the consent form, payment information, and the above-mentioned questionnaire. The institutional review boards of the University of North Dakota and MeritCare Health System approved this study. Each participant received $25.00 for their participation.

Results

Using the substance use and abuse questions from the Post-Bariatric Surgery Questionnaire (n = 70), 5 individuals (7.1%) were identified who qualified for a diagnosis of alcohol dependence before bariatric surgery, and 1 additional individual (1.4%) qualified for a diagnosis of alcohol abuse, using criteria from the *Diagnostic and Statistical Manual of Mental Disorders,* 4th edition, text revision [8]. However, no information was available regarding the length of time during which their symptoms were present, making a definitive diagnosis of alcohol abuse or alcohol dependence impossible.

Using the substance use and abuse questions from the Post-Bariatric Surgery Questionnaire, 6 individuals (8.6%) were identified who qualified for a diagnosis of alcohol dependence after bariatric surgery. One individual (1.4%) qualified for a diagnosis of alcohol abuse. However, the time frame for the symptoms was also unknown.

From the results of the survey, 4 individuals (5.7%) from the present analysis appeared to have had alcohol depen-

dence problems before surgery that did not change after surgery, and 1 individual (1.4%) appeared to have had alcohol abuse problems before surgery that did not change after surgery. One individual (1.4%) appeared to have had alcohol dependence remission after bariatric surgery. Two individuals (2.9%) appeared to have developed alcohol dependence after bariatric surgery, and these 2 individuals did not admit to significant alcohol problems before surgery. Both of these individuals were women and were beyond the typical age of onset for alcohol dependence [9]. One individual was 64 years old at the time the questionnaire was completed and had undergone bariatric surgery 7 years, 3 months before completing the questionnaire. The second individual was 40 years old when she completed the questionnaire and had undergone bariatric surgery 6 years, 4 months before completing the questionnaire.

Several individuals (n = 6; 8.6%) indicated that they drank excessively before bariatric surgery, and 4 individuals (5.7%) indicated that they had developed a tolerance to alcohol before bariatric surgery. These individuals did not endorse any other questions related to alcohol use before bariatric surgery. Only 1 individual (1.4%) endorsed the question about drinking excessively after bariatric surgery, but no other problematic alcohol use questions were endorsed. This might indicate that those individuals who drank excessively on occasion before bariatric surgery stopped doing so after undergoing bariatric surgery.

The Post-Bariatric Surgery Questionnaire also contains questions relating to tolerance and a broad assessment of alcohol intake behavior both before and after surgery. More than one half of the sample (n = 38; 54.3%) indicated that they had experienced a change in their response to alcohol. Of the respondents, 24 (34.3%) indicated that they felt intoxicated more rapidly after bariatric surgery, and 14 (20.0%) indicated that they felt intoxicated after drinking less. None of the individuals surveyed indicated that it took them longer to become intoxicated or that it took more alcohol than before for them to become intoxicated.

The data suggested several different patterns of alcohol use before and after surgery. Two individuals (2.9%) indicated that they did not drink alcohol before bariatric surgery, but began drinking after surgery (including 1 who met the criteria for alcohol dependence). Another 2 individuals (2.9%) indicated that their alcohol use had increased after surgery (including another who met the criteria for alcohol dependence).

Nearly 4 times as many individuals (n = 16; 22.9%) indicated that their use of alcohol had decreased in some way after bariatric surgery. Of these 16 individuals, 5 (7.1%) indicated that they had drunk alcohol before but not after bariatric surgery, and 11 (15.7%) indicated that their alcohol use had decreased after surgery.

A great majority of the sample (n = 47; 67.1%) indicated that their drinking behavior had not changed after bariatric surgery (i.e., they did not drink before or after bariatric surgery or their use of alcohol had remained the same).

Discussion

Taken together, these data suggest that most people do not change their use of alcohol after bariatric surgery; however, a small number of individuals increased their use. Our data suggest that <3% of individuals who undergo bariatric surgery will develop an alcohol dependence problem. This is consistent with the results on alcohol-related disorders in a small bariatric surgery sample observed in another study [10]. However, given the small sample size and the small number of identified individuals in whom alcohol dependence became a problem after bariatric surgery, this number is put forth cautiously and solely in a preliminary manner. Also, the lack of an age-, gender-, and body mass index-matched control group was problematic.

Additionally, although alcohol dependence developed in some patients, we also had those in whom a previous alcohol dependence problem appeared to remit, as well as several others for whom alcohol use decreased after bariatric surgery.

Previous studies examining alcohol use after bariatric surgery have not examined the same variables as those examined in the present study; therefore, it is difficult to know whether the results of the present study are consistent or inconsistent with previous data. However, Buffington et al. [6] reported that 14% of their sample drank considerably more after surgery than they had before surgery and that 15% of their sample drank considerably less after surgery than they had before surgery. Nearly 23% of the sample in the present analysis reported abstaining from alcohol use altogether or decreasing their alcohol intake after surgery and just <6% of the sample reported increasing their alcohol intake or beginning to drink alcohol during the postoperative period.

Although 84% of the respondents to a previous survey suggested that they became intoxicated after consuming less alcohol than was necessary before surgery [5], only 20% of our respondents indicated the same was true. Also, 24 respondents in the present study indicated that they felt the intoxicating effects of alcohol more rapidly than they had before surgery, consistent with the results from Klockhoff et al. [7].

Although the results of the present study offer new information about alcohol use and dependence in a bariatric surgery sample, the data presented also had limitations. First, data were not collected from the participants before bariatric surgery; thus, all the reports of alcohol consumption for the periods before and after surgery were collected exclusively after surgery and after a period of 6–10 years. Additionally, a small sample was used in the data analysis, because the response rate was relatively low. This creates concerns about the generalizability of the results to larger

samples of bariatric patients. It is possible that the individuals who were experiencing alcohol abuse or alcohol dependence were less likely to respond to the questionnaire, thus artificially decreasing the number of respondents who reported symptoms of alcohol abuse and alcohol dependence. It is also possible that those individuals who were consuming large amounts of alcohol did not want to respond to a questionnaire containing questions about their alcohol consumption and admit they were using excessive amounts of alcohol. Also, some patients might not believe their alcohol intake was excessive simply because the volume of alcohol was smaller owing to physical restrictions on intake. However, these individuals could still be experiencing the intoxicating effects of alcohol and possible negative consequences.

Also, as noted, the length of time for the symptoms was unknown because of the structure and content of the questionnaire. The length of time before and after bariatric surgery during which symptoms developed or remitted was also unknown. Not knowing the specific timeframe of symptoms was an important limitation of the present study.

The results of this study are not conclusive. The present analysis was descriptive in nature. Because of the relatively small sample size and small number of identified cases of alcohol abuse and alcohol dependence, a comparison of groups was not feasible.

Conclusion

The results of the present study provide preliminary data about alcohol abuse and dependence in a small sample of bariatric surgery patients. The results presented are intriguing, but our study also had important limitations. It is clear that additional, empirically sound examination of the outcomes of bariatric surgery is needed, particularly relating to alcohol abuse and dependence.

Disclosures

The authors claim no commercial associations that might be a conflict of interest in relation to this article.

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