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Research paper

Laparoscopic adjustable gastric banding in adolescents with severe obesity: Psychological aspects, decision makers of surgery, and 2-year outcomes. A case series

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ABSTRACT

Background: The results of medical treatment of severe obesity in the adolescent population (balanced diet and physical activity) are often unsatisfactory, and bariatric surgery is questioned. The psychological determinants for requesting bariatric surgery in these adolescents are unclear. The objective of this study was to report the psychiatric and psychological aspects as well as the determinants of the medical decision for surgery in a cohort of obese adolescents requesting bariatric surgery by laparoscopic adjustable gastric banding.

Methods: Thirty-five adolescents (12.3–17.7 years of age), were recruited from January 2007 to December 2012. Semistructured interviews were conducted.

Results: Fifty-four percent of the adolescents had a psychiatric history and 85% had psychiatric comorbidities. In adolescents undergoing surgery, excess weight loss was 46% after 1 year and 51% after 2 years. For patients not receiving surgery, excess weight loss was 0.43% after 1 year ($P = 0.001$). Compliance with medical treatment was the only significant element contributing to the decision to perform surgery. Results in terms of satisfaction and perception 1 and 2 years after surgery were encouraging.

Conclusion: Bariatric surgery is feasible in young patients and produces good results in terms of excess weight loss. We argue that compliance with medical treatment is probably one of the most important elements for making the decision to perform bariatric surgery and in excess weight loss after surgery. We probably need to focus on the compliance of young patients and evaluate how this can be improved.

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1. Introduction

Obesity affects around 6.7% of the pediatric population worldwide [1]. In France, 15.8% of the pediatric population is overweight and 2.8% is obese [2,3]. An obese child often remains so in adulthood, and epidemiological studies link obesity in children and premature mortality in adults [4,5]. The results of medical treatment of obesity in the adolescent population (balanced diet and physical activity) are often unsatisfactory [6]. In light of this situation, bariatric surgery, which has become a first-line treatment for severe obesity in adults over the last 10 years,

because it improves patient survival, is questioned for adolescents. It seems legitimate and no more high risk than in adults [7]. In France, this treatment is only new in this age group. Preliminary data in adolescents suggest that short-term outcomes for weight loss and improvement of comorbidities are similar to those observed in adults [8]. Nevertheless, in most of these studies, the psychopathological dimension of severe obesity was not assessed in these adolescents.

The main aim of the present study was to describe the specific clinical psychiatric aspects and psychopathology of all cases of severely obese adolescents followed up in the Department of Pediatrics at Angers University Hospital between January 2007 and December 2012, who applied for surgical management of their obesity. We also wished to clarify who the decision-makers for

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surgery in pediatric situations were and to highlight the importance of psychiatric counseling before and after surgery for these patients.

2. Material and methods

2.1. Patients and clinical survey

We studied 35 obese adolescents aged 12.3–17.7 years, all candidates for bariatric surgery. The cohort of adolescents who underwent surgery had already been described in a previous paper [9]. The data were collected prospectively by our specialized center for the treatment of severe obesity. The laparoscopic adjustable gastric band (LAGB) program for adolescents received a positive opinion from the local ethics committee in 2007. Patients suffering from severe obesity and failing (persistent increase in body mass index [BMI]) at least 1 year's conventional lifestyle changes (nutritional and physical management) were recruited. Secondary obesity (of endocrine or syndromic origin) was ruled out by the relevant genetic and hormonal tests. The inclusion criteria were those of current recommendations for bariatric surgery in French adolescents and adults [10]: patients had to have a BMI of $\geq 40 \text{ kg.m}^{-2}$ or $\geq 35 \text{ kg.m}^{-2}$ with associated co-morbid conditions, present with no physical or psychological contraindications to bariatric surgery, and be 14 years old or older (since growth and puberty are almost complete at this age). Prior to surgery, they all received special care including regular meetings with a nutritionist, a pediatric psychiatrist, and a pediatric endocrinologist for at least 12 months, with good compliance. Consent to bariatric surgery was then given during a multidisciplinary staff meeting. The Midband® LAGB (M.I.D., Dardilly, France) was placed using the “pars flaccida” method [11], and initially kept deflated. After standard postoperative care, the LAGB was inflated for the first time at 6 weeks.

2.2. Clinical, psychological, comorbidity and metabolic assessment.

Patient follow-up consisted of regular 3-month assessments from the time of surgery during the 1st year, appointments every 6 months over the next 2 years and a yearly consultation thereafter. The interview comprised a comprehensive familial and personal history (medical, social, professional and academic, familial situation). Additional nutritional and psychological consultations could be scheduled if necessary. We evaluated medical comorbidities such as endocrine, metabolic, musculoskeletal, and respiratory comorbidities.

Qualitative assessment was also performed through regular meetings with a pediatric psychiatrist, a diagnosis based on DSM-V and the Mini International Neuropsychiatric Interview (MINI), at least four times and more often if required [12,13]. Psychiatrists also carefully noted any comorbidities, significant and traumatic life events, and eating behavior (anorexia nervosa, bulimia, and binge eating disorders based on DSM-V).

Compliance was assessed by participation in sports workshops, attendance at appointments with the various professionals, and compliance with dietary rules and advice. We estimated very good compliance as an appointment attendance rate higher than 90% among the adolescents; good compliance as 70–89% attendance, and average compliance as 50–69% attendance, with poor compliance a lower than 50% attendance rate. LAGB effectiveness on weight loss was assessed by weight and height measurements, BMI ($\text{BMI} = \text{weight [kg]} / \text{height}^2 [\text{m}^2]$) and excess body weight loss calculations (EBWL, %, calculated with ideal body weight at $\text{BMI} = 24.9 \text{ kg.m}^{-2}$). We observed the group of patients who received surgery (surgery group) compared to the group who did not (no-surgery group).

2.3. Statistical analysis

The statistical analysis was performed using the SPSS Statistics 17.0 software. Data are expressed as mean $\pm$ SD or frequency with a 95% confidence interval, a p -value of < 0.05 being considered significant. Means were compared using the Student t -test for continuous variables by analysis of variance (ANOVA). We used the χ^2 test to compare the frequency of the categorical variables.

3. Results

3.1. General data

The clinical characteristics of the patients are described in Table 1.

Seventeen boys and 18 girls were followed up. There were no significant differences in terms of gender concerning comorbidities and BMI. Boys were younger than girls, with an average age of 14.9 ± 1.3 years for boys versus an average age of 15.7 ± 0.9 for girls ($P < 0.05$). Ninety-three percent of the patients had already attempted to treat their obesity (dietary monitoring, specialist medical care, and hospitalization in a specialized center).

3.2. Schooling

Eighty-nine percent of our patients had attended general school programs (11% had followed vocational school programs) and among them, 29% withdrew from school for several weeks as a result of their obesity and significant distress at school (major social pressure, stigmatization, and difficulties coping with bullying). There was no correlation between BMI and withdrawal from school.

3.3. Perceived cause of obesity

To the question of the cause of onset of obesity, 72% of the adolescents and/or their parents attributed the weight gain to a specific event: the parents' divorce in 38% of cases, death of a parent in 13%, hospitalization of the child for illness in 21%, family or school conflicts in 8% and 8% of the cases, respectively, moving house in 4%, and a girl's first period in 4%.

3.4. Delay for specific treatment of obesity

The average time to initial specific treatment was considered as the period between the time the parents perceived their child to be overweight and the first consultation for the weight problem. For boys, the average time to initial treatment tended to be shorter than for girls: 6.5 ± 4.0 years vs. 8.3 ± 3.7 years for girls, respectively ($P = 0.19$). This was significantly related to at least one parent being overweight: 4.3 ± 3.6 years when parents were not overweight compared to 9.4 ± 3.0 years when at least one parent was overweight ($P = 0.001$). Specifically, the average time to initial treatment was significantly longer when the father was overweight: 10.4 ± 2.6 years vs. 5.6 ± 3.6 years when the father was lean ($P = 0.001$). We did not observe the same difference when the mother was overweight: 8.1 ± 2.8 vs. 7.2 ± 4.9 years (overweight vs. lean mother, $P > 0.05$). A psychiatric history significantly reduced the average time to initial treatment: 5.9 ± 3.5 years in the event of a psychiatric history compared to 9.5 ± 3.4 years where there was none ($P = 0.006$).

3.5. Psychopathology of obesity

Concerning the family situation, 74% of patients spoke of difficulties during their childhood (divorced parents, a parent's mental or severe physical illness, neglect, sexual abuse for one

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