Pregnancy Following Gastric Bypass for Morbid Obesity

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Background: Women who suffer from morbid obesity are often infertile. If these women are able to become pregnant, they are considered high risk because of the hypertension, diabetes, and other associated risk factors. Following the pregnancy is difficult due to limitations of the physical examinations. More costly ultrasound examinations are needed at a higher frequency. Bariatric surgery reduces the woman's weight and the incidence of obesity-related co-morbidities. The number of pregnancies and rate of complications during those pregnancies in our post-bariatric surgical patients were evaluated.

Method: Our group has been doing bariatric surgery since the early 1980s. We have over 2000 active patients on our current newsletter mailing list. The patients also have a series of networks through support groups. The patients are informed to contact us when they become pregnant so we may assist the obstetrician with their care. Through these various means, we have been able to identify 41 women in our patient population who have become pregnant. Using personal interview, questionnaire, and review of perinatal records, pregnancy-related risks and complications were studied.

Results: With over a 95% follow-up rate on the patients identified as having been pregnant following surgery, we found less risk of gestational diabetes, macrosomia, and cesarean section than associated with obesity. There were no patients with clinically significant anemia.

Conclusion: Since the patients had an operation that restricts their food intake, some basic precautions should be taken when they become pregnant. With this in mind, our patients have done well with their pregnancies. The post-surgical group had fewer pregnancy-related complications than did an internally controlled group that were morbidly obese during their previous pregnancies.

Introduction

Obesity is rapidly becoming the nation's number one health risk. Diet and behavior modification are notoriously unsuccessful ways to lose weight and maintain weight loss. Recently, the safety and effectiveness of drug therapy for obesity have been questioned. Bariatric operations are effective at achieving weight loss, but is it safe to become pregnant following these operations?

Morbid obesity has long been known to be a cause of infertility, and several authors consider obese pregnant women to be 'high risk'. Obesity during pregnancy increases the frequency of hypertension, pre-eclampsia, diabetes, macrosomia, neural tube defects, and intra-partum anesthesia complications. Is it safer to become pregnant while morbidly obese, or safer to become pregnant once the patient is 'postoperative' from her bariatric surgery, and has sustained the majority of her weight loss? We retrospectively evaluated all of our gastric bypass patients who had become pregnant.

Method

Our group has been performing bariatric surgery for more than 15 years, and our active contact management database contains details of more than 2000 patients. Active follow-up is maintained even years after the operation whenever possible. We have follow-up clinics in several cities throughout California to facilitate follow-up and ease travel problems for the patient.

Through long-term follow-up, we knew of many women who had become pregnant. We also
placed several articles in our newsletters about our pregnancy study, and sent out special mailings to our entire database to solicit contacts of women who had become pregnant following the bariatric operation. All leads and contacts were followed, and we discovered 41 patients who had become pregnant after operation; 40 cooperated with the study. All patients were interviewed by our Nurse Practitioner (L.J.), and a standardized form was used for information gathering. Medical records releases were obtained from the patients, so that additional medical information could be reviewed as indicated.

Our group performs primarily Roux-en-Y gastric bypass (RYGB) operations with a 15 ml measured proximal gastric pouch, divided stomach, and a proximal Roux-en-Y configuration. We also have a series of about 550 biliopancreatic diversion (BPD) patients that we follow; they were not included in this study.

Results

There were 49 pregnancies among 36 women, with 36 singleton births, three twin pregnancies and two triplet pregnancies. No fertility drugs were used. There was one elective and seven spontaneous abortions.

Of the 41 women who became pregnant after RYGB 17 had been pregnant prior to their bariatric procedure. These women served as their own controls. Table 1 shows the pre- and postoperative pregnancy statistics of this group as well as the total post-operative group.

In our series there were no women who suffered with clinically significant anemia. There were no transfusions and no iron was administered parenterally.

There were 13 Cesarean sections for the entire postoperative group. Within this group, there were five primary cesareans in 36 singleton births; the same number as that performed on just 17 patients pregnant prior to bariatric surgery. Of note (and of unknown significance), in spite of this small sample size, is that the incidence of breech presentation was higher than the usually quoted rate of 3% of term births.

One patient was diabetic during her 'postoperative' pregnancy. She became pregnant within 1 year of RYGB and she shows no evidence of being diabetic now, 2 years post-partum. Table 1 shows the incidence of diabetes for the women who serve as their own control group.

The average weight gain with pregnancy before bariatric surgery, was 20.4 kg. The average weight gain for RYGB patients was 12.7 kg. This weight gain was, on average, lost within 5 weeks post-partum. There were two significant outliers who took months to lose their pregnancy weight.

Discussion

Bariatric surgery is the most effective tool to assist in the weight loss of the morbidly obese. Is pregnancy safe following these procedures? Our data appears to indicate an emphatic 'yes'. We would like to emphasize, however, that in order to maximize outcomes certain recommendations be followed.

Pregnancy should be avoided during the first 12 to 18 months postoperation. During this time, the woman is eating very small amounts of food and is generally on a steep weight loss curve. One concern is that the patient or her baby will become 'unhealthy' in this relative starvation state. The

| Table 1. Comparison of patients who had been pregnant before and after their bariatric surgery as well as the total postoperative group (Singleton births only) |
|---------------------------------|-----------------|-----------------|------------------|
| Morbidity                        | Preoperative    | Postoperative   | Total postoperative group |
|                                 | (n = 17)        | (n = 17)        | (n = 36)          |
| Pre-term labor (self reported)   | 3/23 Babies     | 2/18 Babies     | 4/36 Babies       |
| Hypertension                     | 7               | 0               | 0                |
| Diabetes mellitus                | 4               | 0               | 1                |
| Cesarean section                 | 5 Total         | 6 Total         | 13 Total          |
|                                 | (5 primary)     | (3 repeat, 3 primary) | (5 primary) |
|                                 | (2 breech)      | (3 breech)      |                  |
| Macrosomia (> 4000 gm)           | 7/23            | 1/18            | 2/36             |

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