Severe obesity - Session organised in conjunction with ASPEN

Nutritional risks & metabolic complications of bariatric surgery: does follow-up help?

G. Jensen (USA)
Nutritional risks and metabolic complications of bariatric surgery: Does follow up help?

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Objectives

- Metabolic and nutritional complications of bariatric surgery
- Recommended follow up care
- Impact of bariatric surgery on nutrition support practitioners
- Accreditation standards
- Studies on follow up care in relation to weight loss outcomes and prevention of nutrient deficiencies
Bariatric surgery: a growth industry

- AHRQ study - from 1998 to 2004, the total number of surgeries increased nine times, from 13K to 121K.
- Currently in excess of 250K annually in US.
Bariatric surgeries: restrictive, malabsorptive, and combined
## Post-operative complications

**Early**
- Hemorrhage
- Perforation
- Anastomotic leak
- Fistula
- Obstruction

**Late**
- Obstruction
- Marginal ulcers
- Stomal stenosis
- Dumping syndrome
- Gallstones
Metabolic complications

- Early serious surgery-related complications like leak requiring ICU / re-operation
  - Require nutrition support for catabolic stress state with increased nutrient requirements despite obesity

- Following surgical recovery see more chronic complications like inadequate oral intake, vomiting, and diarrhea.
  - Dehydration and electrolyte abnormalities
  - Protein-calorie malnutrition
  - Nutrient deficiencies
## Nutritional Deficiencies after Bariatric Surgery

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Key Micronutrient Deficiencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAGB</td>
<td>Micronutrient deficiencies generally rare Thiamine (if persistent vomiting)</td>
</tr>
<tr>
<td>RYGB</td>
<td>Iron, Vitamin $\text{B}_{12}$, Calcium/Vitamin D, Folate, Thiamine (if persistent vomiting)</td>
</tr>
<tr>
<td>BPD, BPD/DS</td>
<td>Iron, Vitamin $\text{B}_{12}$, Calcium/Vitamin D, Folate, Fat-soluble vitamins (A, D, E and K), Protein</td>
</tr>
</tbody>
</table>
Modification of eating behaviors for roux-en-Y gastric bypass

- Reduce food volume < 45 ml
- Chew food well
- Slow pace of eating
- Ground or pureed meats
- Fluids 30 min before or after eating
- Avoid high sugar fluids and concentrated sweets
- Avoid carbonated beverages
- Consume protein-rich foods
Post-op follow up protocol

- Nutritional supplementation
  - Calcium with vitamin D, vitamin B12, iron, multivitamin with minerals, vitamin B-complex, vitamin C, zinc, and biotin

- Counseling
  - Behavioral – diet, exercise, contraception, psychological

- Lap band adjustments

- Follow up visits for monitoring of complications, nutrient deficiencies, medication adjustments, and weight loss
### Maintenance care: Recommended Follow-up

#### Follow-up Schedule

<table>
<thead>
<tr>
<th>Year</th>
<th>LAGB</th>
<th>RYGB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Every 4-6 wk</td>
<td>Months 1, 3, 6, 12</td>
</tr>
<tr>
<td>2</td>
<td>Every 3-6 mo</td>
<td>Every 6 mo</td>
</tr>
<tr>
<td>3 and after</td>
<td>Every 3-6 mo</td>
<td>Annually</td>
</tr>
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“He diagnosed her condition as life-threatening malnutrition, admitted her to the hospital and ordered intravenous feeding immediately.”

“The rapid growth of obesity surgery worries experts like Dr. Jensen, as well as some insurers and government officials, who fear that inexperienced surgeons and inadequate screening and follow-up may harm patients.”
Complications of bariatric surgery: impact on nutrition support

- Electronic survey of ASPEN membership – 467 responses
- 60% had consulted on at least 1 such patient over prior year; 20% had seen >10 patients.
- Indications for nutrition support – leak / fistula (49%), nausea / vomiting (27%)
Frequency of nutrition counseling by dietitian
Body weight used to estimate nutrition goals
Accreditation to enhance standards of care

- Necessary physical resources, human resources, clinical standards, surgeon credentialing standards, data reporting standards, and verification/approvals processes.
Accreditation criteria

- At least 125 cases past 12-mos.
- At least 2 surgeons have conducted over 100 cases each over past 24-mos.
- Multidisciplinary medical support.
- Post-op follow up 2 weeks, several weeks later, 3 mos., 6 mos., 1 year, and then annually. Lap-band requires more intensive early follow up.
- Patient rehabilitation to include dietary, exercise, psychological, and long-term care.
Patient compliance with post-op follow up care

- Multiple studies have demonstrated that poor compliance with prescribed dietary intakes and vitamin and mineral supplements is common.
- Recent studies suggest that poor compliance with scheduled clinic visits is associated with reduced weight loss.
Impact of follow-up on weight loss for LAGB and RYGB

What Happens to Patients Who Don’t Follow-up?

![Bar chart showing % EWL at 1 Year for Poor Adherence (n=42) vs Better Adherence (n=54). Poor Adherence: 65.0%, Better Adherence: 76%. P≤0.003.]

Support group meeting attendance is associated with better weight loss.


- 46 bariatric surgery patients
- Compared those who attended support group meetings to those who did not.
- Patients who attended support group meetings had greater decrease in BMI than patients who did not (42% vs 32%, p< 0.03).
Preoperative eating behavior, postoperative dietary adherence, and weight loss after gastric bypass surgery.

  - Prospective study of 200 patients.
  - Baseline cognitive restraint and adherence to recommended post op diet were associated with degree of weight loss.
  - Those with high self-reported dietary adherence at week 20 post op lost 4.5% more weight by week 92 post op.
Nutritional deficiencies after gastric bypass for morbid obesity often cannot be prevented by standard multivitamin supplementation


- 137 patients, retrospective study of 2-year follow up after gastric bypass for obesity.
- Nutrient deficiencies were very common despite multivitamin supplementation. – B12, iron, calcium / vitamin D, folic acid, thiamine, B6, Mg, and Zn.
- 59% and 98% of patients required additional supplements at 6 and 24 mos, respectively.
Proportions of patients treated with specific supplements from 3 to 24 mo after RYGBP
Conclusions

- Best practice guidelines are needed for screening, evaluation, and follow up care.
- Does follow up help improve weight loss outcomes and prevent nutrient deficiencies?
- There is limited but promising research that addresses these questions.
Obesity: A Global Concern

L'obésité est une maladie grave
qui tue 45 000 personnes par an en France.
Ce n'est ni une faute, ni une fatalité,
encore moins une plaisanterie.