The nasogastric tube in the treatment of anorexia nervosa

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Nasogastric tube – to tube or not to tube?
NASOGASTRIC (NG) FEEDING TUBE

- NG feeding is a medical process involving the insertion of a plastic tube through the nose, past the throat, and down into the stomach.

- It is used for feeding and administering drugs.

- Methods:
  - Bolus
  - Continuous
  - Combined with oral feeding
  - (24 hours vs. nocturnal/limited time)
NG TUBE – How little we know

- Nutritional rehabilitation is essential for the physical and psychological recovery of patients with anorexia nervosa (AN), yet relatively few studies have investigated the efficacy of NG feeding in this population.

- A number of books and articles have addressed ethical issues of NG use in AN - usually present anecdotal accounts but virtually no data on the efficacy of NG feeding in terms of prognosis.
NGT feeding – Short term outcomes

- Several studies have established that nasogastric feeding accelerates weight gain and decreases time taken to weight restoration compared with oral refeeding, thereby shortening inpatient treatments.

- Since the rate of inpatient weight restoration is a predictor of good outcome in AN, the advantages of tube feeding are self-evident.
Nonrandomized retrospective review of 381 female inpatients with a diagnosis of AN, both subtypes:

- 155 patients received tube feeding and oral refeeding
- 226 received oral refeeding alone.

Psychological recovery from AN measured by change in Eating Disorder Inventory-2 scores between admission and discharge.

Patient satisfaction with treatment was measured with a patient satisfaction questionnaire completed at discharge.
NGT feeding – Long term outcomes

- There are almost NO empirical studies on the long-term implications of nasogastric feeding!!!!!!

- Although TF seems effective at promoting weight gain during inpatient treatment, we do not know whether inpatients who receive TF have a differential postdischarge course of recovery.
NGT feeding: PROs VS CONs
NGT feeding - advantages

- More difficult to “cheat”.
- Rapid weight gain
NGT feeding - Disadvantages

- Complications are rare, but may include: pulmonary hemorrhage, empyema, esophageal perforation, pneumothorax, pleural effusion, and pneumonitis (Fater, 1995).

- Patient can easily remove tube. This is a common occurrence in clinical practice as patients resist interventions designed to aid refeeding.

- Repeated reinsertions of the tube increase the risk of complications.

- Intrusive and invasive: potential to mirror many of the dynamics in someone who has previously experienced abuse or trauma.

- Patients’ increased resistance to all aspects of care and overdependence on tube feeding to the exclusion of oral intake of food and water.
Best practices remain the province of clinical opinion and expert consensus with little guidance from empirical studies.
NGT feeding: a controversial issue

Titles of published articles reflect controversy:

- “Efficacy of voluntary nasogastric tube feeding in female inpatients with anorexia nervosa” (Zuercher et al, 2003)

- “Supplemental nocturnal nasogastric refeeding for better short-term outcome in hospitalized adolescent girls with anorexia nervosa” (Robb et al, 2002)
NGT feeding: a controversial issue

Titles of published articles reflect controversy:

• “Tube Feeding: Is It Ever Necessary? (Larocca & Goodner, 1986)
• “Why tube feeding may be the wrong answer” (Olender, 1989)
• “The Death of Nasogastric Tube Feeding” (Leichner, 2004)
Approaches to NG feeding

- Refeeding of > 300 adolescents with AN (mean BMI 14.1)
- Continuous nasogastric tube feeds initially
- Graduating to intermittent daytime oral feeds
- Reintroduction of oral feeding once medically stable
- Tolerance by patients and families reported
- No difficulties reported with reintroduction of food
- No psychological trauma described

Kohn and Madden, 2007
Approaches to NG feeding

- Tube feeding not as a substitute for oral intake.
- 4- to 8 hours overnight.
- Patients were educated about tube feeding.
- Patients expected to eat a regular diet: balanced 3 meals and 2 snacks throughout treatment.
- Used only with cooperation and choice; never punitively or against patient’s will.

Zuercher et al, 2003
Robb et al, 2002
Approaches to NG feeding

- Patients agreed beforehand to oral food intake + NG
- NG tube immediately applied on admission
- Oral intake of food assessed after each meal
- Supplement given as constant infusion over 24 hrs
- Tube feeding lasted mean of $20.7 \pm 7.1$ days
- Suspended gradually as patients consumed more food
Dr Eitan Gur, Director of ED Department, Chaim Sheba Medical Center

We are using nasogastric tubes in patients of substantially reduced body weight who are at risk of developing refeeding syndrome and who find it difficult to eat significant amounts of food.

We start by tapping slowly throughout the day, moving to boluses, then a combination of soft nutrition with a nasogastric tube, and finally full nutrition.

The rate of progress depends, of course, on the patient’s physical condition and laboratory tests.

Dr. Eitan Gur, Director of ED Department, Chaim Sheba Medical Center
When children are admitted to our department they eat freely in the first week to adjust and to enable us to see how they eat. If they eat very little, they receive a meal plan; if they still eat very little they receive a liquid supplement; if they still consume very little they receive an NG tube for one week. Thereafter, if girls do not consume 2800 calories or boys 3000 calories, they are placed on an immediacy regimen: If they do not finish any meal they receive an NG tube for one week. Once kids are consuming their daily target menu they are put on a weekly plan. They receive an NG tube for one week if they gain less than 0.5 kg per week. This plan continues until patients are within 2 kgs of target weight. If their weight drops under 2 kgs of their target they are placed on a week-long NG tube feeding again.
Personal communications

Professor Omer Bonne, Chair, Department of Psychiatry, Hadassah University Medical Center

For patients under BMI 12
We give preference to feeding per os where possible. We recently admitted a 57 year old pt who has had AN for the past 40 years with bmi 9.3, who received only food and liquid supplements, with no parenteral or enteral tube feedings.
We only use NG very rarely and in fact for our population with BMI of 7.5 -11 if for some reason we can't use progressive oral, we use PEJ tubes to prevent purging. With PEJ we start with 24 hour continuous and progress to 18 hour nocturnal with per os liquid oral feeding unless persistent hypoglycemia forces ongoing continuous.
Personal communications

Cofounder and Medical Director of Comenzar de Nuevo Eating and Emotional Disorders Center:

We basically only use food for refeeding. We take care that visually the presentation of the plate does not exceed the amount in a “normal plate”, so the rest of the calories are given through oral supplements. We very, very rarely use NG tubes if ever (1%).
If the patient is voluntary, we use food, even down to very low BMI's - our lowest weight patient was at 9.8. We have treated nearly 1000 patients in the AN program here since 1993 using this approach: the notion that NG feeds are somehow superior to oral feeds nutritionally is hokum. The use of long-term NG feeding for voluntary patients is not necessary, and likely deleterious.

Some sites offer the option of eating regular food...and at the first episode of non-completion switch the patient to feeds.
Here's how I'd describe our approach at Douglas. We apply NG tube feeding very rarely. I can assert that we have used an NG tube about once over the last 12 years. We always give preference to oral food intake (when possible), and shift to oral intake asap after administration of an NG tube. [emphases are the author’s]
Our approach is to use NGT feeds only when medically necessary and discontinue them as soon as possible. We recently used NGT feeds exclusively in a patient (BMI 9.7) with markedly elevated LFT’s for 2 or 3 days, then started introducing solid food and transitioned to 100% solid food (3 meals, 3 snacks) after about 3 more days.
Personal communications

Dr. Debra Katzman, Head of Division of Adolescent Medicine, Department of Pediatrics

Our policy is to use NG feeding under extreme circumstances, when patients cannot/refuse to eat. We make sure that they understand that the NG will help them initially to get over this challenging time.
Personal communications

Dr Michelle Jorgensen, Medical Director, ED Unit, Meritcare Hospital, Fargo, North Dakota:

We have felt as a program that we have to teach patients to eat normally. We use NG feeding in 2 ways: First, if a patient is unable to eat orally we offer the support of an NG tube. If they can get in all their assigned calories, nothing goes in the tube. If they cannot get in their calories for that meal, we immediately bolus the caloric value of what they can’t eat. So the patient always can attempt food first. If they don’t use the tube for 48 hours we remove it. This has worked well for us and we average one patient every 2 to 3 months who needs an NG tube.
The second place we use NG tube is for patients with high caloric needs... when a patient is approaching. 3500-4000 calories a day its VERY hard to eat all that food.... We will then give patients what they would have to eat once they get to goal weight to maintain their weight, and put the rest of the calories in a tube feed while they are sleeping at night. About 1 in 2 patients who we offer this to will decide to do it this way.

...We are currently refeeding a patient at a 10 BMI with food. She does at time refuse to eat a meal or snack, and we then work with her therapeutically to get in as many calories as possible. If she refused food on a regular basis we would support her with an NG tube...
In conclusion

- The use of the NGT feeding in the treatment of AN raises many unanswered questions about best practice in treatment management.
- More research is needed in order to determine long term effect and best practice.