Adverse events and unintended consequences

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Woman who had poo transplant to treat superbug infection becomes OBSESE after being given faeces from her overweight daughter
Weight Gain After Fecal Microbiota Transplantation

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Fecal microbiota transplantation (FMT) is a promising treatment for recurrent Clostridium difficile infection. We report a case of a woman successfully treated with FMT who developed new-onset obesity after receiving stool from a healthy but overweight donor. This case may stimulate further studies on the mechanisms of the nutritional-neural-microbiota axis and reports of outcomes in patients who have used non-ideal donors for FMT.

Keywords. Clostridium difficile infection; fecal microbiota transplantation; gut microbiota; obesity.
Microbiome and Weight

• Microbiomes in obese and lean humans
  – decreased Bacteroidetes in obesity [Nature 2006; 444: 1022-3]

• Animal models
  – obese mice donors increase adiposity in recipients
  – co-housing with lean mice reverses changes (coprophagic)
  – detectable alterations in Bacteroidetes populations [Science 2013; 341: 1241214]
Obese to lean

• Metabolic syndrome
  – increased insulin sensitivity [Gastro 2012; 143:913-6]
  – higher Bacteroidetes in obesity [cf previous slide]
  – increased populations of butyrate producing organisms
Your weight may go up as well as down
The models used are for illustration purposes only, and you may need to be called Barbie to achieve these effects
Your house is at risk if you do not keep up repayments
Current trials for FMT on clinicaltrials.gov

C. diff
IBS
UC
Crohn’s
Pancreatitis
Metabolic Syndrome
AML therapy
Resistant organisms
Primary Sclerosing Cholangitis
Constipation
NASH
Obesity
Pseudo-obstruction
Post-HSCT
Hepatic encephalopathy
Epilepsy
TIIDM
MRSA
HIV
Hep B chronic liver failure
Pouchitis
Alcoholic hepatitis
NAFLD
Kidney Transplantation
Incontinence
Liver Transplantation
Total Body Irradiation
Chemotherapy
Multiple Myeloma
Autism
Parkinsons
Behaviour
Circadian rhythm
Asthma
Hypertension
Ischaemic heart disease
Food allergy
Behçets
Colorectal Cancer
TIDM
MS
Rheumatoid
SLE
Necrotising enterocolitis
Stroke
Depression
Coeliac disease
Microbiota and cancer

• Potential implications reported in
  – colon cancer [J Cancer 2017; 8: 3378-95]
  – multicentric lymphoma in dogs [Vet Comp Onc 2017; in print]

• But we test extensively for BBVs pre FMT
Published data on side effects

• Adverse events in faecal microbiota transplant: a review of the literature, Baxter et al 2016
Common adverse events (FMT for CDI)

- Alteration of bowel habit (IBS-like/constipation/irregularity) (3%)
- Abdominal distension, bloating or cramping (2%)
- Flatulence (2%)
- Diarrhoea (2%)
- Abdo pain (1%)
- Fever (1%)
Common adverse events (FMT for CDI)

• Generally mild, self-limiting and GI related
Procedural related events

• Endoscopy
  – mucosal tears
  – microperforations
  – aspiration
    • at least 2 deaths reported
      – witnessed aspiration at time of sedation for colonoscopy [Kelly et al, Am J Gastro 2014]
      – witnessed aspiration of FMT at OGD [Baxter et al, CID 2015]
      – (toxic megacolon and septic shock [Solari et al, CID 2014])
Fatal aspiration

• 80 y.o. male
  – vasculopathy, osteoarthritis, gout
  – recurrent CDI
• 2 x metro, 4 x vanc, 1 x fidax
• PMC confirmed on flexi-sig
• Failed radiological placement of NJ (? anatomical)
• Failed endoscopic placement of NJ (epistaxis)
• GA with endoscopic placement in distal duodenum
Fatal aspiration

- 150ml FMT
- Aspiration during 3rd 50ml aliquot
- Sepsis ensued
- Sputum = E. coli and PSAE
- Blood cultures = f/s E.coli
- Death 48 days post FMT
- Remained negative for C.diff (days 4, 11, 13, 42)
SUI

• Lessons and actions
  – Absolute transparency
  – Literature review
  – Reduced aliquots
  – Avoid sedation/GA where possible
    • If used consider protected airway methods
  – Caution in patients where things just don’t go quite to plan