Postoperative Ileus

Definition
Pathophysiology
Research models
Problems
Treatment
Definition

Functional inhibition of propulsive bowel activity

Abdominal distension, nausea, vomiting, delayed defecation

Normal after abdominal and remote operations, up to 3 days

Lack of spike waves, memb. hyperpolarisation
Definition

Return to normal motility
Stomach 24-48h, small bowel within 24h
(R) colon 24-48h, (L) colon 48-72h

Postoperative ileus
Postoperative paralytic ileus
Physiology of colonic motility

Control Factors
Myogenic
Neurogenic
Hormonal
Myogenic factors

**ECA** Electrical control activity, slow waves
**DERA** Discrete electrical response activity, spikes
**CEC** Contractile electrical complex
**CERA** Continuous electrical response activity
ECA

Originate in inner circular layer
Omnipresent oscillation of sm memb. pot.
2 to 14 cycles/min
DERA

Action potentials superimposed on ECA
Occur only in response to ECA
Correlates on 1-to-1 basis with segmental contractions
DERA and contractions not a/w every ECA osc
CEC

Originate in long. layer
Long duration electrical oscillation
Controls occurrence of CERA
CERA

Long duration contractions lasting thru’ one or more ECA cycles

CEC and CERA associated on a 1-to-1 basis with colon contractions
Contractions

ECA and DERA control mixing of colonic contents
CEC and CERA effect propulsion of colonic contents
Migrating Motor Complex (MMC)

Fasting state, several min every hr
Phase I  Near complete absence of spike waves
Phase II  Intermittent increasing spike waves
Phase III  Large no. of spikes with every slow wave
Phase IV  Burst of activity ends rapidly

Eating disrupts this pattern and a generalised pattern of increased spike waves occurs, representing corresponding changes in contractile peristaltic patterns of the bowel and its response to food
Neurogenic Factors

Parasymp. (+)
Sym. (-)

Myenteric plexus
Submucosal plexus
Hormonal Factors

CCK, gastrin, VIP, GIP, motilin, serotonin, ATP, PG's, somatostatin, substance P, vasopressin, neurotensin, glucagon, somatostatin, calcitonin gene-related peptide
Research models

Subprimates
Primates
Humans
Clinical evaluation
Biochemical measurement
Balloon kymography
Transit studies
Intraluminal pressure
Myoelectric activity
Postop intest. motility following conventional and lap intest. surgery
Bohm et al

Recovery from postop ileus after lap surgery is more rapid in the canine model
Lap colectomy shortens postop ileus in a canine model
Canine intest myoelectric activity after open vs lap assisted (R) hemicolecetomy

No difference
Epidural analgesia shortens postop ileus after IPAA
Epidural analgesia does not shorten postop ileus after IPAA
PCA after uncomplicated colectomy increases the risk of prolonged postoperative ileus.
Ketolorac prevents postop small intestinal ileus in rats
Effect of i/v erythromycin on postop ileus
250mg q8h x 9 doses
No effect
Oncotic pressure, albumin and ileus

Albumin replacement had no effect on postop ileus
VIP and substance P receptor antagonists improve postop ileus
Treatment of acute postop ileus with octreotide

Octreotide shortened the duration of postop ileus in the small bowel and colon of dogs
PG F2alpha and cisapride may be useful as prokinetic agents to promote recovery of postoperative ileus after the reappearance of MMCs.
There was no diff in duration of postop ileus regardless of whether i/c or e/c mesen division and anas were undertaken.
Garcia et al

LC vs CC+ injection of 20 ml 0.5% bupivacaine into mesen. root
I/v lidocaine speeds the return of bowel function, decreases postop pain and shortens hospital stay in patients undergoing radical retropubic prostatectomy.
Homeopathy for postop ileus? A meta-analysis

There is evidence that homeopathy can reduce the duration of ileus after abdominal and gynecologic surgery.
Problems

- Retrospective vs trials
- Animal models
- Different end-points
- Confounding factors
Problems

Return of MMC after Abdominal Surgery. End of Postoperative Ileus?
Problems

Conscious effort of preventing fecal evacuation may itself alter colonic motility
Myths

Mechanism for postop ileus is largely independent of the site and extent of operative dissection, length of operation and degree of intestinal handling ..... !! ??
Treatment

General
Specific
Prokinetic drugs

Metoclopramide antidopaminergic benzamide
Domperidon antidopaminergic
Cisapride indirect cholinergic, 5HT
R093877 benzofuran, 5HT4
Surgical manipulation of the gut elicits an intestinal muscularis inflammatory response resulting in postsurgical ileus