

# Foodborne illness – clinical aspects.

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# Objectives

- Role of GP
- Evaluation
- Stool examination
- Chemotherapy
- Summary
- References

# Role of GP

- Recognize foodborne etiology in a patient's illness;
- Realize: not all cases of foodborne illness have GIT sympt.
- Obtain stool cultures in appropriate settings,
- Testing for some specific pathogens, eg, *E. coli* O157:H7, *Vibrio* spp., must be requested;
- Report suspect cases to appropriate public health officials;
- Talk with patients about ways to prevent food-related diseases; and
- Appreciate that any patient with foodborne illness may represent the sentinel case of a more widespread outbreak.
- Recognize red flags
- Avoid red herrings!

# Differentiating between a viral illness and food borne disease

- Fever, diarrhea, and abdominal cramps not good indicators
- Viral: myalgias or arthralgia.
- Foodborne:
  - dysentery and
  - paresthesias, weakness, and paralysis
- Very often you will still be in doubt!!

# Key points for safe management.

- Epidemiologic evaluation: type of exposure.
  - travel, ingestion of raw or undercooked meat, seafood, or milk products, contacts who are ill, day care or institutional exposure, recent antibiotic use
- Clinical evaluation: type of illness
  - febrile, hemorrhagic, nosocomial, persistent, or inflammatory
- Type of Patient: Immunocompromised ?

# Who's at risk?

## **Weakened immune system**

AIDS (or HIV)

Malnutrition

Transplants (patients taking

immunosuppressants)

Cancer

Sickle cell anemia

Cystic fibrosis

Anyone without a spleen

Liver, lung, kidney disease/  
dialysis patients, diabetes  
or heart disease

corticosteroids (within the  
last year) chemotherapy

and pts. taking  
azathioprine, cyclosporin A

**Young children** - esp  
under 5 years

**Elderly people** -  
institutionalised

**Pregnancy** – Listeria in  
first trimester

# Investigate and/or refer.

- Bloody diarrhea
- Weight loss
- Diarrhea leading to dehydration
- Fever
- Prolonged diarrhea (3 or more unformed stools per day, persisting several days)
- Neurological involvement such as paresthesias, motor weakness, cranial nerve palsies
- Sudden onset of nausea, vomiting, diarrhea
- Severe abdominal pain

# Vomiting as Primary Symptom

## ➤ Viral:

- rotavirus in infant
- Norwalk-like agent children and adults

## ➤ Preformed toxins

- Staph. Aureus and Bacillus cereus
- Heavy metals

# Non-Inflammatory Diarrhea

acute watery diarrhea without fever/dysentery  
mucosal hypersecretion, small intestine, little dehydration except  
children and elderly

- All enteric pathogens but particularly
  - Enterotoxigenic E Coli
  - V Cholerae
  - Enteric Viruses (astrovirus, rotavirus, enteric adenovirus)
  - Cryptosporidium

# Inflammatory Diarrhoea

invasive GE, gross bloody stool, large intestine, ± fever, cramps, headache, nausea, vomiting, malaise, myalgia

- Shigella
- Salmonella
- Campylobacter
- Enteroinvasive E Coli
- Enterohemorrhagic E Coli
- Entamoebahistolytica
- Yersinia enterocolitica

# Persistent Diarrhoea > 14 d

- Parasites – travellers /untreated water
  - Cryptosporidium
  - E Histolytica
  - Giardia

# Neurologic Manifestations

- Botulinism – Clostridium Botulinum toxin
- Organophosphate poisoning
- Shellfish
- Certain fish foods
- Guillan-Barre ass with infectious diarrhea due to C.Jejuni.

# Systemic Illness

- Listeria
- Brucella
- Hepatitis A

# Differential Diagnosis

prolonged illness and relevant co-morbidity

- IBS and IBD
- Malignancy
- Medication
- GI surgery
- Malabsorption
- Radiation
- Immune Deficiency

# Ask for...

- Travel
- Occupation
- Emotional Stress
- Sexual Practices
- Exposure to other ill persons
- Institutional care
  - Recent hospitalisation
  - Child care
  - Nursing Home residence

# Stool cultures.

- immunocompromised,
- febrile,
- bloody diarrhea,
- severe abdominal pain,
- illness is clinically severe or persistent.
- many fecal leukocytes are present,
  - diffuse colonic inflammation/suggestive of invasive bacterial pathogens such as *Shigella*, *Salmonella*, *Campylobacter* species, + invasive *E. coli*.
- Routine stool cultures: screening for *Salmonella* *Shigella* and *Campylobacter jejuni/coli*.
- Cultures for *Vibrio* and *Yersinia* species, *E. coli* O157:H7, and *Campylobacter* species other than *jejuni/coli*
  - additional media or incubation conditions and therefore require advance notification or communication with laboratory and infectious disease personnel.

# Stool examination.

Fresh stool only please!

➤ leucocytes

➤ parasites

- travel histories,
- immunocompromised,
- chronic or persistent diarrhea,
- diarrheal illness is unresponsive to appropriate antimicrobial therapy.
- a long incubation period.
- ova and parasite examination of a stool specimen - *Giardia lamblia* and *Entamoeba histolytica*,
- special request may be needed for detection of *Cryptosporidium parvum* and *Cyclospora cayetanensis*.
- contact your laboratory.

# Appropriate treatment

- self limiting disease
  - fluid replacement and supportive care.
  - Oral rehydration: mildly to moderately dehydrated; IV
  - Many antidiarrheal agents have potentially serious adverse effects in infants and young children
  - routine use is not recommended in this age group.
- identification of pathogen (if possible) and
- determining if specific therapy is available.

# Choice of antimicrobial therapy

- Clinical signs and symptoms;
- Organism detected in clinical specimens;
- Antimicrobial susceptibility tests;
- Appropriateness of treating with an antibiotic (some enteric bacterial infections are best not treated).

# Empiric antimicrobial therapy.

- Traveler's Diarrhoea and
- Febrile diarrheal illnesses esp. if mod/severe
  - fluoroquinolone or TMP-SMZ in children
    - Send stool culture before Rx
    - Quinolone resistant Campylobacter and risk of increased severity of illness by elimination of commensal flora.
- Long lasting Diarrhea - ? Giardiasis especially if Stool negative and travel
  - Metronidazole

Evaluate severity and duration  
Obtain history and physical examination<sup>1-5</sup>  
Treat dehydration  
Report suspected outbreaks<sup>6</sup>  
Check all that apply:<sup>7</sup>

### A. Community acquired or traveler's diarrhea

(esp. if accompanied by significant fever or blood in stool)

Culture or test for:

*Salmonella*

*Shigella*

*Campylobacter*

*E. coli* O157:H7 (if blood in stool also test for Shiga toxin and refer isolates if toxin pos.)

*C. difficile* toxins A±B (if antibiotics or chemotherapy taken in recent weeks)



Consider quinolone for suspected shigellosis in adults (fever, inflammation); macrolide for suspected resistant *Campylobacter*; avoid antimotility or certain antimicrobial drugs if suspected STEC (afebrile, bloody diarrhea)<sup>8</sup>

### B. Nosocomial diarrhea

(onset after >3 d in hospital)

Test for

*C. difficile* toxins A±B

(In suspect nosocomial outbreaks, in patients with bloody stools, and in infants, also add tests in panel A)



Discontinue antimicrobials if possible; consider metronidazole if illness worsens or persists

### C. Persistent diarrhea >7d

(esp. if immunocompromised)

Consider parasites<sup>9</sup>

*Giardia*

*Cryptosporidium*

*Cyclospora*

*Isospora belli*

+ Inflammatory screen<sup>7</sup>

If HIV pos., add:

*Microsporidia*

(Gram-chromotrope)

*M. avium* complex

+ panel A



Treat per results of tests

# References:

- [http://www.guideline.gov/summary/summary.aspx?ss=15&doc\\_id=5266&nbr=3593#s23](http://www.guideline.gov/summary/summary.aspx?ss=15&doc_id=5266&nbr=3593#s23)
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