

15th lecture:

H-pylori

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Helicobacter Pylori

History:

- The hypothesis that bacteria could cause GI problem started in 1906. But it wasn't acceptable.
- Discovered by evidences in 1982 by Warren and Marshall. It was called *Campylobacter pyloridis*.

The evidence:

- The diseases was treated successfully with antibiotics
- They isolated bacteria
- Self-experiments; Marshall, the physician who discovered H. pylori, ingested H. pylori. After a while (7 to 10 days), he developed some GI symptoms. After endoscopy, they found pathological changes indicating gastritis. Then he had himself treated by antibiotics.
- Hundreds of studies followed
- NIH (National Institute of Health) 1994 H. pylori infection was concluded to be a major cause of peptic ulcer and recommended that antibiotic therapy become the mainstay of treatment.

Prevalence:

It is a worldwide problem

↑50% infected

Developed vs. developing more in developing (it's an infection so it's related to sanitation.)

Differences in prevalence due to a variety of factors?

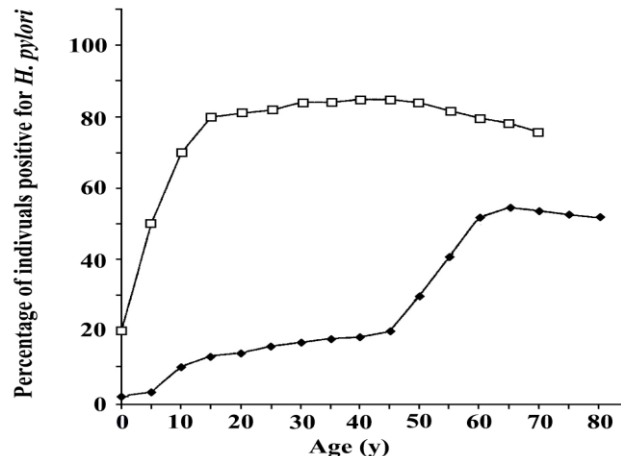


Figure 1. Prevalence of *Helicobacter pylori* infection according to data from 14 developed countries (◆) and 24 developing countries (□).

Source reference # 6

Factors associated with prevalence of H. pylori:

- Age
- Ethnicity
- Socioeconomic Status
- Household crowding
- Migration from high prevalence regions

Age: Prevalence of H. pylori ↑ with age

Q. Does that reflect an ↑ of risk with age?

Prevalence increase with age while the incidence decrease with age (because the older the person get the more sensitizer he become) (example: 1000 eighteen year old students tested for the bacteria. 200 (incidence =20%, prevalence=20%) of them tested +. after 10 years 50 (incidence=12.5%, prevalence 30%) of the remaining uninfected students tested +. If someone passes his childhood without getting infected his chance of developing it now is small Helicobacter Pylori 3

The incidence increase among previous infected persons .

- Birth cohort effect
- Cohort studies
- Childhood (factors)
- Peak of acquisition between 3-4 yrs

Ethnicity:

- Prevalence of H.pylori differs by ethnicity
- In US more among Blacks and Hispanic (lowest in whites)
- In Germany more among Turkish
- In Singapore Indians>Chinese>Malays

• Why?

* Is it due to genetic differences, deferent lifestyle and standard of living.

* Is it other factors such as:

- Crowding.
- Poverty.
- Education.
- Origination from highly prevalent areas.

Marker of a variety of lifestyle exposures, such as differences in standards of living or sanitation practices

Socioeconomic status (SES):

- Studies showed an inverse relationship (the higher the socioeconomic status the lower the incidence).
- Some studies showed absence of the association between prevalence of H.pylori and SES level.

*Q. How could you explain that?

- Many individuals have changed their status since childhood (i.e. 20 years ago the standard of living were lower than now. This is mainly in developing countries). They may acquire the infection in a deferent SES than now. Most likely they were classified by their current SES.

- * How was the question asked?
- * Persistence
- * Due to limited variation in SES
- * Probably obscured due to complexity of defining and measuring SES

Detection of H. pylori infection:

- Invasive
- Noninvasive

Invasive tests:

- Biopsy urease test
- Histologic examination
- Microbiologic culture

Noninvasive tests:

- Serologic assays
- Urea breath tests (H.pylori is an ureas producing organism)
- Stool antigen test
- Helicobacter Pylori 5

Transmission:

- Although this infection appears to be transmitted directly from person-to-person, the precise pathway from one person to another is controversial and it is not known if other modes of transmission are involve
- Not well understood
 - * Oral-oral
 - * Fecal-oral
 - * Gastro-oral
 - * Waterborne
 - * Zoonotic