Screening brief

Helicobacter pylori testing in screening for the prevention of stomach cancer

Stomach cancer mortality (England and Wales 1997)
- Men 4046 deaths (1.5% of all deaths); women 2567 deaths (0.9%)
- Incidence is declining over time; age-specific death rates in England and Wales 20 years ago were double the present rates

Acquisition and prevalence of H pylori infection
- Acquired in childhood by person to person transmission; risk relates to markers of overcrowding (including number of siblings) and socioeconomic deprivation.[1–3] Prevalence, like stomach cancer mortality, is declining in successive birth cohorts. Since 1990 prevalence estimates have been about 15% under age 20, 35% aged 20–49, 50% aged 50–69, 65% over 70[1–3] Different strains of *H pylori* exist (for example, CagA positive and negative) and may confer different risks of stomach cancer

Pathological changes in infected subjects
- Asymptomatic infected subjects all show histological chronic active gastritis on endoscopy.[4 5]

Screening
- ELISA testing for IgG antibody detects about 90% of infected subjects[3 6]; false positive rate about 2%

Eradication treatment
- A one week course of three drugs—a proton pump inhibitor and clarithromycin and metronidazole or amoxycillin eradicates the infection in over 90% of subjects who take the treatment

Relation between H pylori infection and stomach cancer
- The chronic inflammation that *H pylori* induces may, over many years, lead to atrophic gastritis, which predisposes to cancer. The *H pylori* infection may be lost with atrophic gastritis. Because of this, case-control and short term cohort studies underestimate the strength of the relation with cancer; for deaths occurring more than 10 years after blood collection the relative risk is about 6.[7]

Assessment of screening for stomach cancer

If *H pylori* affects an early stage it could be decades before eradication reduces mortality. Identifying and treating infected persons in middle age may, therefore, not be worthwhile. A long term randomised trial is necessary to resolve this; one such trial, supported by the Cancer Research Campaign, is underway in Britain

H pylori and other diseases
- *H pylori* infection is associated with three other disorders, but screening healthy people and treating those infected is not justified in the prevention of any of these
- Peptic ulcer: *H pylori* is present in about 80% of patients with symptomatic gastric ulcer and 95% with symptomatic duodenal ulcer.[3] There is no evidence that treating the infection in asymptomatic people before they develop symptomatic ulcers, rather than treating the infection after clinical presentation and diagnosis, leads to a significantly greater reduction in mortality
- Dyspepsia not due to peptic ulcer: In randomised trials effective eradication treatment causes symptomatic improvement in few (<10%) *H pylori* infected subjects with non-ulcer dyspepsia.[8–10] Some people with uninvestigated non-specific dyspepsia may benefit from population screening, but evidence on this is lacking and at best there would probably be too few to justify the cost
- Ischaemic heart disease: The association in some studies is probably attributable to confounding (*H pylori* and heart disease both occur in poorer people and so will be indirectly linked in a socioeconomically mixed cohort).[11] Studies that minimise this show no association[11 12]

Other methods of screening for stomach cancer
- Endoscopy and barium meal examinations have been used as screening tests for stomach cancer, but these approaches are not the subject of this screening brief

Overall assessment
- Screening asymptomatic people and treating those with *H pylori* infection has not been shown to be worthwhile

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