Antibiotic Regimes for Eradication of *Helicobacter pylori*

Ref: CG-ANTI/2018/050

Introduction

Helicobacter pylori (H. pylori) infection is known as one of the most common causes of peptic ulcer disease. Furthermore, non-steroid anti-inflammatory drug use can further exacerbate symptoms if there is co-existent *H. pylori* infection. Acute and chronic gastritis, gastric cancer, and gastric mucosa associated lymphoid tissue lymphoma also have associations with *H. pylori.*

Investigation

"The presence of *H. pylori* should be confirmed before starting eradication treatment ('test and treat' strategy).

Testing for *H. pylori* is recommended in the following patients in line with Public Health England (PHE) Guidance:

- Patients with uncomplicated dyspepsia and no alarm symptoms who are unresponsive to lifestyle changes and antacids, following a single one month treatment course with a proton pump inhibitor;
- Patients considered to be at high risk of *H. pylori* infection (such as older people, individuals of North African ethnicity, and those living in a known high risk area) should be tested for *H. pylori* infection first, or in parallel with a course of a proton pump inhibitor;
- Previously untested patients with a history of peptic ulcers or bleeds;
- Prior to initiating NSAIDs in patients with a prior history of peptic ulcers or bleeds;
- Patients with unexplained iron-deficiency anaemia after endoscopic investigation has excluded malignancy, and other causes have been investigated."

See PHE guideline for further information on testing and re-testing.

Test for *H. pylori* using a faecal antigen test. PHE advise that the antigen test should not be performed within 2 weeks of treatment with a proton pump inhibitor or within 4 weeks of antibacterial treatment, as this can lead to false negatives.

Note that these guidelines assume normal renal and hepatic function. The doses of many antibiotics should be reduced in renal or hepatic impairment. They may also not be suitable for use in pregnancy. Please discuss this with a pharmacist.

Treatment

"Treatment of *H. pylori* usually involves a triple-therapy regimen that comprises a proton pump inhibitor **and** 2 antibacterials. PHE advise that the choice of antibacterials should take into consideration the patient's antibacterial treatment history, as each additional course of clarithromycin, metronidazole, or quinolone increases the risk of resistance."

All courses are for 7 days unless stated otherwise
If the ulcer is large or complicated by haemorrhage or perforation then the PPI should be continued for at least another 3 weeks.

Note: Although omeprazole is listed in the regimes below, if the patient is already on a different PPI, these can be used instead, at the following doses:

Lansoprazole 30mg bd
Esomeprazole 20mg bd
Pantoprazole 40mg bd
Rabeprazole 20mg bd

First line

Omeprazole 20mg bd

Amoxicillin 1g bd

Metronidazole 400mg bd OR clarithromycin 500mg bd, depending on previous exposure

First line if allergic to penicillin and no previous exposure to clarithromycin

Omeprazole 20mg bd

Clarithromycin 500 mg bd

Metronidazole 400mg bd

First line treatment if allergic to penicillin and previous clarithromycin exposure

Omeprazole 20mg bd

Metronidazole 400mg bd

Bismuth subsalicylate 262.5mg chewable tablets (Peptol bismol tablets) 525mg (2 tablets) qds (unlicensed)

Tetracycline 500mg qds (unlicensed)

(Note: Pepto-bismol tablets are not prescribable on FP10 so will have to be supplied from the hospital)

Note that these guidelines assume normal renal and hepatic function. The doses of many antibiotics should be reduced in renal or hepatic impairment. They may also not be suitable for use in pregnancy. Please discuss this with a pharmacist.

Second line treatment if still symptomatic after first line eradication.

Omeprazole 20mg bd

Amoxicillin 1g bd

Metronidazole 400mg bd OR clarithromycin 500mg bd, whichever was not used for first line

Second line treatment if previous exposure to both clarithromycin and metronidazole.

Omeprazole 20mg bd

Amoxicillin 1g bd

Tetracycline 500mg qds (or levofloxacin 250mg bd (unlicensed) if a tetracycline cannot be used)

Second line treatment if allergic to penicillin and no previous quinolone exposure

Omeprazole 20mg bd

Metronidazole 400mg bd

Levofloxacin 250mg bd (unlicensed)

Second line treatment if allergic to penicillin and previous quinolone exposure

Omeprazole 20mg bd

Bismuth subsalicylate 262.5mg chewable tablets (Peptol bismol tablets) 525mg (2 tablets) qds (unlicensed)

Metronidazole 400mg bd

Tetracycline 500mg qds (unlicensed)

Some clinicians favour using this regime for 14 days rather than 7 days when used as second line treatment.

(Note: Pepto-bismol tablets are not prescribable on FP10 so will have to be supplied from the hospital)

Seek advice from a gastroenterologist if eradication of *H. pylori* is not successful with second-line treatment

Note that these guidelines assume normal renal and hepatic function. The doses of many antibiotics should be reduced in renal or hepatic impairment. They may also not be suitable for use in pregnancy. Please discuss this with a pharmacist.

Safety issues with quinolones

The CSM has warned that quinolones may induce **convulsions** in patients with or without a history of convulsions; taking NSAIDs at the same time may also induce them. Note levofloxacin can prolong the QT interval.

The MHRA have issued an alert on restrictions and precautions for fluoroquinolone antibiotics following a review of prolonged, serious, disabling and potentially irreversible side effects. The serious side effects include tendonitis**, tendon rupture**, arthralgia, pain in extremities, gait disturbance, neuropathies associated with paraesthesia, depression, fatigue, memory impairment, sleep disorders, and impaired hearing, vision, taste and smell. Patients, who are older, have renal impairment or have had solid organ transplantation and those being treated with a corticosteroid are at higher risk of tendon damage. Concomitant treatment with a fluoroquinolone and a corticosteroid should be avoided**.** Patients should be advised to stop treatment with a fluoroquinolone antibiotic at the first sign of a side effect involving muscles, tendons or joints and the nervous system. Click here for further information and here for the patient information leaflet.

Fluoroquinolones may also be associated with a small increased risk of **aortic aneurysm and dissection**, particularly in older patients and those with a personal or family history of aortic aneurysm or dissection. Fluoroquinolones should only be used after careful assessment of the benefits and risks and after consideration of other therapeutic options. Click here for the MHRA advice.

References

Joint Formulary Committee. *British National Formulary* (online) London: BMJ Group and Pharmaceutical Press. Available at: http://www.medicinescomplete.com (Accessed on 18/05/2022)

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Public Health England. 2019. Test and treat for Helicobacter pylori (HP) in dyspepsia. Available at: HP_Quick_Reference_Guide_v18.0_August_2019_change_highlighted.pdf (publishing.service.gov.uk) (Accessed on 18/05/2022)

Document Control

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