Background

More than a decade ago, it was widely accepted that “standard” one triple therapy for H. pylori eradication (HPER) would result in success rates of around 90%.

In 2010 pooled results from randomised controlled trials (total n=10,000 pts.), evaluating standard triple therapy as the comparator/control arm, only revealed a median rate of 78.5%, thus not 1/10, but nearly 2/10 patients will experience of HPER failure during first line treatment. Compared to what should be aimed at (according to Graham D et al), this would translate into a number-needed-to-harm (NNH) of 9!

Methods

Factors associated with H. pylori were extracted from the literature, either available as meta-analysis, pooled individual patient data, or - exceptionally - from individual prospective factors. Factors putting patients at risk were assessed against appropriate controls, checked for bias and the results given as RR, OR, ADR (95%-CI, CI).

Result factors were then grouped as relevant if NNH <15 and easy to integrate into clinical routine and sufficient data quality; as indeterminate if NNH 15-25 or difficult to integrate into clinical routine or insufficient data quality; as marginal if NNH > 25; and no supportive data found in the literature.

Risk Factors Grouped (read see left)

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Potential Risk Factors</th>
<th>Risk Classification</th>
<th>Companions</th>
<th>RR [95%-CI]</th>
<th>ARD [95%-CI]</th>
<th>NNH</th>
<th>Number of Patients</th>
<th>Reference (Author)</th>
<th>Data Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>male</td>
<td>high</td>
<td>female</td>
<td>0.81 [0.71-0.94]</td>
<td>0.08 [0.02-0.25]</td>
<td>252</td>
<td>20,452</td>
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</tr>
</tbody>
</table>

Indeterminate

- lack of chronic aspirin intake ≥100 mg/day
- negative CagA status (0)
- home EM vs PM CYP2C19 genotype in depending PPI
- IL-1 beta -511 CC genotype
- VacA genotype
- 2-day 7-durations in triple regimens (PPC-AC/PPC-MC)
- lack of gastric mucoza thickness
- home EM vs met-EM vs met-EM vs PM CYP2C19 genotype in depending PPI
- CYP2C19-type PPI or (ome)lansoprazole or esomeprazole

Marginal

gastric mucoza without atrophy in PUD, compliance for PPI-ACM (concomitant), gender, PPI pretreatment

No Data (available)

- regular alcohol intake, body weight, other H. pylori cytotoxins or inflammatory cytokine polymorphisms, MD6-b genotype polymorphisms, levofloxacin resistance.

Conclusions

- antibiotic is resistance is by far the most important risk factor for H. pylori eradication failure
- Compliance / expected side effects are different for most regimens
- Near patient risk factors such as age, active smoking and endoscopic diagnosis play an important role
- All factors have been analysed in univariate settings only (except for antibiotic resistance), bias between factors difficult to assess/interpret.