

Current status of First-line Eradication

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Standard triple therapy, consisting of a proton pump inhibitor, plus amoxicillin and clarithromycin, has been used as first-line treatment regimen for *Helicobacter pylori* (*H. pylori*) eradication worldwide. However, as a result of increased resistance to antibiotics, *H. pylori* eradication rates with this standard triple therapy have been declining and recently reached < 80% in many countries. Several new strategies to enhance the eradication rate of *H. pylori* have been studied. Among the alternative first-line eradication regimens, sequential, concomitant and hybrid regimens have shown excellent results and could be the optimal treatment option. In our data, the intention-to-treat (ITT) and per-protocol (PP) eradication rates were 62.2% (95% CI 54.8–69.6%) and 76.0% (95% CI 68.5–83.5%) in the standard triple group, and 77.8% (95% CI 71.4–84.2%) and 87.9% (95% CI 82.3–93.5%) in the sequential group, respectively. The eradication rate was significantly higher in the sequential group compared with the standard triple group in both the ITT and PP populations ($P = 0.002$ and $P = 0.013$ respectively), whereas the incidence of adverse events was similar. Concomitant and standard eradication rates were 78.7% (137/174) vs. 70.7% (123/174) by intention-to-treat ($p = 0.084$) and 88.7% (133/150) vs. 78.4% (120/153) by per-protocol ($p = 0.016$), respectively. The two groups were similar with regard to the incidence of adverse events. Regarding hybrid therapy, eradication rates for concomitant and hybrid therapy were 78.6% (187/238) and 78.8% (190/241) in the intention-to-treat analysis, and 89.8% (176/196) and 89.6% (181/202) in the per protocol analysis. For both analyses, 95% confidence intervals fell within the $\pm 8\%$ equivalence margin. Adherence was better in the hybrid group (95.0%) than in the concomitant group (90.1%), a difference that was borderline significant ($P = 0.051$). Adverse event rates were higher in the concomitant group than in the hybrid group for nausea (15.8% vs. 8.8%; $P = 0.028$) and regurgitation (17.6% vs. 10.7%; $P = 0.040$). A simple method for detection of antibiotic susceptibility using polymerase chain reaction would be a possible alternative to administration of “tailored treatment” in the era of increasing prevalence of antibiotic resistance.