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High Clarithromycin Resistance and a Low Rate of Recurrence and Reinfection of Helicobacter pylori Infection in Pakistan

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Reliable Efficacy of 14-Day High Dose PPI Triple Therapy for Helicobacter pylori Eradication in Non-Ulcer Dyspeptic Patients in Thailand
Santhi Prasertpornvate, Voracha Mahachai, Rathorn Vilachone
Background and aim: The eradication rate of standard triple therapy for H. pylori has decreased worldwide including Thailand. Newer regimens is required to achieve better outcome. The study was designed to determine the eradication rate of 7-day and 14-day high dose PPI triple therapy for H. pylori infection in Thai patients with non-ulcer dyspepsia. METHODS: Between September 2010-2011, patients who underwent gastroscopic examination at the Thammasat University Hospital, for dyspeptic symptoms were recruited. Two biopsy samples from gastric antrum were obtained, one for rapid urease test and another for culture. Patients were randomized to receive 7 days or 14 days high dose PPI triple therapy which consisted of lansoprazole 60 mg twice daily, amoxicillin 1 g twice daily, and clarithromycin 500 mg twice daily. UBT was performed 6 weeks after therapy to assess eradication rate. RESULTS: A total of 100 patients were enrolled in this study including 35 males and 65 females with mean age of 53 years. All patients completed both regimens therapy without significant side effects. The culture was successful in 20 patients and demonstrated 40% of metronidazole resistant and 4% of clarithromycin resistant strain. The efficacy of 14-day high dose PPI triple therapy was 100% (50/50 patients) and was significantly higher than 7-day high dose PPI triple therapy (44/50 patients) (100% vs 88%). P-value <0.03. Minor side effects were reported including bitter taste and nausea (10%) and palpitation after taking clarithromycin (4%). CONCLUSIONS: The 14-day high dose PPI triple therapy provide a high eradication rate than 7-day high dose PPI triple regimen. This 14-day high dose PPI triple regimen is well-tolerated, highly effective with only minor side effects and should be used as first line H. pylori eradication in Thailand.

Superiority of Bismuth-Based Quadruple Therapy vs. Standard Triple Therapy for Empiric Primary Treatment of Helicobacter pylori Infection: Systematic Review and Meta-Analyses of Efficacy and Tolerability
Marino Venerito, Tina Krieger, Thomas Ecker, Peter Malfertheiner
Background: In areas of clarithromycin resistance ≥15% clarithromycin-based standard triple therapy is no longer a good first choice regimen for Helicobacter pylori (H. pylori) eradication. Randomized controlled trials (RCTs) comparing proton pump inhibitor (PPI), bismuth, tetracycline, and metronidazole ( quadruple therapy) vs. PPI, clarithromycin, and amoxicillin (triple therapy) suggest that quadruple therapy may replace triple therapy for first-line treatment. Aim: We performed a systematic review and meta-analysis to compare the efficacy and tolerability of these two regimens as first-line treatment of H. pylori infection. METHODS: We performed a systematic review and meta-analysis following the PRISMA guidelines. The search was conducted on PubMed, Cochrane Library and Embase up to 2012. The primary outcome was eradication rate. The secondary outcomes were adverse events. Data was extracted and analyzed using RevMan 5.3 software. Funnel plots and subgroup analyses were carried out. RESULTS: The search strategy identified a total of 39 references. Nine papers were included in the analysis. Dosing regimens of triple therapy were mostly consistent among trials (clarithromycin 1000 mg/d, amoxicillin 2000 mg/d), but varied considerably for quadruple therapy (bismuth 240-1680 mg/d, metronidazole 400-1500 mg/d, tetracycline 1500-2000 mg/d). Bismuth-based quadruple therapy achieved eradication in 81.1% of patients, whereas clarithromycin-based triple therapy achieved an eradication rate of 69.9% ( odds ratio (OR) = 1.96, 95% confidence interval (CI): 1.8-2.92, p = 0.008). There was no evidence for significant publication bias. Different duration of treatment regimen (7, 10 or 14 days for each regimen in different combinations) account for the high heterogeneity among the studies (I2 =76%). Heterogeneity was 0% when only the subgroup of trials evaluating standardized quadruple therapy (bismuth 1680 mg/d, metronidazole 1500 mg/d, tetracycline 1500-2000 mg/d) for 10 days vs standard triple therapy for 7 days was considered. In the sensitivity analysis, standardized quadruple therapy achieved eradication in 91.1% of patients, whereas standard triple therapy achieved an eradication rate of 87.1% (OR=5.9, 95% CI: 3.17-9.78, p<0.0001). There were no statistically significant differences in adverse effects by therapy (OR=0.92, 95% CI: 0.76-1.12). Conclusions: Bismuth-based quadruple therapy yielded higher eradication rates as primary therapy for H. pylori infection compared to clarithromycin-based triple therapy. Standardized quadruple therapy achieved eradication rates ≥90% and should therefore be considered for first-line treatment of H. pylori infection.

Analytical Equivalence Study of NDIRS Versus IRMS in Breath Test Analysis
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The objective of this study was to evaluate the performance of NDIRS as a suitable end-point replacement for analysis of 13C-urea breath test samples using the commercially available 13C-UBT-kit, compared with the accepted IRMS analysis method. METHODS: A multi-center, open-label study was performed in two large hospitals, according to GCP guidelines. Patients referred for Helicobacter pylori (HP) testing were enrolled. NDIRS test was performed at baseline and following the 14 days high-dose LCA regimen. Test results were compared with IRMS test results. Assuming IRMS as gold standard, NDIRS test results compared with IRMS test results. Assuming IRMS as gold standard, NDIRS has a positive predictive value of 100%, a negative predictive value of 96.7% (95% CI 0.83-1.00), a sensitivity of 92.9% (95% CI 0.66-1.00) and specificity of 100%. The total agreement rate was 98% (42 out of 43), with a correlation coefficient ρ of 0.9756. The only discordant-ant outcome probably resulted from faulty breath sampling in the IRMS medium, causing a false negative IRMS result. Conclusions. In this study, NDIRS and IRMS appear equally accurate in detecting Helicobacter infection. Therefore it seems that the NDIRS is justified as an alternative method for analyzing 13C-urea breath test samples. Given the greater ease of use and lower costs, NDIRS could even be preferred over IRMS for analysis of 13C-urea breath test samples. The commercial available 13C-urea test kit appears to be suitable for HP-test with NDIRS.

High Dose Amoxicillin-Based First Line Regimen Compared to Sequential Therapy in the Eradication of H. pylori Infection
F. Giannopoulos, A. Vourafas, V. Kalampoki
Aim: To compare the efficacy of a 7 days high-dose amoxicillin based first-line regimen with sequential therapy. METHODS: 300 sex and age matched patients were randomized into 3 different therapeutic schemes: (1) standard LCA, lansoprazole 15 mg bid, clarithromycin 500 mg bid and amoxicillin 1000 mg 5 days; (2) high dose LCA (HD-LCA), lansoprazole 15 mg bid, clarithromycin 500 mg bid and amoxicillin 1000 mg bid for 5 days, followed by lansoprazole 15 mg bid, clarithromycin 500 mg bid and tindazole 500 mg bid for 5 days. Eradication was confirmed by 13C-urea breath test. Compliance and occurrence of adverse effects were assessed by a validated questionnaire. RESULTS: Eradication rates were: HD-LCA 55% (95% CI 45-65%), LCA 75% (95% CI 65-85%), ITT LCA 73% (95% CI 65-81%). Eradication rates were higher in HD-LCA group compared to LCA (p<0.01), while no significant differences were observed in HD-LCA group compared to LACT (p>0.05). Compliance and occurrence of adverse effects was similar among groups. CONCLUSIONS: High dose amoxicillin based eradication treatment is superior to standard triple therapy and equivalent to sequential therapy, compared to the latter, the shorter duration may represent an advantage.

Substitution of Tetracycline by Amoxicillin in Second-Line Helicobacter pylori Treatment Conveys Comparable Success Rates
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Introduction: According to Maastricht III consensus, bismuth (Bi) based quadruple (QD) therapy is the preferred second choice treatment for Helicobacter pylori (Hp) eradication, if it is not previously used. Additionally, it is advisable to avoid antibiotics that were included in the initial therapeutic scheme. The regular Bi-containing quadruple therapy comprises a proton pump inhibitor (PPI), tetracycline (TETRA) and metronidazole (M). However, TETRA is not always available, side effects are often not well tolerated and doxycycline’s efficacy is questionable. The aim of our study was to compare the efficacy of amoxicillin (AMO) when administered instead of TETRA in patients who failed to eradicate Helicobacter pylori (Hp) on a previous treatment containing AMO. Patients and methods: We retrospectively reviewed the records of 98 consecutive patients who failed eradication treatment with PPI + clarithromycin + AMO. All patients received a 14-days QD regimen with PPI bid + Colloidal Bismuth Subcitrate (CBS) 300mg tid + Metronidazole (M) 500mg tid and either TETRA 500mg tid (group A) or AMO 1gr bid (group B). Response to treatment was evaluated with uro breath test that was performed no sooner than a month after completion of eradication therapy. RESULTS: 89 patients were eligible for analysis (45 in group A and 44 in group B). Demographics were comparable among the 2 groups. The results of the intention to treat (ITT) and the per protocol (PP) analysis are shown in the table. No statistically significant differences were revealed: Conclusions: 1) Substitution of Tetracycline by Amoxicillin in a bismuth-containing quadruple, second-line scheme does not affect eradication rate. 2) This is true for first line regimens that include AMO 3) In case of Tetracycline shortage or intolerance, Amoxicillin may be a good alternative with at least comparable results.

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