

中文題目：胃幽門螺旋桿菌抗藥性改變的趨勢 (2013-2019 年): 台灣多中心的報告

英文題目：Trend in changes of antibiotic Resistances for *Helicobacter Pylori* (2013-2019):

A multicenter report from Taiwan

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Background:

The prevalence of antibiotic resistance of *Helicobacter pylori* (*H. pylori*) varies among countries and may be partly determined by geographical factors. The use of first-line *H. pylori* eradication with standard triple therapy, which consists of a proton pump inhibitor (PPI), clarithromycin and amoxicillin, might lead to a poor outcome (< 80%) due to increase of clarithromycin resistance. However, the eradication rates had been increased to > 90 % by the use of various effect treatment regimens such as high dose dual therapy, hybrid and reverse hybrid therapy, bismuth and non-bismuth quadruple therapies. Clearly, antibiotic resistance determines the success of eradication. This study aimed to determine the trend in the primary, secondary and tertiary antibiotic resistances of *H. pylori* in Taiwan.

Method:

We analyzed *H. pylori* -infected isolates from patients before first-line eradication therapy (n = 1369), second line eradication therapy (n =196), and third line eradication therapy (n = 184) from January 2013 to December 2019. The *H. pylori* strains were tested for susceptibility to amoxicillin, clarithromycin, levofloxacin, metronidazole and tetracycline using the E-test method. The minimal inhibitory concentration (MIC) was determined by the agar dilution test. MIC values of ≥ 0.5 , ≥ 1 , ≥ 1 , ≥ 4 and ≥ 8 mg/L were considered to be the resistance breakpoints for amoxicillin, clarithromycin, levofloxacin, tetracycline and metronidazole, respectively.

Results:

A progressively higher primary resistance rate was observed for clarithromycin (11.8%-20.4%, $p = 0.039$ in χ^2 test for linear trend), levofloxacin (17.3%-38.8%, $p < 0.001$) and metronidazole (25.6%-42.3%, $p < 0.001$) among patients who receiving first-line eradication therapy. The similar upward resistance trends were found for secondary resistance for levofloxacin (30.5%-64.7%, $p = 0.006$) and (40.5%-77.4%, $p < 0.001$), and tertiary resistance for metronidazole and tertiary resistance for metronidazole (44.4%-88.2%, $p = 0.014$). The tertiary resistance for levofloxacin increase from 65.9% in year 2013 to 100.0% in year 2019($p = 0.106$). The resistance to amoxicillin and tetracycline remained very low in Taiwan. (Amoxicillin: 0.6%-1% for primary resistance, $p=0.800$; 0% for secondary resistance; 0-5.6% for tertiary resistance, $p=0.236$; Tetracycline: 0% for primary resistance, $p=0.178$; 4.3%-7.1% for secondary resistance, $p=0.459$; 0%-7.7% for tertiary resistance, $p=0.087$)

Conclusions:

Primary, secondary and tertiary antibiotics resistance of clarithromycin, levofloxacin and metronidazole for *H. pylori* has been increasing in the past 7 years in Taiwan. High clarithromycin resistance (>20%) indicated that more effective treatment options such as high dose dual therapy, hybrid and reverse hybrid therapy, bismuth and non-bismuth quadruple therapies should be prescribed as a first-line *H. pylori* eradication therapy in Taiwan. Levofloxacin-based triple therapy should also be replaced for second line therapy. Third line treatment should be antibiotic susceptibility based.