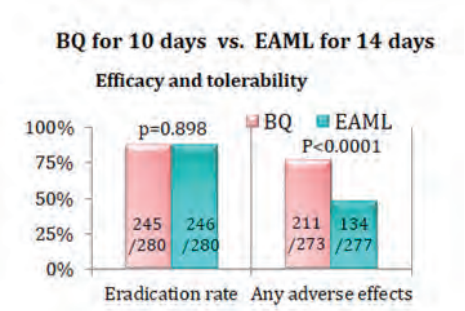
ACHIEVEMENTS

Advances in Rescue Therapies for Difficult-to-Treat H. Pylori Infections

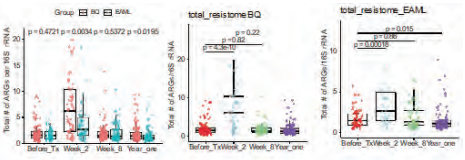
Helicobacter pylori is the principal cause of stomach cancer. National Taiwan University Hospital (NTUH) provides H. pylori screening and eradication treatment to individuals with a high-risk profile for stomach cancer. With the support of the National Science and Technology Council (NSTC) and the Ministry of Health and Welfare, several medical centers in Taiwan jointly established the "Taiwan Clinical Trial Consortium for Gastrointestinal Disease and Helicobacter," under the leadership of President Prof. Ming-Shiang Wu. The Consortium conducts clinical trials and carries out H. pylori screening. The screening results indicate that the prevalence rate of H. pylori among adults in Taiwan has decreased from 60% three decades ago to 30% at present. Among children, it has decreased further to 10%. During this period, the standardized incidence rate of stomach cancer has also declined.

In recent years, the Consortium medical team has developed highly effective first-line treatment regimens with an eradication rate of over 90%. Moreover, the team has made a dedicated effort to develop second- and third-line rescue treatment regimens for difficult-to-treat H. pylori infections. Recent research by Prof. Wu and research team members including Dr. Jyh-Ming Liou, Dr. Yi-Chia Lee, Dr. Chieh-Chang Chen, Dr. Yu-Jen Fang and Dr. Mei-Chih Chen, indicates that Bismuth quadruple therapy (BQ) and levofloxacin-based quadruple therapy (EAML) have achieved eradication rates of 93% (245/264) and 90% (246/273), respectively, as second-line H. pylori treatments. As to patients for whom the second-line eradication therapies are ineffective, another prescription is used as the rescue therapy, resulting in cumulative eradication rates of 97% (255/264) and 96% (261/273) for the two groups, respectively.

Additionally, the research team conducted long-term monitoring of the composition of the gut microbiota and the antimicrobial resistance gene profile in these patients, in collaboration with Prof. Emad El-Omar's team at the University of New South Wales. The study found that after introduction of H. pylori eradication therapy, the diversity of gut microbiota decreased temporarily. However, it recovered to a level similar to that before treatment after one year. The antimicrobial resistance gene profile significantly increased immediately after completion of eradication, but by the 8-week mark and one year later, it had returned to the pre-treatment level.



Eradication rates and side effects of Bismuth quadruple therapy (BQ) and levofloxacin-based quadruple therapy (EAML) in second-line treatment of Helicobacter pylori.



The antimicrobial resistance gene profile shows a significant increase immediately after completion of eradication, but it can recover to the pre-treatment state at both the eight-week mark and one year later.

Click or Scan the QR code to read the journal article in *The Lancet Gastroenterology and Hepatology.*

These research findings provide important insights for both domestic and international second-line and third-line rescue therapies for H. pylori. They also demonstrate that the composition of gut microbiota and the antimicrobial resistance gene profile can recover to a level similar to that before treatment after one year of eradication, providing a safety assurance when using eradication to prevent gastric cancer.

Dedicated to reducing the threat of gastric cancer in the population, NTUH actively strives to develop healthcare service technology in the post-pandemic era to clarify changes in gut microbiota after eradication and make continuous advancements for individuals, communities, and science.

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