Helicobacter pylori culture in routine practice: A paediatric retrospective study

Hicham R [1], Ritchie MA [2], Ennis W [2], Murray M [3], Saunders P [2], Khalsa K [3], Deshpande A [3], Barclay AR [1], Flynn DM [1], Tayler R [1], Hansen R [1]

1 Department of Paediatric Gastroenterology, Royal Hospital for Children, Glasgow, UK
2 Department of Microbiology, Queen Elizabeth University Hospital, Glasgow, UK
3 Department of Microbiology, Glasgow Royal Infirmary, Glasgow, UK

Introduction

Helicobacter pylori is usually acquired in early childhood. The systematic use of standard eradication therapy regimes has resulted in a rising prevalence of antibiotic-resistant strains and a decreasing efficiency of *H. pylori* eradication therapy. The latest ESPGHAN guidelines (2016) suggest only investigating *H. pylori* in paediatric patients who would benefit from treatments and to base the eradication therapy on susceptibility testing.
Our Local practice has been to test symptomatic children with *H. pylori* stool antigen and to treat with a standard triple therapy as a first line. If a second attempt of eradication fails, children have oesophagogastroduodenoscopy (OGD) on a dedicated gastroenterology/microbiology *H. pylori* culture list. Subsequent antibiotic therapy is then based on antibiotic sensitivity.

Aims of the study

1. Study the benefit of *H. pylori* eradication therapy based on culture and sensitivity in our population.
2. Describe the sensitivities of the enumerated *H. pylori*.

Methods

We retrospectively included all paediatric patients who had undergone OGD for *H. pylori* culture in Royal Hospital for Children, Glasgow, between 2014 and 2020. We collected data from patient electronic records. *H. pylori* colonisation was based on the presence/absence of the organism on histopathology. Eradication was assessed by either *H. pylori* stool antigen or subsequent gastric biopsy histopathology.

Figure 1 : Culture recovery

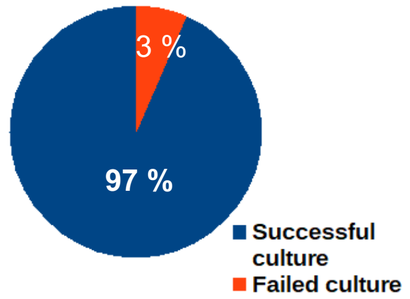
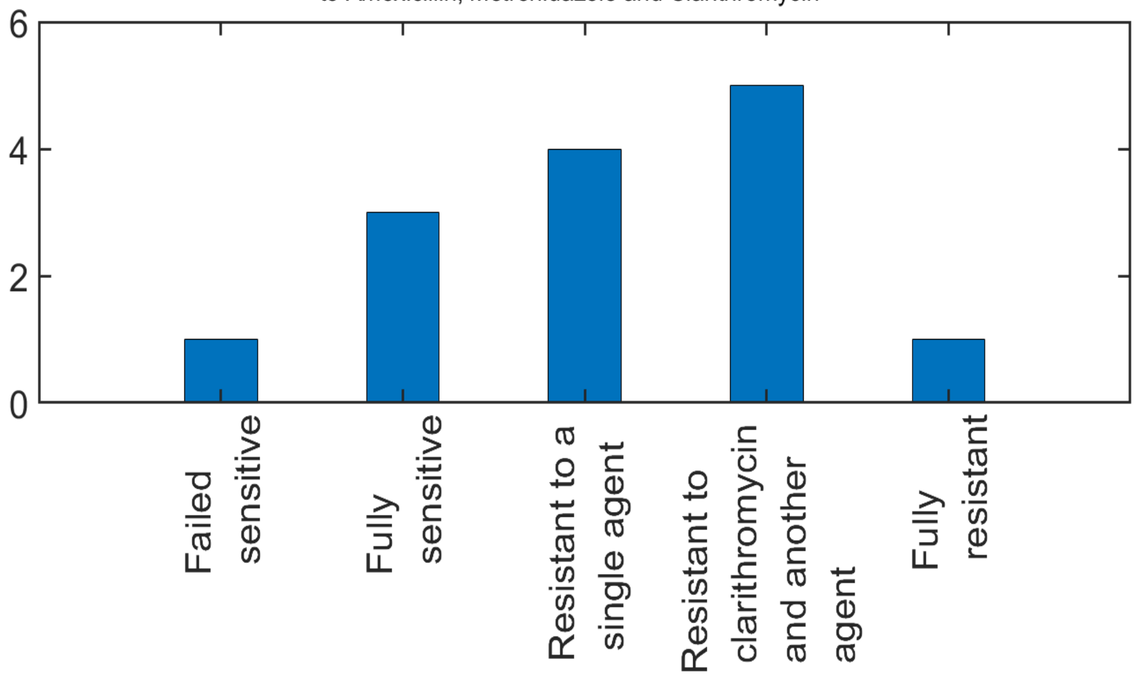


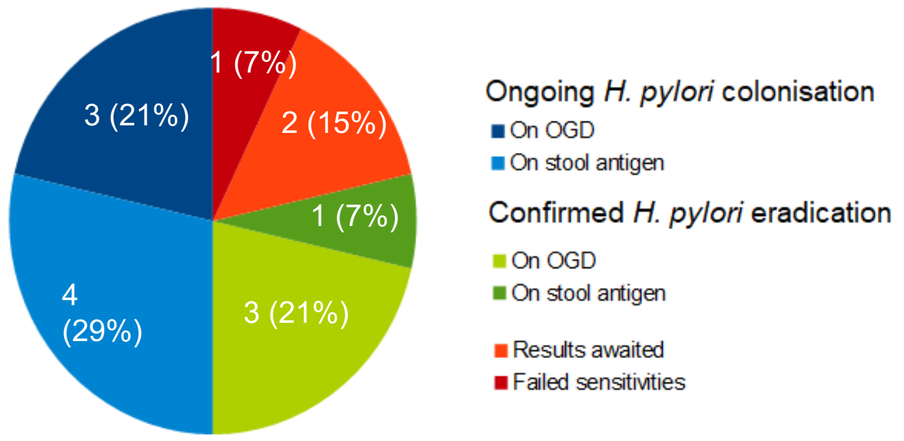
Figure 2 : *H. pylori* culture sensitivities
to Amoxicillin, Metronidazole and Clarithromycin



Results

In total, 20 patients were included with a median age of 10.1 [7.6-12.4] years. In keeping with our local practice they had a median of 2 attempts at eradication therapy before being referred for *H. pylori* culture. On these 20 patients, 15 patients (75%) had a confirmed colonisation by *H. pylori* on histopathology.
The culture recovery is represented in Figure 1.
The *H. pylori* culture sensitivity results are represented in Figure 2.
The *H.pylor*i status after sensitivity-based eradication therapy is presented in Figure 3.

Figure 3: H. pylori status after sensitivity-based eradication therapy



Conclusion

Our dedicated *H. pylori* list has excellent culture recovery (93%), but its set-up can be challenging.
Our approach to restricting culture to two therapy failures may explain our high rates of targeted antibiotic failure (50%), but these patients may also be biased towards therapeutic non-compliance.
Having a better knowledge of the positivity rate of stool antigens in our paediatric population and eradication rate after first-line therapy would be helpful to consciously consider our results.