Helic-device for children non-invasive breath diagno stics of *Helicobacter pylori*

Author Block M. A. Dmitrienko[1], E. A. Kornienko[2], N. I. Parolova[2], S. E. Bykov[1];
[1]AMA Ltd, Saint-Petersburg, Russian Federation, [2]State Pediatric Academy, Saint-Petersburg, Russian Federation.

Association of Medicine and Analytics

AIM

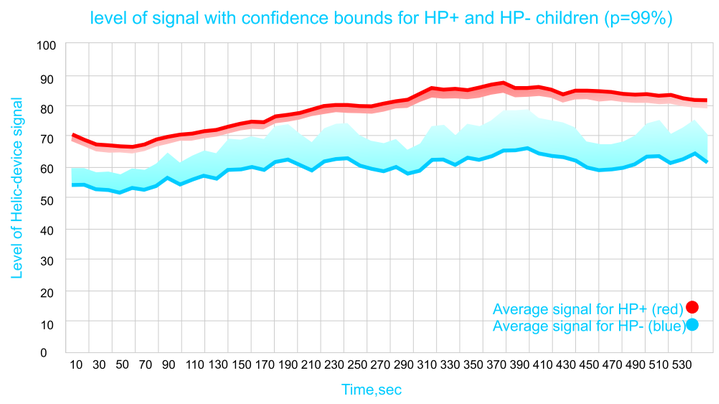
To affirm diagnostic significance of Helic-device and to choose the best assessment criterion.

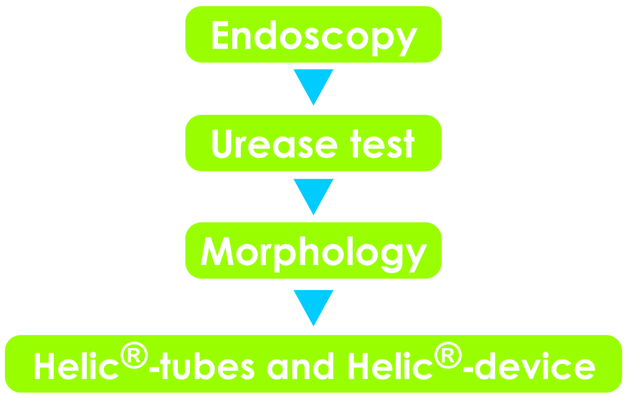
METHODS

155 children with pathology of gastrointestinal system were observed (age 9-17 years).
All patients were analyzed by endoscopy with biopsy from gastric corpus and antrum with morphology test, rapid urease test and breath ammonia test by indicator tubes.
Patient was HP+ if at least two methods detected
the HP presence (133 patients), and HP- if all methods were negative (12 patients).
All children were tested by Helic-device after 500 mg urea.
Ammonia level in breath was measured every second during 540s.
Then data were processed by mathematical statistics methods.

RESULTS

Average levels of ammonia in breath for HP+ and HP- were reliably (p>90%) different during basal level (first 90seconds) and even more during load level (following 450seconds).
For 13 different digital assessment criteria were calculated sensitivity and specificity.
The best criterion is two-parameter one, when patient is considered as HP- if average basal level is not more than 44 units, and difference in average load and basal level is not more than 5 units.
In all other cases patient is considered as HP+.





CONCLUSIONS

1. Ammonia level in breath is reliably different for HP+ and HP- children (p>90%).
Taking the urea load as provoking factor increases difference.
2. Helic-device is fixing the dynamics of breath air change and can be recommended as an instrument of non-invasive HP diagnostics in pediatrics.
3. For chosen value of cut-offs sensitivity is 0.93 and specificity is 0.82.