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## ACTUAL TOPIC

S.S. Sosina, J.V. Vinokurova, E.P. Yakovleva, I.N. Nikolayeva, A.P. Sleptsov

## THE DETECTABILITY OF HELICOBACTER PYLORI CAGA STRAIN IN ADULTS AND CHILDREN ACCORDING TO THE DATA OF RH№1-NCM

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### ABSTRACT

The Republic of Sakha (Yakutia) belongs to Arctic territories. Hard social and economic conditions cause broad development of helicobacter infection in the republic. A comparative analysis of detectability of *Helicobacter pylori* CagA strain among adults and children with chronic gastritis since 2012 to 2016 according to Republic hospital №1 - National center of medicine (RH №1-NCM) revealed a distinct decrease in these indexes among adults and children with chronic gastritis. Thus it demands its further identification and treatment for prevention of stomach diseases of oncological risk group. This article presents research data of detectability of *Helicobacter pylori* among adults and children for 6 years in RH №1-NCM clinical-immunological laboratory by method of enzyme immunoassay on antibodies to antigen Cag A *Helicobacter pylori*. The blood serum of patients from the National center of medicine was the material for this research.

15868 patients were examined, 6993 of them were revealed *Helicobacter pylori* Cag A that made 44,1%. The detectability for the research period decreased from 49,6% to 40%. 3827 adults out of 8272 patients were revealed Hp (+) Cag A that made 46,3%, and detectability decreased from 52% to 42% for this period. Among 7596 sick children a decrease in detectability of Hp (+)CagA was from 47,4% to 39,1%. Thus, a comparative analysis of detectability of Hp (+)CagA for the reporting period proved a distinct decrease in indexes among adults and children with chronic gastritis.

Serological diagnostic methods for diagnosing the pathology of the upper digestive tract are of great importance for mass medical examinations. They allow diagnosing the disease in the early (asymptomatic) stage.

There is a tendency to reduce the rates of *Helicobacter pylori* infection among patients with chronic gastritis, which requires further identification, treatment and prevention among the population.

**Keywords:** Far North, Republic of Sakha (Yakutia), *Helicobacter pylori*, Cag A antigen, clinical and immunological laboratory, RB N1-NCM (Yakutsk), screening, diagnosis, immunoassay, antibodies to Cag A *Helicobacter pylori* antigen, treatment.

**Introduction.** In most cases, *Helicobacter pylori* infection which is always associated with gastritis is the cause of atrophic gastritis. Almost 50% of the patients infected with *Helicobacter pylori* develop atrophic gastritis which in most cases leads to stomach carcinoma and

90% of cases is the cause of peptic ulcer [1].

According to researches, chronic gastritis among indigenous people of Yakutia is characterized by the considerable specific gravity of atrophic gastritis (38,5-57,1) with a larger frequency of atrophic

antral forms of gastritis at young age.

According to researchers of the Yakut scientific center, Russian Academy of Medical Science of the Republic of Sakha (Yakutia), *Helicobacter pylori* infection among adult population of Yakutia was 76,1% [2]. In the common structure of the

examined children and teenagers *Helicobacter pylori* infection was 58,5% [3]. Atrophic gastritis were at 8,5% of teenagers and 34% of adults among indigenous people of the North. It was combined with intestinal metaplasia, stomach mucosa dysplasia. Authors emphasize HP infection value in the development of stomach mucous restructuring. A distinct correlative connection between HP infection and precancerous state was established: atrophy, dysplasia, intestinal metaplasia of stomach mucous at patients with HP gastritis.

According to Kurilovich S.A., Reshetnikov O.V. atrophy frequency in a stomach body at the population of Novosibirsk, urban and country people of Yakutia was respectively 10,1, 16,7 and 25,6%, and in antral department – 10,7, 25,6 and 8,9%. “GastroPanel” was used [4]. The total atrophy was registered in 1% in all groups. *Helicobacter pylori* infection was revealed at 78 – 88%.

Nowadays the question of differentiation of various strains of *H.pylori* on the basis of their heterogeneity on virulence factors is being studied.

#### Materials and research methods.

We revealed a *helicobacter* infection at various diseases of inner organs of patients by noninvasive respiratory method – “Helic-test”. The analysis of 748 protocols of clinical trial, esophagogastroduodenoscopy and “Helic-test” at adults and children in RH №1-NCM (306 adult patients (137 males and 169 females from 19 to 79 years old) and 442 children (239 girls and 203 boys, aged from 1 year to 18 years) was carried out.

We made a comparative analysis of detectability of HP infection indexes among patients with chronic gastritis for the last 5 years by Republic hospital №1 data, Yakutsk. The research on detectability of *Helicobacter pylori* among adults and children since 2012 to 2016 was done on the basis of Republic hospital №1 clinical-immunological laboratory by EIA method on antibodies to antigen CagA *Helicobacter pylori*.

**Results and discussion.** *Helicobacter pylori* was revealed at 74% out of 270 adults patients (males - 72%, females - 76%). 79% of cases were HP (+) among 164 patients with chronic gastritis. 67% were HP at 24 patients with peptic ulcer of stomach and duodenum. In 28 cases chronic gastritis was combined with

**Detectability of *Helicobacter pylori* among adults and children for the period from 2012 to 2017 years**

Year	Total	Hp(+)/%	Total adults	Hp(+)/%	Всего детей Total children	Hp(+)/%
2012	2996	1487/49.6	1434	747/52	1562	740/47.4
2013	2722	1233/45.3	1317	620/47	1405	613/43.6
2014	2482	1166/47	1290	647/50.2	1192	519/43.5
2015	2555	1041/40.7	1569	680/43.3	986	361/36.6
2016	2635	1050/40	1376	580/42	1259	470/37.3
2017	2478	1016/41	1286	553/43	1192	466/39.1
Mean %	15868	6993/44.1	8272	3827/46.3	7596	3169/41.7

GERD, and HP (+) was in 61 cases.

According to the detectability of *Helicobacter pylori* among adults and children since 2012 to 2017 it turned out that 6993 out of 15868 were revealed *Helicobacter pylori* Cag A that made 44,1%. The detectability for the research period decreased from 49,6% to 41%. 3827 adults out of 8272 patients were revealed Hp(+) CagA that made 46,3%, and detectability decreased from 52% to 43% for this period. Among 7596 sick children a decrease in detectability of Hp(+) CagA was from 47,4% to 41,7%. Thus, a comparative analysis of detectability of Hp(+)CagA for the reporting period proved a distinct decrease in indexes among adults and children with chronic gastritis.

**Conclusion.** Serological diagnostic methods for diagnosing the pathology of the upper digestive tract are of great importance for mass medical examinations. They allow to diagnose the disease in the early (asymptomatic) stage.

There is a tendency to reduce the rates of *Helicobacter pylori* infection among patients with chronic gastritis, which requires further identification, treatment and prevention among the population.

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