

Metatranscriptomic analysis of the stomach antrum vs corpus biopsy microbiota in patients with *Helicobacter pylori* infection

Kupriyanova E. *, Abdulkhakov S., Markelova M., Grigoryeva T.

Institute of Fundamental Medicine and Biology, Kazan Federal University, Kazan, Russia

**fewrandomletters@gmail.com*

Introduction: Gastric, non-*H. pylori* microbiota is supposed to play an important role in progression of inflammation and pathogenesis of upper GI disorders. However, to this date the issue remains poorly understood. The aim of this study was to characterize the microbiota of the gastric mucosa in *H. pylori*-positive and *H. pylori*-negative patients in biopsy samples from the antrum and corpus of the stomach.

Methods: Seventy two mucosal biopsy samples were obtained from 36 patients – one sample from the antrum and one from the corpus of the stomach respectively. According to the rapid urease test combined with cytology results, 13 *H. pylori*-positive and 23 *H. pylori*-negative patients were detected. Total RNA from each sample were extracted with TRIZOL reagent. Fraction of RNA was then used to synthesize cDNA. Amplicon libraries of V3-V4 variable region of the 16S rRNA gene were sequenced on the Illumina MiSeq platform.

Results: There is a significant difference in bacterial composition between *H. pylori*-positive and *H. pylori*-negative samples. *H. pylori*-positive patients showed a dominance of the *Helicobacter* genus up to 90 %. Also, there is a noticeable difference between the antrum and the corpus of the stomach, which is especially noteworthy for *H. pylori*-positive patients. Apart from *H. pylori*, the predominance of *Streptococcus*, *Prevotella* and *Enterobacteriaceae* was observed as well as the presence of the *Rothia*, *Gemellaceae*, *Fusobacterium* and *Neisseria* genera, which are usually recognized as the normal gastric microbiota.

Conclusion: *H. pylori* tends to prevail in the stomach of *H. pylori*-positive patients, especially when the body of the stomach is analyzed compared to the antrum. The use of a biopsy from the corpus of the stomach is likely to have a greater predictive value when diagnosing *H. pylori* infection. Using cDNA for 16S rRNA gene libraries preparation allows detecting a greater variety of bacteria.

Aknowledgements: This research was funded by the subsidy allocated to Kazan Federal University for the assignment in the sphere of scientific activities (project No. 0671-2020-0058).