27th ECCMID Vienna, Austria 22 – 25 April 2017
The congress of ESCMID

Session: EV026 Resistance surveillance & epidemiology: Gram-negatives

Category: 3b. Resistance surveillance & epidemiology: Gram-negatives

22 April 2017, 08:45 - 15:30
EV0502

Secondary antibiotic resistance and prevalence of Helicobacter pylori cag PAI genotypes in patients from Croatia

Dijana Varda-Brkic*[1], Aleksandra Presecki-Stanko[2], Lidija Zele-Starcevic[2], Vesna Tripkovic[1], Ivana Mareković[3], Haris Car[4], Branka Bedenic[5]

[1]*University Hospital Center Zagreb; Department for Clinical and Molecular Microbiology*

[2]*University Hospital Center Zagreb; Clinical Department for Clinical and Molecular Microbiology*

[3]*University of Zagreb*

[4]*Secondary Medical School*

[5]*School of Medicine, University of Zagreb, University Hospital Center Zagreb; University Hospital Center Zagreb; Microbiology*

Background: Development of antibiotic resistance due to increased use of antibiotics is one of the major cause for *Helicobacter pylori* eradication failure. The presence of *cag*PAI virulence genes, especially *cagA* gene is associated with severe gastrointestinal diseases.

The aim of the study was to determine antimicrobial susceptibility of *H. pylori* isolates of symptomatic patients with benign endoscopic finding, after multiple treatmant failures and to detect *cag*PAI virulence genes.

Material/methods: The study comprised 103 patients (78 females and 25 males, mean age 55,8 years and range 28-81 years) with gastric symptoms (abdominal pain, heartburn, vomiting, bloating) after treatman failures. According to the endoscopic findings patients were classified in three groups: non ulcer dyspepsia NUD (n=68), erosio ventriculi EV (n=22), erosio duodeni ED (n=13).

The antibiotic susceptibility testing were determined by E-test for clarithromycin, azithromycin, amoxycillin, metronidazole and levofloxacin. Genes encoding virulence factors were detected by PCR with primers

for 10 loci in *cag*PAI: *Apcag* (cagA promotor region), *cagA1*, *cagA2*, *cagA3*, *cagM*, *cagT*, *cagE*, *LEC*, *tnpA* and *tnpB*.

Results: Antimicrobial susceptibility testing revealed resistance of 74,8% to azithromycin (AZT) and clarithromycin (CLR), 80.6% to metronidazole (MTZ) and 14.6% rezistance to levofloksacin (LEV). There was no resistance to amoxycillin.

Five isolates were susceptible to all tested antibiotics. Resistance to only one antibiotic was found in minor number of isolates and was associated with MZT. The majority of isolates were resistant to more than one antibiotic. Double resistance as noticed for CLR&AZT (n=12), MTZ&LEV (n=4).
Triple resistance was found for CLR&AZT&MTZ (n=54), CLR&AZT&LEV (n=3) Resistance to four antibiotics (CLR&AZT&MTZ&LEV) was identified in 8 isolates.
There was no statistically significant difference in resistance rates according to the gender (2.5±0.9 cocompared to 2.4±1.1, t=0.413, P=0.680).
The frequency of single *cag*PAI genes were as follows: *Apcag* 63.1%, *cagA1* 71.8%, *cagA2* 69.9%, *cagA3* 5.8%, *cagM* 71.8%, *cagE* 75,7%, *cagT* 68% *tnpA* 9.7%, *tnpB* 7.8% and *LEC* 48.5%. Analysis of resistance rates and presence of particular *cag*PAI genes revealed no statistically significant correlation (azithromycin, clarithromycin p>0.150 , metronidazol p>0.130, levofloksacin p>0.090 for all tested *cag*PAI genes).

Conclusions: Secondary resistance of our *H. pylori* isolates after one or more treament failures was very high. More than 50% isolates displayed double resistance to macrolides (azithromycin/clarithromycin) and metronidazol while 14.6% to levofloxacin. The study showed high prevalence of *cagA, Apcag, cagM, cagE, cagT* genes in patients with benign endoscopic findings which could increase the risk of ulcer, pemalignant or malignant disease. Due to these finding it would be necessary to insist on eradication of *H. pylori* infections in order to prevent the development of severe gastroduodenal diseases)

Clinical isolates of *H. pylori* after tretman failures in Croatia demonstrated high rates of antibiotic resistance and high degrees of virulence.