ABSTRACT

Key word : *Helicobacter pylori* infection, vaccination, immunopathobiology.

Helicobacter pylori has been known to play a major role in chronic active grastritis, and it is responsible for most *peptic ulcer* disease, and is closely related to adenocarcinoma of the stomach. It is widely accepted that antibacterial eradication using combination of several antibiotics has been succeded to cure most cases of *H. pylori* infection. While *H. pylori* eradication using antiinfective agents is commonly used , problems raised with the high cost, side efects and the difficulty of patient compliance to treatment regimens, development of selection for resistant strains, and risk of reinfection. Based on this weaknesses vaccination was proposed to become an alternative treatment, while it is also effective for prevention.

It is believed that host immune response to *H.pylori* infection is ineffective for the elimination of the infection, resulting in persistence of the infectionin most of infected patient, while vaccination is able to cause more effective immune response. But until now the immune pathobiogenesis of the *H. pylori* infection and vaccination remains unclear. The objective of this study is to develop an immune pathobiogenesis concept of *H.pylori* infection and *H.pylori* vaccination by observing the tissue immune response patterns especially in effector sites of gastric mucosa of animals after each treatment.

Four treatments and control groups of healthy male Balb C mice, free of any Helicobacter infection, weight was between 30-40 grams and between 35-60 days of age, were treated with *H.pylori* infection alone, *H.pylori* vaccination alone, vaccination followed by infection challenge, and vaccination of pre infected animals. All of the animals were sacrificed by day 54. The gastric tissue was examined for CD4 and CD8 cells, IgA secreting plasma cells, IgG secreting plasma cells, mucosal epithelial cells containing IgA by a quantitative immunohistochemistry method. The effectivity of effector immune response is measured by the quantity of IgA secreting plasma cells in lamina propria.

The data of the quantitation of each treatment group were analyzed using multifactorial analysis of variance. The result shows that infected animals immune respons is not effective as shown by low quantity of IgA secreting plasma cells. Vaccinated animals showed more effective and significantly higher quantity of IgA secreting plasma cells compared with infected animals. The highest quantity of IgA secreting plasma cells is found in vaccinated animals followed by infection challenge, compared with infected animals followed by vaccination .

The T lymphocytes changes occurring in infected animal is the increase of CD4 and CD8 cells. The CD4 increase is much higher compared with the increase of CD8 cells. The ratio of CD4/CD8 increase is much lower in vaccinated animals. This fact is in accordance with the concept of the dominance of Th1 in infection and the dominance of Th2 in vaccination.