ABSTRACT

CHUDAHMAN MANAN. Defensive and Aggressive Factors response of White Rat Stomach to Aspirin as A Human Model. Under the supervision of BAMBAR PONTJO PRIOSOERYANTO, DALDIYONO, SRI ESTUNINGSIH and MIN RAHMINIWATI.

Non Steroid Anti Inflammatory Drugs / Aspirin is a drug which is currently widely used in the treatment of cases in the field of Rheumatology, Cardiology, Neurology, Hematology and Oncology. The expansion of clinical indications will result in the increasing prevalence of drug side effects, especially in the stomach. The initial clinical symptoms due to side effects of this drug are dyspepsia syndrome. If these symptoms are not quickly resolved more severe complications will happen in the form of upper gastrointestinal bleeding.

The purpose of this study is to determine the changes in gastric pathology and histopathology due to side effects of aspirin. The study was conducted on 20 white rats Spague-Dawley strain which has been prepared starting from pre-study to eliminate bias factors that may affect the results of this study. Furthermore, rats were divided into 2 groups: the control and treatment groups. The treatment group were given aspirin powder dissolved in water a dose of 400 mg once daily for 3 days, whereas the control group were given aquabidet. After that necropsy was performed and the stomach was observed in macroscopic and microscopic examination to determine changes in cell activity such as mucus cells, inflammatory cells, parietal cells and chief cells as a component for defensive and aggressive factors. Activities of isoenzyme cyclooxygenase 1 and cyclooxygenase 2 which associated with the production of prostaglandin were examined by immunohistochemical staining.

The results obtain from this study is gastric dilatation and mucus is a component of defensive factor can serve as primary and secondary prevention of gastric mucosal lesions. Inflammatory cells, gastric acid and pepsin are only contributor factors in the occurrence of mucosal lesions. Isoenzymes COX-1 and COX-2 is associated with the production of prostaglandin, function of COX-1 as constitutive factor can be seen clearly, whereas COX-2 functions as an inflammatory factor does not provide a clear picture.

Macroscopic and microscopic changes of the stomach will be used as a model in humans in conducting primary and secondary prevention of acute gastric mucosal lesions due to side effects of aspirin.

Key words: aspirin, gastric dilatation, mucus, COX-1, COX-2