

**ABSTRACT**

**THE EFFECT OF BACLOFEN ON SYNAPTOGENESIS PROCESS  
IN MICE (*Mus musculus*) WITH NEUROPATHIC MODEL**

Pain could be defined as sensoric and bad emotional condition in relation to actual or potential tissue damage. Human can't live without pain sensation, because pain is such a protective mechanism which happens when body's tissue is damaged. Pain pathophysiology including complex process in brain nerve tissue as result from stimulation reaction which is called as pain experience. Usually pain can be divided into acute and chronic. Neuropathic pain is one of the chronic pains, it can be defined as condition associated with peripheral nerve damage. This research was pretest-posttest control group design using mice as subject. The purpose of this study was to prove the baclofen effectiveness against heat stimulus and synaptogenesis inhibitory in mice with neuropathic models. Mice were randomized into 5 group with seven mice in every group. Neuropathic model was performed by PNL using silk suture 8-0, then 8 day after induction, mice were given NS, baclofen 1, 5, or 10 nmol intrathecally. Pain response were evaluated by gave heat stimulation on the warm plate ( $50 \pm 0.5$  ° C). Intrathecal injection of baclofen 1 nmol was significant at day 13 after induction ( $p=0.029$ ), baclofen 5 nmol significancy different with ligation non treatment group at day 10 ( $p=0.02$ ), and baclofen 10 nmol was significant at 8 day after ligation or first day after injection ( $p=0.029$ ). Histochemistry with HE stained of spinal cord showed some morphologic alteration between sham operated group and ligated grup, also between subjects which received baclofen 1 nmol, 5 nmol and 10 nmol. IHC staining with synaptophysine showed alteration of synapses number in group ligation non treatment and ligation with baclofen 10 nmol as treatment. Result shows that there was correlation between inhibitory synapses with pain behavior in mice, baclofen administration was able to increase latent time of mice.

**Keyword :** Neuropathy, PNL, Baclofen, Synaptogenesis