

ABSTRACT

Keywords: ABS/LAS, stress cell, pathobiology, Psychoneuroimmunology

In developed countries, the use of ABS as material source to produce detergent has been prohibited due to its toxicity effect, which is hazardous for human beings' health. In Indonesia ABS is still used by most detergent industries as material source to produce detergent due to its lower cost and easy availability. Such industries and household still use rivers to dispose their detergent waste, which make those rivers exposed to ABS. At the same time, in Indonesia, rivers are still used as the largest source for water supply. Until now, ABS cannot be eradicated from water supply processed from ABS- exposed rivers. Up to this time, the effects of ABS exposure to gut mucous have not been disclosed. This study was intended to disclose such problem using experimental animals, which were exposed to ABS & LAS solution.

Because ABS is a genotoxic substance, this substance can act as cell stressor. If the cell is included in immunocompetence cell, stress may also occur in the immune system. Therefore, the author used pathobiologic paradigm based on stress cell concept.

Immune system variables used in this study were T CD₄⁺ lymphocyte, T CD₈⁺ lymphocyte, SP IgA, SP IgM, SP IgG, NK and MØ.

Animals used in this study were thirty male mice, aged 45-60 days, which were divided into three groups. The first group was given 0.1 cc solution with 6.25

mg ABS per day, the second group was given 0.1 cc solution with 6.25 mg LAS per day, and the last one was given 0.1 with aqua per day, each for 7 days respectively.

Significant difference was evidence for the mucosal response immune between ABS exposed group and LAS exposed group on mucosal inductive area ($\alpha < 0.05$) and mucosal effector are as well ($\alpha < 0.05$).

ABS treatment on mucosal inductive area could suppress humoral immunity, which was indicated by a decrease of SP IgA function, while on mucosal effector area, ABS suppress humoral and cellular immunity, which was shown by decrease of component T CD₄⁺ lymphocyte, T CD₈⁺ lymphocyte, SP IgA, SP IgM, NK and MØ.

LAS treatment on mucosal inductive area could suppress cellular immunity, which was indicated by decrease of T CD₈⁺ lymphocyte, while on mucosal effector area LAS could suppress humoral and cellular immunity, indicated by decrease of T CD₄⁺ lymphocyte, T CD₈⁺ lymphocyte, SP IgA, SP IgM, SP IgG, NK, and MØ.

Finally, this study, which use pathobiologic paradigm based on stress cell concept on the modulation of immune system mucosal activity cause by ABS/LAS stressor, has proved the used of psychoneuroimmunologic concept in the system level. The new concept has also proved that the modulation of mucosal immune system may occur as the result of immunocompetence cells stress, as described by Putra (1999).