The effects of probiotics during refeeding period on jejunum mucosal morphology after short-term starvation in Wistar rats

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Abstract

***Aim*: A period of enteral feeding absence is known to cause intestinal atrophy, damaging mucosal barrier and decrease of enterocyte absorption capacity. However, sometimes nothing per oral is inevitable as a part of medical management. During refeeding, damaged intestinal cells are restored. Probiotics are living microorganism, which wields trophic effect on gut. The aim of this research was to investigate the effects of probiotics, which were given during refeeding period on gut morphology after short-term starvation in rats model.**

***Methods*: Twenty-four Wistar rats were assigned into 4 groups, and each group consists of 6 rats. Group I: rats starved for 3 days, then refed with probiotics for 3 days (probiotics group), group II: rats starved for 3 days then refed for 3 days (refed group), group III: rats starved for 3 days (starved group), group IV: rats with normal diet for 3 days (control group). Probiotics dispensed on this research were a combination of Lactobacillus rhamnosus and Lactobacillus acidophilus (Lacidofil®). Jejunum was harvested at day 7 for group I and II, and at day 4 for group III and IV, then was stained with hematoxylin & eosin. A pathologist analyzed number of villi, mucosal thickness, villi height and crypt depth within each specimen. We analyzed the result with Anova or Kruskal Wallis and post-hoc analysis. The study was conducted in Pathology Anatomy Laboratory in Hasan Sadikin Hospital, Bandung, Indonesia.**

***Results*: Starved groups revealed significantly less number of villi, thinner mucosa, shorter villi, shallower crypt depth and more pronounced mucosal damage compared to control group. Refed group had improved all parameters studied compared to starved group, but still had statistical differences compared to control group. In the probiotics group, there were no significant differences in all parameters measured compared to normal group except for crypt depth.**

***Conclusion*: This research revealed that probiotics given during refeeding period in starved rats exerts positive effect on number of villi, mucosal thickness, villi height, and mucosal damage score, but there was no significant effect concerning to crypt depth.**

Key words: Probiotics, starvation, refeeding, intestinal mucosa, morphology.

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