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Title: Probiotics and synbiotics: Effects on chronic asthma in mice

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Body: BACKGROUND: Asthma is a chronic inflammatory disorder of the airways characterized by structural changes of the airways which may contribute to airway obstruction and airway hyperresponsiveness. Modulation of the intestinal microbiota by probiotics and related products as a potential therapy for allergic diseases has been subject to investigation. Several murine models of asthma and clinical studies demonstrated beneficial effects of probiotics and synbiotics in asthma management. However, the effects on chronic symptoms of asthma have never been investigated in murine models. METHODS: mice were sensitized twice (day 1 and 12) with ovalbumin (OVA)-imject alum and challenged from day 17 till 23 daily with OVA. From day 24 till day 56, the animals were challenged with OVA 3 times a week and on the same days the animals were treated with either control solution or glucocorticoids (GCS) budesonide by oropharyngeal aspiration or probiotics (Lactobacillus or Bifidobacterium) or synbiotics by oral gavage. Pulmonary function, total and differential leukocyte counts in bronchoalveolar lavage were determined and the lung tissues were isolated to study airway remodeling. RESULTS: Treatment with probiotics or GCS significantly inhibited the OVA-induced increase in basal airway resistance and hyperresponsiveness. Probiotics, synbiotics and GCS significantly reduced pulmonary leukocytes infiltration by 50% especially eosinophilia. Neutrophilia in the airways was reduced by GCS and probiotics. Effects on airway remodelling are in process. CONCLUSION: The probiotics and synbiotic used in this study seem to be as potent as GCS in reducing cell infiltration in mice with chronic asthma.