

ABSTRACT

THESIS: Disruption of esophageal tissue hinders oral tolerance induction to ovalbumin

STUDENT: Jeremy Kinder

DEGREE: Master of Science

COLLEGE: Science and Humanities

DATE: May, 2012

PAGES: 29

Previous data in our lab demonstrated an inability to induce oral tolerance when using a feeding needle gavage for 14 days. Given that the upper gastrointestinal (GI) tract is the site of antigen introduction, and the interplay between immune cells of the mucosal tissues, we questioned if inflammation in this tissue, induced by physical trauma, would affect oral tolerance induction. We performed studies on Balb/c mice using a needle gavage or syringe feeding method followed by doses of the immunogenic protein ovalbumin (OVA) to induce tolerance. Immunohistochemistry was used to assess inflammation in esophageal tissues and to correlate with an ability or inability to induce tolerance. Non-cellular alterations within the tissue were also assessed using a pathology grading score. Although fluctuations in cell populations were observed in both the syringe and gavage treated mice, the needle gavage caused significant non-cellular damage to esophageal mucosal tissue, which is the most likely cause of failed tolerance induction to the OVA.