Concept mapping as a tool to learn immunopathogenesis

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Background

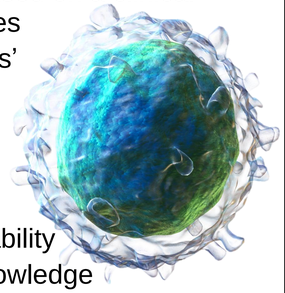
• A fundamental understanding of the immunopathogenesis of common diseases is essential for medical students

• It requires integration of both clinical and medical knowledge, but medical students often struggle with understanding basic immunological concepts (Bansal, 1997)

• Concept mapping using clinical vignettes has been shown to assist medical students in applying their basic knowledge to disease pathogenesis (Guerrero, 2001)

Purpose

To determine if constructing a concept map based on a clinical vignette improves medical students' understanding of basic immunological concepts and improves their ability to apply that knowledge to disease pathogenesis



Methods

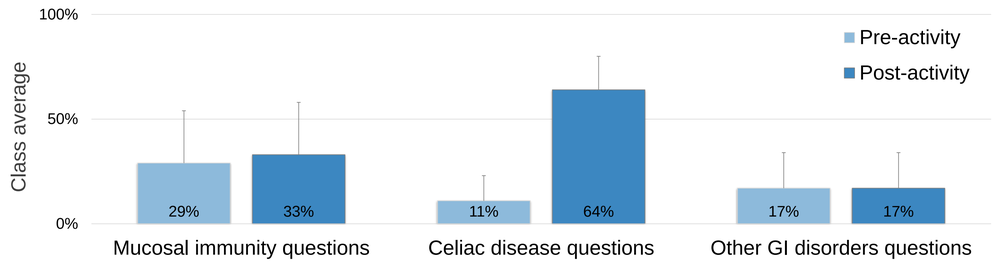
• First-year medical students were given an in-house generated video on mucosal immunity to watch prior to class

• In class, students were given a clinical vignette of a patient with celiac disease, an aberrant mucosal immune response to dietary gluten, and ask to complete a concept map outlining pathological mechanisms involved in that patient's presentation

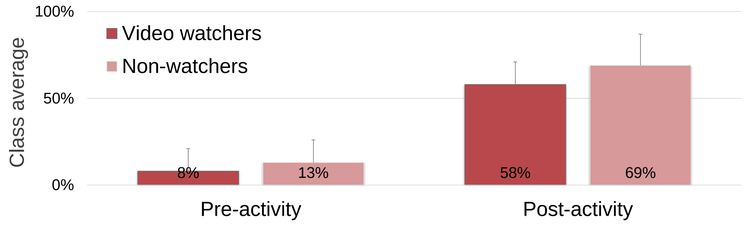
• Gains in knowledge were assessed by administering a 10-question, multiple-choice style quiz before and after the class session; the questions assessed different knowledge areas concerning mucosal immunity and related pathologies

Results

Significant improvement ($p < 0.001$) was limited to the questions about celiac disease



This improvement was independent of watching the provided video on mucosal immunity



Left image: Blausen.com staff (2014). "Medical gallery of Blausen Medical 2014". WikiJournal of Medicine 1 (2). Right image: https://www.scientificanimations.com/wiki-images/

Conclusions

• Concept mapping using a clinical vignette can be an effective method for learning immunopathogenesis

• Gains in knowledge may be limited to the particular disease state used for concept mapping

• Future research will explore if including more diseases into a concept mapping session would allow medical students to expand their knowledge of and ability to apply basic immunological concepts

Literature cited

Bansal, A. (1997) Medical students' views on the teaching of immunology. *Academic Medicine*, 72(8), 662.

Guerrero, A. P. S. (2001) Mechanistic case diagramming: A tool for problem-based learning. *Academic Medicine*, 76(4), 385-389.