The "DOGGIE BAG" Study

Gluten is not completely digested in the digestive tract. Consequently, fragments of gluten protein (peptides) are excreted in stool and urine. Recently, non-invasive technology has been developed to detect gluten immunogenic peptides, aka GIPS, in stool and urine. These tests may identify otherwise unrecognized or unnoticed gluten exposures.

Jocelyn Silvester, MD, **PhD**, pediatric gastroenterologist at Boston Children's Hospital, and celiac researcher at BIDMC's Celiac Center, is the lead author of this Determination of Gluten Grams Ingested and Excreted by Adults Eating Gluten-free, affectionately known as the "DOGGIE BAG" study. Participants collected a representative 25% sample of their food before they ate it so that researchers could test it for GIPS.

Read on to learn how Dr. Silvester and her colleagues used the GIPS technology and other tests to measure gluten exposure in the diets, stool, and urine of patients with celiac disease. A link to the full text is below.

Abstract

Background: A major deficit in understanding and improving treatment in coeliac disease (CD) is the lack of empiric data on real world gluten exposure.

Aims: To estimate gluten exposure on a gluten-free diet (GFD) using immunoassays for gluten immunogenic peptides (GIP) and to examine relationships among GIP detection, symptoms and suspected gluten exposures METHODS: Adults with biopsy-confirmed CD on a GFD for 24 months were recruited from a population-based inception cohort. Participants kept a diary and collected urine samples for 10 days and stools on days 4-10. 'Doggie bags' containing ¼ portions of foods consumed were saved during the first 7 days. Gluten in food, stool and urine was quantified using A1/G12 ELISA.

Results: Eighteen participants with CD (12 female; age 21-70 years) and three participants on a gluten-containing diet enrolled and completed the study. Twelve out of 18 CD participants had a median 2.1 mg gluten per exposure (range 0.2 to >80 mg). Most exposures were asymptomatic and unsuspected. There was high intra-individual variability in the interval between gluten ingestion and excretion. Participants were generally unable to identify the food.

Conclusions: Gluten exposure on a GFD is common, intermittent, and usually silent. Excretion kinetics are highly variable among individuals. The amount of gluten varied widely, but was typically in the milligram range, which was 10-100 times less than consumed by those on an unrestricted diet. These findings suggest that a strict

GFD is difficult to attain, and specific exposures are difficult to detect due to variable time course of excretion.

To read the full text, click here: