GLUTEN SENSITIVITY

BIOMARKERS AND EPIDEMIOLOGY, Results from NHANES 2009-2010

Peter HR Green
Celiac Disease Center
Columbia University
New York

BIOMARKERS

NON CELIAC GLUTEN SENSITIVITY

Currently gluten sensitivity is a self diagnosis, not physician derived diagnosis

QUESTIONS

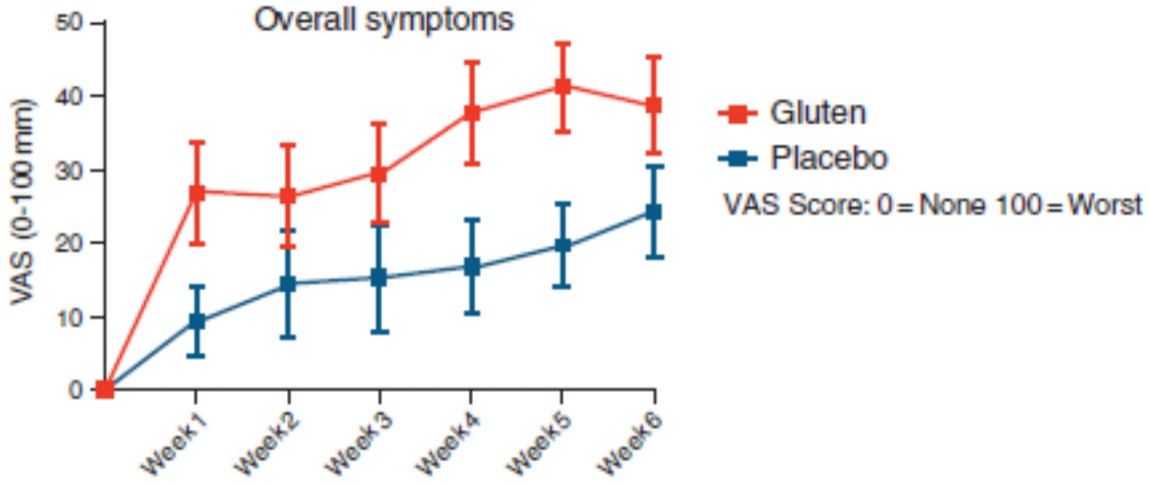
- Does it exist?

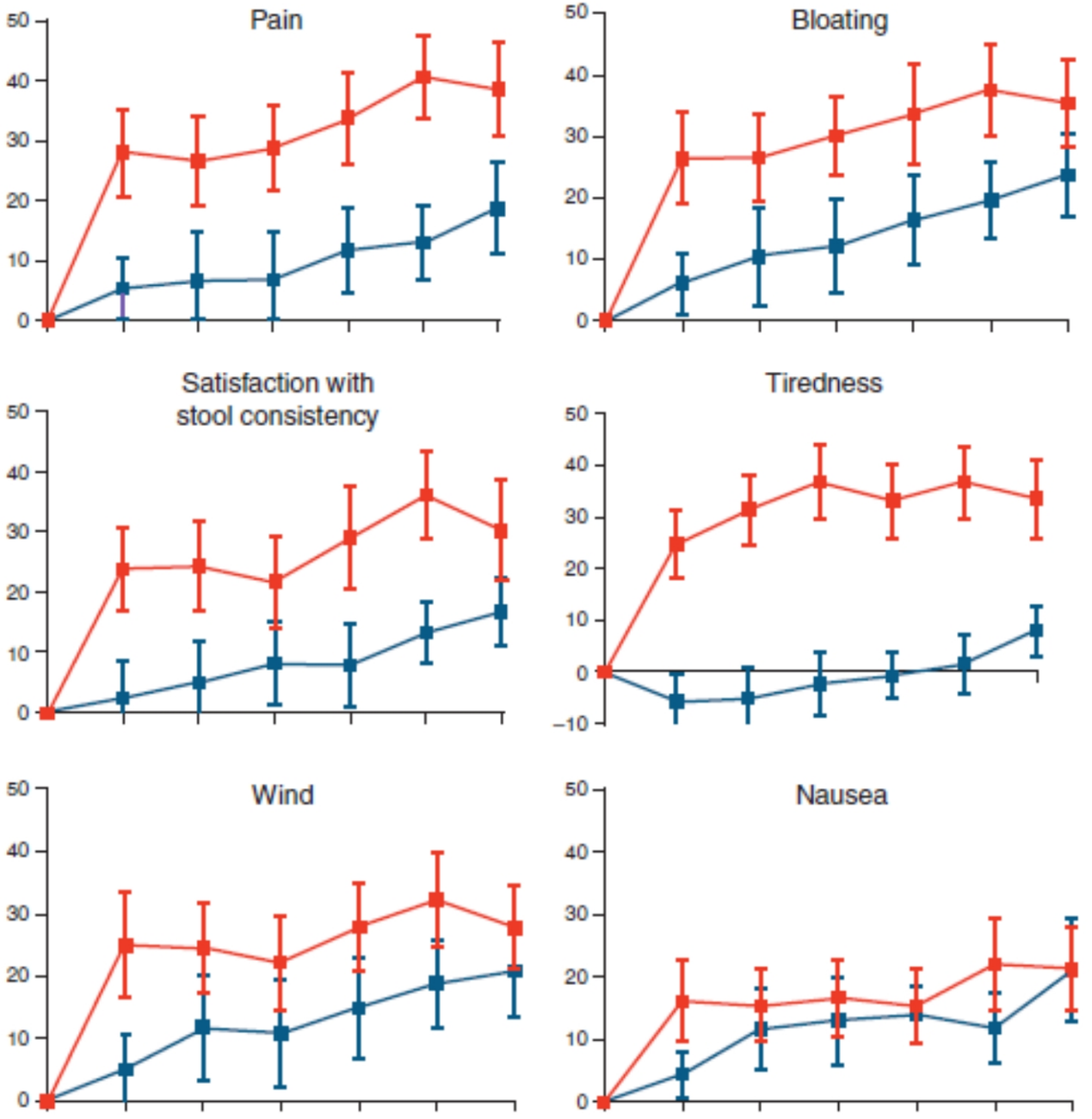
Gluten Causes Gastrointestinal Symptoms in Subjects Without Celiac Disease: A Double-Blind Randomized Placebo-Controlled Trial

Jessica R. Biesiekierski, B Appl Sci[1], Evan D. Newnham, MD, FRACP[1], Peter M. Irving, MD, MRCP[1], Jacqueline S. Barrett, PhD, BSc, MND[1], Melissa Haines, MD[1], James D. Doecke, BSc, PhD[2], Susan J. Shepherd, B Appl Sci, PhD[1], Jane G. Muir, PhD, PGrad Dip(Dietetics)[1] and Peter R. Gibson, MD, FRACP[1]

Am J Gastroenterol advance online publication, 11 January 2011; doi:10.1038/ajg.2010.487

- Gluten sensitive IBS patients, n= 34
- Celiac disease while eating gluten was excluded





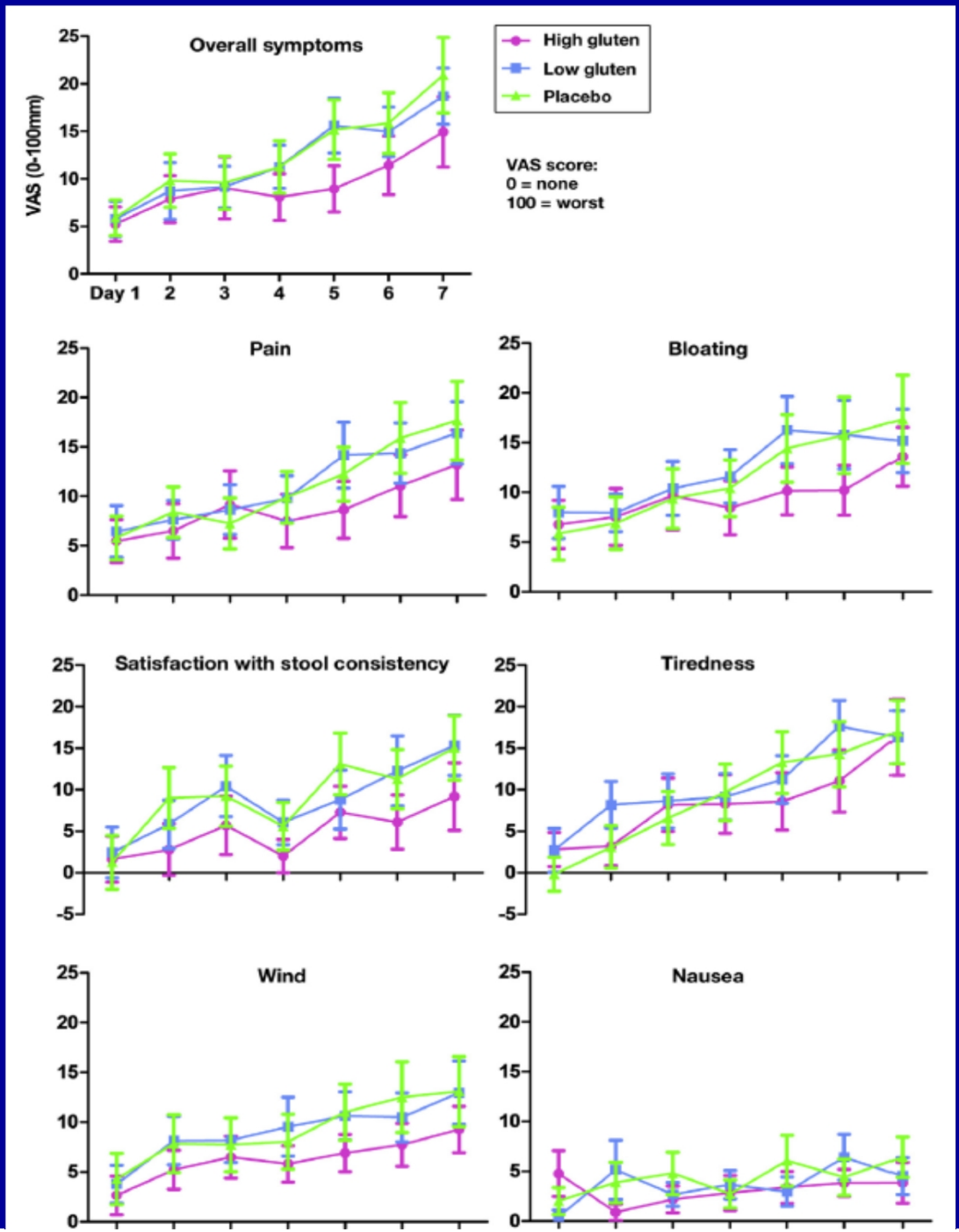
ptom severity from baseline in the gluten and placebo-treated groups over 6 weeks of the study. Data shown repro

GASTROENTEROLOGY 2013;145:320–328

No Effects of Gluten in Patients With Self-Reported Non-Celiac Gluten Sensitivity After Dietary Reduction of Fermentable, Poorly Absorbed, Short-Chain Carbohydrates

JESSICA R. BIESIEKIERSKI,[1,2] SIMONE L. PETERS,[2] EVAN D. NEWNHAM,[1] OURANIA ROSELLA,[2] JANE G. MUIR,[2] and PETER R. GIBSON[2]

[1]Department of Gastroenterology, Eastern Health Clinical School, Monash University, Box Hill, Victoria, Australia and [2]Department of Gastroenterology, Central Clinical School, Monash University, The Alfred Hospital, Melbourne, Victoria, Australia


Overall symptoms
High gluten
Low gluten
Placebo
VAS (0-100mm)
VAS score:
0 = none
100 = worst
Day 1 2 3 4 5 6 7
Pain
Bloating
Satisfaction with stool consistency
Tiredness
Wind
Nausea

NON CELIAC GLUTEN SENSITIVITY

Currently gluten sensitivity is a self diagnosis, not physician derived

QUESTIONS

- Does it exist?
- Is it one condition?
- Should we include those with positive gliadin antibodies and psychiatric disorders, with no GI symptoms, as GS?

OPEN ACCESS Freely available online

PLOS ONE

Markers of Celiac Disease and Gluten Sensitivity in Children with Autism

Nga M. Lau[1,2], Peter H. R. Green[1,2], Annette K. Taylor[3], Dan Hellberg[4], Mary Ajamian[1,2], Caroline Z. Tan[1,2], Barry E. Kosofsky[5,6], Joseph J. Higgins[6], Anjali M. Rajadhyaksha[5,6], Armin Alaedini[1,2,7]*

1 Department of Medicine, Columbia University, New York, New York, United States of America, **2** Celiac Disease Center, Columbia University, New York, New York, United States of America, **3** Kimball Genetics, a Division of LabCorp, Denver, Colorado, United States of America, **4** Center for Clinical Research, Uppsala Univeristy, Falun, Sweden, **5** Department of Neurology & Neuroscience, Weill Cornell Medical College, New York, New York, United States of America, **6** Department of Pediatrics, Weill Cornell Medical College, New York, New York, United States of America, **7** Institute of Human Nutrition, Columbia University, New York, New York, United States of America

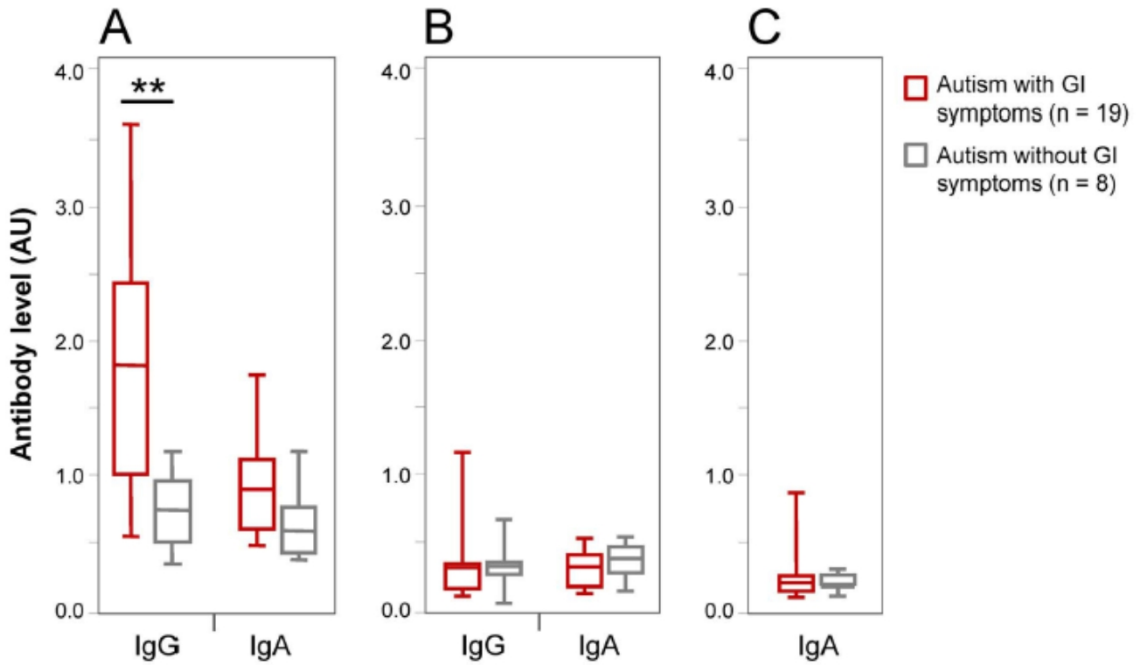


Figure 3. Comparison of levels of antibody to A) gliadin, B) deamidated gliadin fusion peptide, and C) human TG2 in autisti children, with and without GI symptoms. Boxed segments represent the middle 50% of the data. Whiskers indicate the range of data. Larg horizontal bars indicate mean value of the data. ** = $p<0.01$.

Scandinavian Journal of Gastroenterology. 2013; Early Online, 1–5

informa
healthcare

ORIGINAL ARTICLE

Prevalence of gluten-free diet adherence among individuals without celiac disease in the USA: results from the Continuous National Health and Nutrition Examination Survey 2009–2010

DANIEL V. DIGIACOMO[1,2], CHRISTINA A. TENNYSON[1], PETER H. GREEN[1] & RYAN T. DEMMER[2]

[1]*Department of Medicine, Celiac Disease Center at Columbia University, Columbia University, New York, NY 10032, USA, and* [2]*Department of Epidemiology, Mailman School of Public Health, Columbia University, New York, NY 10032, USA*

NHANES

A nationally representative sample of ~ 5,000 civilian, non-institutionalized persons each year questionnaire, physical examination and laboratory assessments.

NHANES 2009-2010

- self-report physician-diagnosed celiac disease ?
- gluten-free diet?
- anti-transglutaminase and endomysial IgA were also collected.
- those adhering to a gluten-free diet without celiac disease (NCGS?)

CHARACTERISTICS OF NHANES SAMPLE

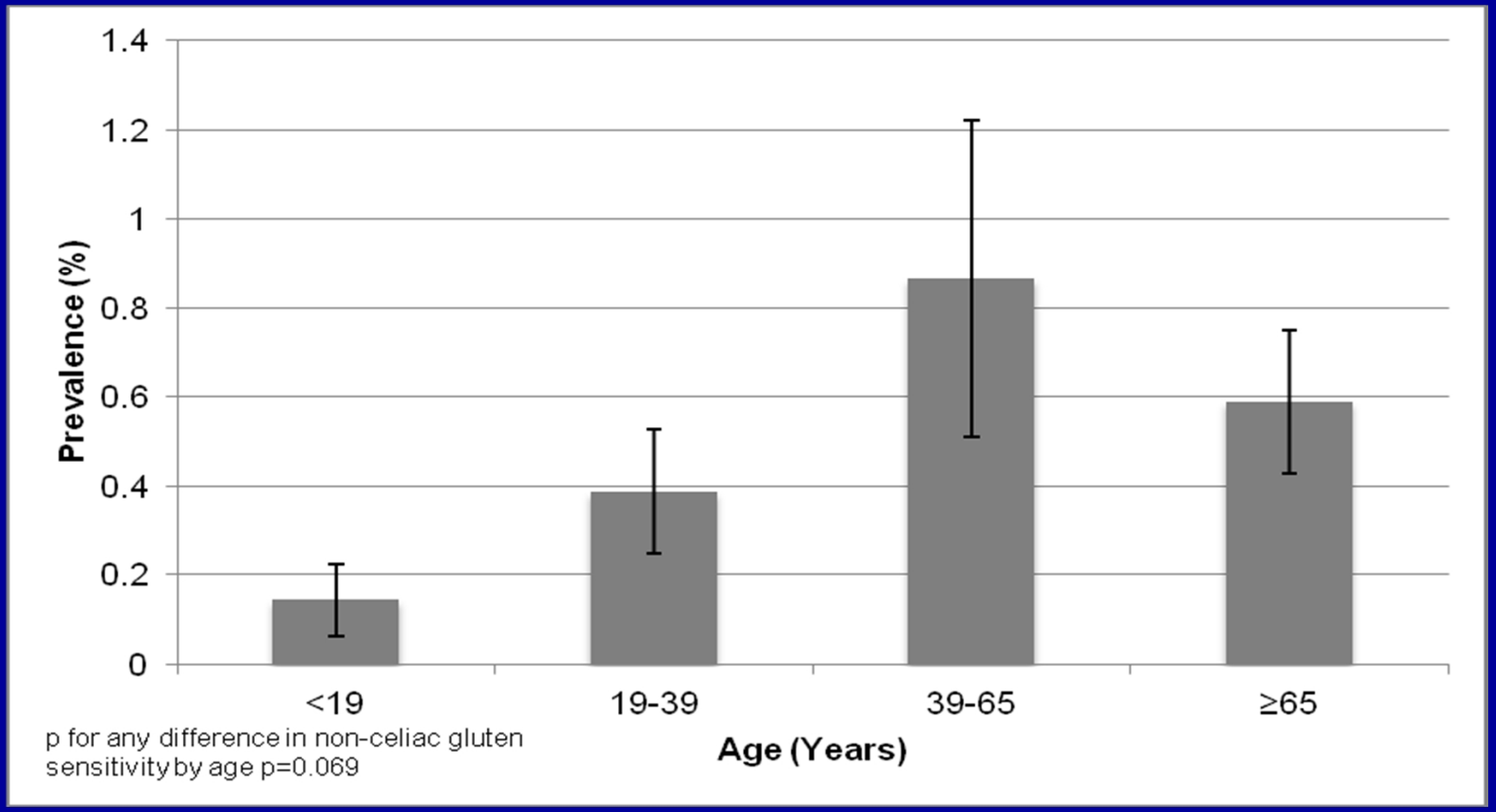
- mean age 40.6 [95%CI: 39.6-41.6] years
- 51.0 % female
- 66.2% White, 11.3% African American, 15.3% Hispanic and 7.16% Other
- sample was generalizable to 252,048,706 Americans

THOSE ON A GF DIET without celiac disease

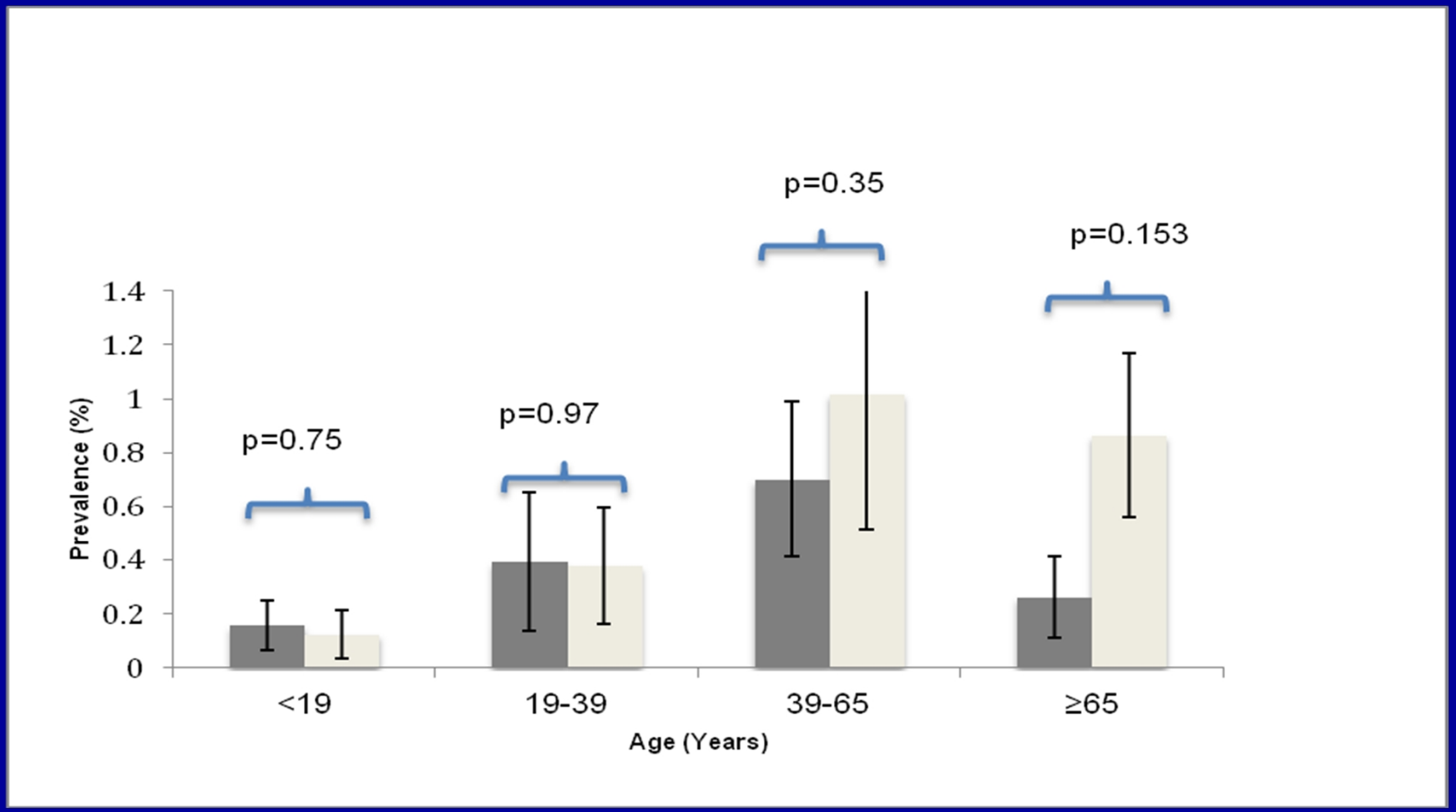
- weighted national prevalence estimate of 0.548% [95%CI: 0.205-0.889]
- 1,380,381 [95%CI: 517,930-2,242,849] individuals in the U.S.

PREVALENCE OF NCGS STRATIFIED BY AGE.

NHANES 2009-2010.



PREVALENCE OF NCGS STRATIFIED BY AGE (YEARS) AND GENDER..



GREY = MALE

RACE AND EDUCATIONAL LEVEL

- Hispanics 0.441% [95%CI: 0.068-0.814]
- non-Hispanic Blacks 0.829% [95%CI: 0.175-1.48],
- non-Hispanic Whites 0.443% [95%CI: 0.012-0.874]
- Other race/ethnicity 1.29% [95%CI: 0.00-2.72],

p for any difference=0.33

- mean age of NCGS vs non-NCGS

  46.7 [95%CI: 42.4-50.9] vs. 40.5 [95%CI: 39.5-41.5] (p=0.005)

EDUCATIONAL AND SOCIOECONOMIC STATUS

No difference in prevalence of

- education status (completed high school vs. not).
- Family Income to Poverty ratio (3.00 vs. 2.90, p=0.64).

THOSE ADHERING TO GFD WITHOUT CELIAC DISEASE

- Significantly lower waist circumference, BMI, WBC, HbA1c, TSH, current smoker
- Lower Hb and iron
- More likely to be normal weight
- Significantly higher HDL, MCV
- No difference in Systolic BP, Cholesterol, CRP, Serum Folate

CONCLUSIONS

- Prevalence NCGS 0.548% [95%CI: 0.206-0.889]
- higher among females, older individuals and Non-Hispanic Blacks
- Abnormalities in hematological parameters may reflect inadequacies of the GF diet
- lower cardio metabolic risk (BMI was lower, were also more likely to be normal weight, sl lower CRP, higher HDL)
- Cannot exclude self Dx/Rx CD

PATIENTS WHO AVOID WHEAT AND GLUTEN (PWAWG = NCGS)

CELIAC CENTER COLUMBIA UNIVERSITY

- retrospective cross-sectional study
- four gastroenterologists over one year
- Patients with PWAWG (NCGS) were identified using ICD code 995.7, “other adverse food reactions not elsewhere defined.”
- compared to biopsy proven CD and NHANES

CHARACTERISTICS OF PATIENTS WITH NON-CELIAC GLUTEN SENSITIVITY

- 84 patients self-diagnosed NCGS, 79% female
- most common presenting symptoms were bloating (61%), abdominal pain (60%), fatigue (51%), and diarrhea (43%)
- compared to CD (n=585), similar number of female patients, body mass index, mean hemoglobin value, and mean age at diagnosis
- 69% were DQ2/8

- Other food avoidances 52%
  Dairy 59% Soy 25%
- Alternative Diagnoses 38%

Small Intestinal Bacterial Overgrowth	50%
Fructose Intolerance	16%
Lactose Intolerance	9%
Food intolerances	9%
Microscopic Colitis	9%
Gastroparesis	3%
Pelvic Floor Dysfunction	3%

PWAWGs vs NHANES

- Compared to NHANES (normal US population)
- male and female PWAWG had a lower BMI, mean hemoglobin values, and folate values
- Less likely to have hypertension
- Possible protective cardiac profile

CONCLUSIONS

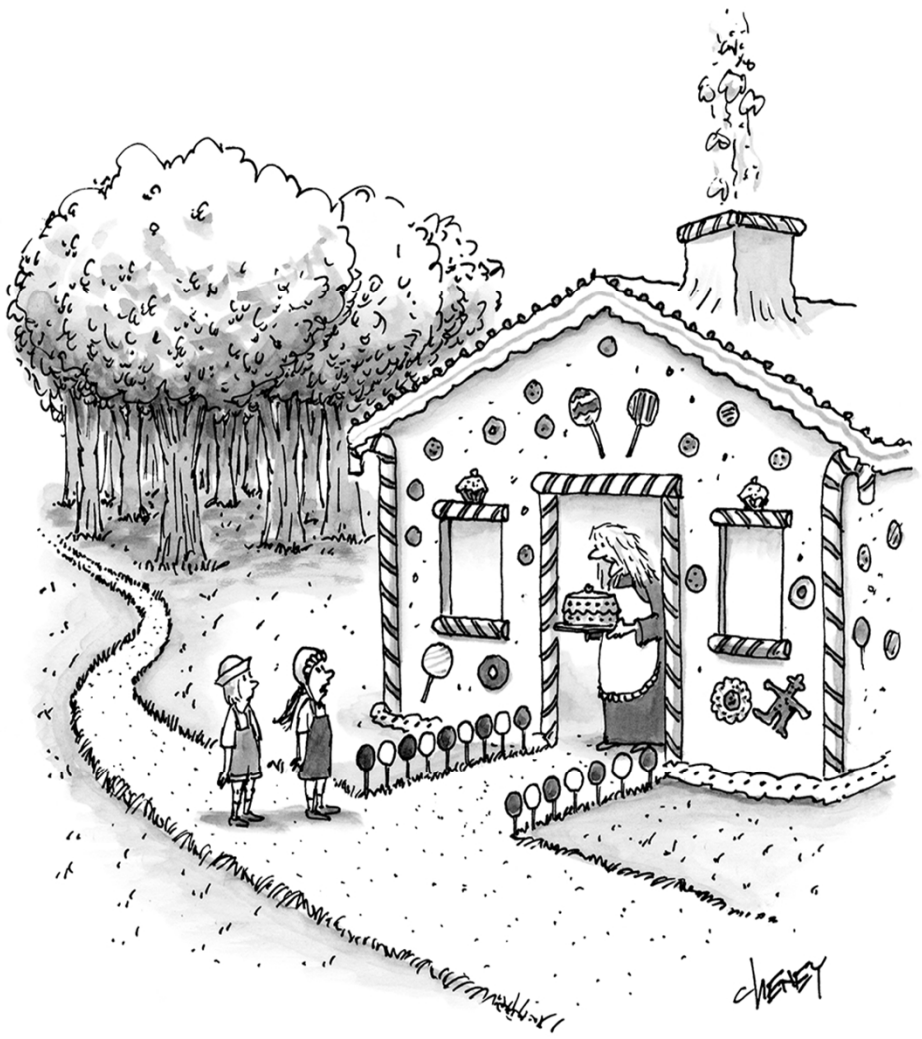
- PWAWG are similar to those with CD
- Alternative diagnoses especially SIBO and other food intolerances (fructose) are common
- Many of the patients have persistent symptoms
- Not all PWAWG are NCGS

Gluten Sensitivity: Not Celiac and Not Certain

ROHINI VANGA
DANIEL A. LEFFLER
The Celiac Center, Beth Israel Deaconess Medical Center, Boston, Massachusetts

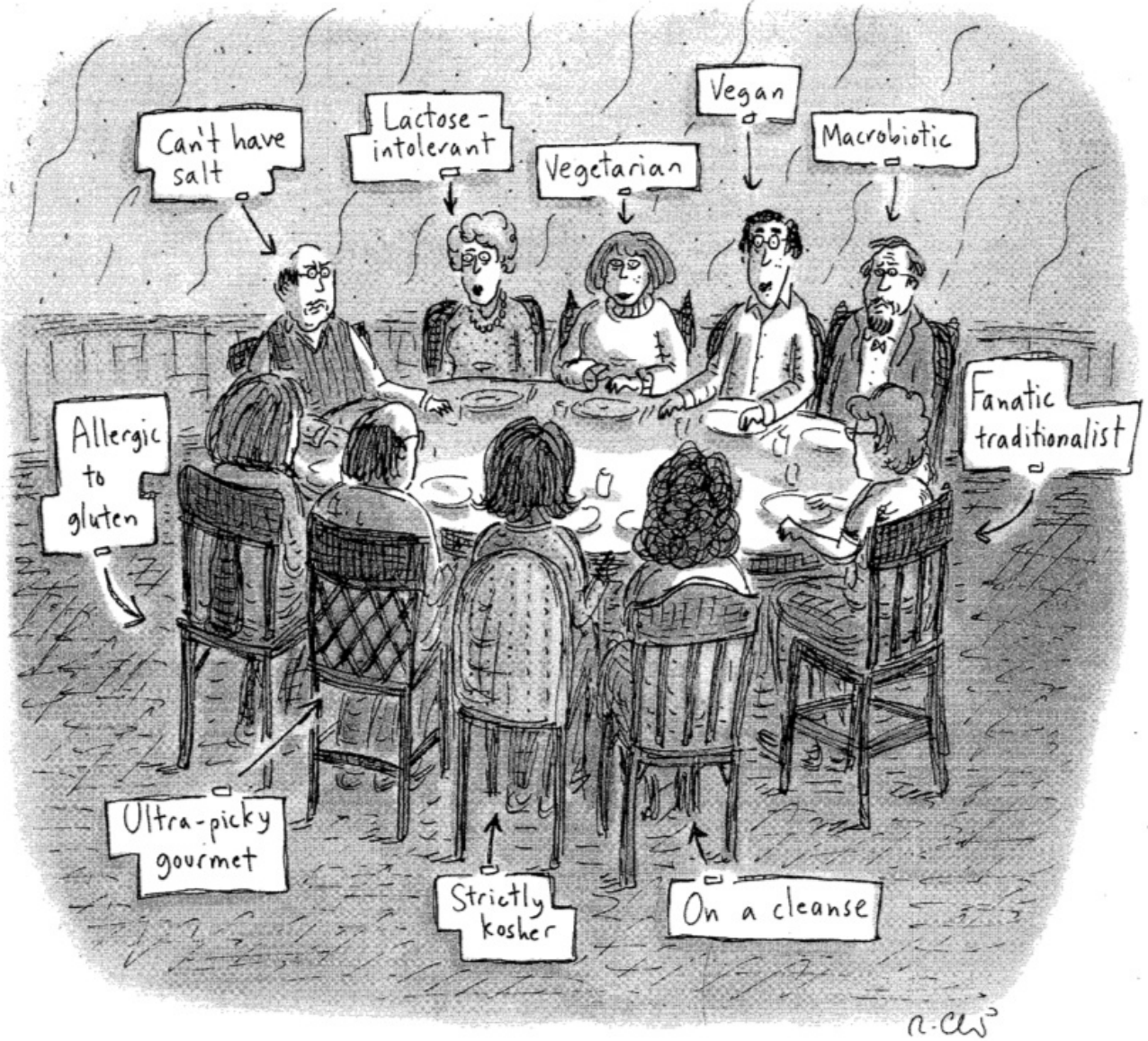
Editorials

0016-5085/$36.00
http://dx.doi.org/10.1053/j.gastro.2013.06.027



"Before we come in, was any part of your home produced in a facility that also handles wheat, milk, nuts, eggs, or soy?"

THE LAST THANKSGIVING



THE NEW YORKER, NOVEMBER 22, 2010