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EDITORIAL

Doctor, why am I a celiac if I'm Mexican? Breaking another paradigm of celiac disease in Mexico ☆,☆☆



¿Doctor, por qué soy celíaco si soy mexicano? Rompiendo un paradigma más de la enfermedad celíaca en México

In medicine, a paradigm is a model or a theory that provides an integrated explanation of the processes of health and disease. Paradigms establish what is "normal" or legitimate as knowledge and intervention, while being coherent with current understanding.¹ A paradigm's condition of dominant or hegemonic validity, of almost absolute acceptance by the respective community or society, as well as by its transmitters and practitioners, is characteristic. New generations are educated under that paradigm and society itself is organized based on its principles, hence the official and coercive nature of its presence.

In medicine, to challenge or "break" a dominant paradigm is a risk that can involve crisis, revolution, or changes in the way diagnoses are made and treatments are established.

In the case of celiac disease (CD), also known as celiac sprue or gluten-sensitive enteropathy, a disease that causes varying degrees of damage to the mucosa of the small bowel in genetically susceptible individuals,² paradigms have been broken in the past decade in our country.

In Mexico, CD had traditionally been considered a rare pathology, almost exclusive to certain racial groups, mainly to individuals directly descended from Europeans, who are the more frequent carriers of the genes associated with CD. Genetic susceptibility is conferred by the HLA-DQ2 histocompatibility allele with the typical DQA1*0501/DQB1*0201 heterodimer, present in 95% of the individuals with CD, and

by the HLA-DQ8 allele with the HLA-DQB1*0302 heterodimer, present in the remaining 5%.³

The Mexican population is very special, given that it is composed of a majority of Mestizos, a mixed-race population whose gene proportion is 56% Native American, 40% Caucasian, and 4% African.⁴ In 2006, the first population study on the serologic detection of CD in the serum of healthy blood donors in Mexico (n = 1009), demonstrated an unexpectedly high prevalence of positivity for tTGA-IgA (2.6%).⁵ Two later studies showed that actual prevalence probably fluctuated between 0.7 to 1.1% (95% CI: 1.6-3.2%).^{6,7} In a more recent study conducted by our group, we reported that 0.9% of the Mexican population could have CD.⁸ Thus, it is estimated that between 800,000 to 1,000,000 persons in Mexico have CD and might benefit from a gluten-free diet.

And so, the paradigm that CD in Mexico is very rare is no longer valid. From the epidemiologic perspective, we know that it is just as frequent as in other parts of the world. Despite that fact, there is little knowledge of the genetics of CD in our country.

In the present issue of the *Revista de Gastroenterología de México*, Sigala-Robles et al.⁹ elegantly provide information with respect to CD genetics in Mexico. From a genetic and environmental study of a pediatric case, the authors demonstrated the presence of the DQ2 and DQ8 haplotypes in 75% of a 12-member Mexican Mestizo family from a rural zone in Northern Mexico (two cases had DQ2/DQ8 and 7 cases had only DQ2). That figure is higher than those reported in the general population (30-40%) in Europe, Asia, and the Americas, including Mexico (24% DQ8 and 16% DQ2).¹⁰ Moreover, as the authors commented, in Europe 88% of the cases with CD have the HLA-DQ2 haplotype, or its variants.¹¹ Therefore, the study by Sigala-Robles et al. showed that Mexican relatives of patients with CD were genetically similar to European patients, breaking the paradigm that "Mexican" genes protect us from or prevent CD.

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Furthermore, it is important to recognize that not everything is genetics - there are also determining environmental factors, as is known with respect to many autoimmune diseases. The probability of viral infections as triggers of the autoimmune process stands out as an environmental factor that has been associated with CD, as does early exposure to food antigens. In the present study, Sigala-Robles et al. described an environment of a traditional Mexican extended family from a rural area, living in houses adjoining, or very close to, each other, sharing the environment, their customs in raising the family, in eating, their lifestyles, and how they treat illnesses. It is difficult to determine which of those environmental factors were essential for 75% of the relatives to have a high prevalence of positive anti-transglutaminase antibodies (75%), in addition to having the genetic susceptibility, and thus be considered latent or potential celiacs. It is hard to establish, given that the authors did not evaluate in detail the type of food the subjects ate, the specific quantity of gluten they were exposed to and for how long, their exposure to antibiotics, or their development of viral infections in early stages. Despite that limitation, the authors interestingly found that 46% of the cases were diagnosed with bronchial asthma, possibly associated with shared genetic and environmental conditions, as well. The present study also breaks the paradigm that CD is a disease that is related to urbanization and the higher social classes.

In conclusion, the study on genetics and the environment in this issue of our journal can help us answer one of the questions most frequently asked by Mexican patients with CD: "Why me, if I'm Mexican?" The evidence now provided makes the answer less complex: "Because, just as in other parts of the world, we have genes and conditions that make us susceptible to the disease."

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this investigation.

Confidentiality of data. The authors declare that no patient data appears in this article.

Right to privacy and informed consent. The authors declare that no patient data appear in this article.

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Conflict of Interest

Dr. José María Remes-Troche is a Member of the Advisory Board of Takeda Pharmaceuticals, Alfa-Wassermann,

and Almirall and is a Speaker for Takeda, Asofarma, Alfa-Wassermann, Almirall, and Astra-Zeneca.

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