Diabetes in the Latino Population of the United States

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Abstract

The Latino population accounts for the largest minority group in the United States and is expected to make up 25% of the country's total population by the year 2050. Consequently, healthcare professionals must be aware of issues affecting Latino health. The most pressing of these issues is the high incidence of type 2 diabetes. Latinos in the United States are twice as likely to develop type 2 diabetes as non-Hispanic whites. The prevalence of diabetes in the Latino population is attributed to several factors including acculturation, lack of access to healthcare, language and cultural barriers, a genetic propensity towards obesity, and organochlorine pesticides. Public health workers and healthcare providers must offer effective and culturally sensitive education as well as primary healthcare to prevent, treat, and manage diabetes in the Latino population.

Background

- Latinos make up the largest minority group in the United States
- There are 35 million Latinos in the United States, and this number is expected to rise to 60 million by the year 2020
- Latinos make up 14% of the country's population, and this number is expected to rise to 25% by the year 2050 (Figure 1)
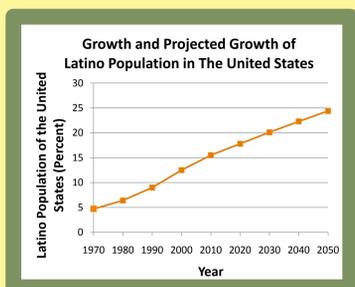

Figure 1
Graph of census data showing the growth and estimated growth of the Latino population in the United States from 1970 to 2050

- Latinos are 2x as likely to develop type 2 diabetes as non-Hispanic whites (Figure 2)
- By the year 2020, the Latino population is expected to see a 107% increase in the disease while the non-Hispanic white population is expected to see a 44% increase
- Latinos experience increased complications associated with diabetes such as cardiovascular disease, retinopathy, neuropathy, nephropathy, amputations, and mortality
- The following five factors significantly influence the high incidence of diabetes in the Latino population and must be addressed by healthcare professionals: acculturation, lack of access to healthcare, language and cultural barriers, genetics, and organochlorine pesticides
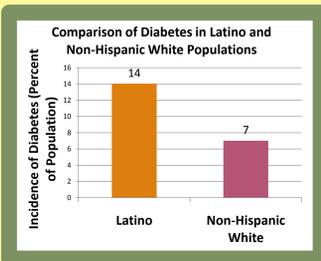

Figure 2
Graph comparing the incidence of diabetes in the Latino and non-Hispanic white populations

Inspiration for Research

I spent the summer of 2007 as an intern in Tlaxiaco, Mexico through an organization called Global Frontier Missions. One of my primary roles as an intern was to help lead free medical clinics throughout the summer. I interpreted for physicians, nurses, and dentists from the United States who came to Tlaxiaco to participate in short term medical mission trips. I noticed a high incidence of diabetes among the people who came to the clinic, and I was curious as to whether this trend was consistent for Latinos in the United States as well.

Clockwise from top left: Blood pressure and pulse measurements being taken at the free medical clinic, a view of Tlaxiaco from the mountain above the base, the summer interns, me interpreting for a U.S. physician, the pharmacy, and the optical center.

Factor 1: Acculturation

- Acculturation is the process in which immigrants change behaviors, beliefs, and values to match the majority culture
- Acculturation increases with the amount of time spent in the United states and is positively correlated with diabetes in the Latino population
- Acculturation results in:
  - poorer preventative health
  - worse health behaviors
  - increased dietary change
  - decreased physical activity
  - increased body mass index (BMI)
  - increased obesity
- Health continuously declines from the first generation after immigration through the following generations

Factor 2: Lack of Access to Health Care

- Latinos are the most uninsured of all racial and ethnic groups in the United States for health care
- 2/3 of Latinos do not have health insurance (Figure 3)
- 27% of Latino children are uninsured while 9% of non-Hispanic white children are uninsured (Figure 4)
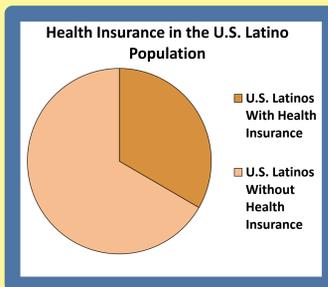

Figure 3
Graph comparing the proportion of Latinos in the United States with health insurance and without health insurance
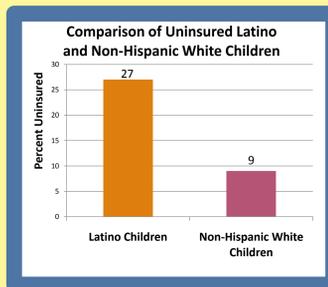

Figure 4
Graph comparing percentage of uninsured Latino children and uninsured non-Hispanic white children

- Lack of health insurance results in:
  - limited access to primary healthcare
  - inadequate preventative care
  - late detection of diabetes
  - limited treatment options due to expensive medications and care regimens

Factor 3: Language and Cultural Barriers

- Due to language and cultural barriers, there is limited knowledge in the Latino population regarding nutrition and the consequences of obesity and diabetes
- Poor health literacy and diabetes understanding is associated with:
  - worse glycemic control
  - worse treatment plan adherence
  - increased incidence of retinopathy
  - misconceptions about insulin
- Latinos are disproportionately underrepresented in the healthcare field (Figure 5)
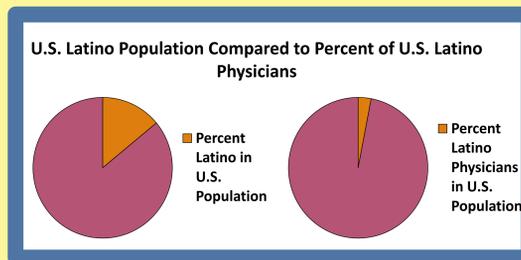 - this hinders cultural understanding in relating to and treating Latino patients

Figure 5
Graph showing disproportionately underrepresented ratio of Latino physicians in the United States

- There is also a great shortage of bilingual healthcare providers
  - the level of communication between a patient and the healthcare provider is positively correlated with treatment plan adherence and successful treatment outcomes
  - the patient must be able to communicate with the provider in his or her primary language to ensure understanding

Factor 4: Genetic Predisposition

- Having a first degree relative with type 2 diabetes doubles one's risk for developing the disease
- Native Americans (including those from Latin America) and African Americans have higher rates of diabetes
  - Native American surnames are linked with a higher incidence of diabetes
  - most Latinos have some native ancestry
- Adiponectin is a protein hormone released from adipose tissue that increases insulin sensitivity
  - adiponectin can be used as a marker for diabetes
  - its levels decrease with obesity
  - low levels of adiponectin are associated with an increased risk of diabetes
  - adiponectin is linked with chromosomes 11, 8, 18, 3, and 10 (Figure 6)
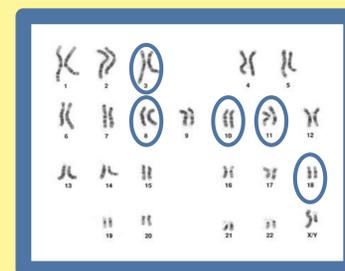

Figure 6
A karyotype illustrating the genes linked to adiponectin, a protein hormone used as a marker for diabetes

Factor 5: Organochlorine Pesticides

- Organochlorine pesticides were banned from the United States in the 1970s and 80s, but they are still being phased out of Mexico
- Serum levels of organochlorine pesticides and metabolites are highest in Mexican Americans
- There is a positive correlation between the presence of the chemical and the incidence of both type 1 and type 2 diabetes
  - this may support the idea that organochlorine pesticides increase the incidence of diabetes
  - alternatively, it is possible that diabetes elevates the pesticide serum levels by increasing the solubility of the pesticide in the serum

Solutions

- Preventative health education programs that focus on exercise and nutritious eating to counter acculturation
- Culturally sensitive community support groups to help manage diabetes
- Additional governmental programs to help increase the percentage of Latinos with health insurance
- Increased number of Latino healthcare professionals
- Increased availability of bilingual healthcare professionals

Conclusion

Diabetes is one of the most critical health issues facing the Latino population of the United States. Latinos have double the incidence of diabetes as non-Hispanic whites and are more severely affected by complications associated with the disease. Factors that encourage the high rate of diabetes in the Latino population include acculturation, lack of access to healthcare, language and cultural barriers, genetics, and the prevalence of organochlorine pesticides. To lower the rate of diabetes in the Latino population, healthcare workers must focus on preventative and disease management education, increase the opportunities for uninsured individuals to receive healthcare, and offer culturally sensitive primary care for Latinos.

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