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A Comparison of the Prevalence of Cirrhosis in a Hispanic and Non-Hispanic Population Based on Body Mass Index

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9331 Research Elective Report

Retrospective Study on Liver Cirrhosis in the Valley and Two Case Reports on COVID-19 and Palliative Care in the Setting of Traumatic Brain Injury

9331 Submission #1

Retrospective Study 1

Part 1.1 Abstract

Title: *A Comparison of the Prevalence of Cirrhosis in a Hispanic and Non-Hispanic Population Based on Body Mass Index*

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ABSTRACT

BACKGROUND:

The obesity epidemic is a growing public health concern. In addition to the already known complications and comorbidities associated with obesity, data suggest that obesity is an independent risk factor for the development of liver disease. [1,2] However, there is a paucity of data regarding the clinical correlation of obesity and cirrhosis in a predominantly Hispanic population. Therefore, the aim of this study is to investigate the prevalence of cirrhosis stratified by BMI in a predominately Hispanic population.

RESULTS:

DISCUSSION:

Previous study by Jiao and colleagues observed a 4-fold higher prevalence of cirrhosis in Hispanics versus the general US population in South Texas.[3] Therefore, these researchers also expect an increase in prevalence of cirrhosis in Hispanics compared to the US population. Previous studies have found an association between cirrhosis and body mass index.[4,5] However, there is a lack in data in a predominantly Hispanic population.

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INTRODUCTION

The obesity epidemic is a growing public health concern. According to the CDC, the overall prevalence of obesity in the United States was 39.8% in 2015-2016. [1] The prevalence of obesity is even higher in individuals of Hispanic origin (47.0%).[1] In addition to the already known complications and comorbidities associated with obesity, data suggest that obesity is an independent risk factor for the development of liver disease. [2,3] Obesity has been implicated as a risk factor for alcoholic-like inflammation, septal fibrosis, and progression to liver cirrhosis. [2,4,5] The adipose tissue in obesity is proinflammatory, proangiogenic, and profibrogenic in hepatic tissue. [6,7] A study from the United Kingdom found that an estimated 17% of cases of liver cirrhosis are attributable to excess body weight. [8] Moreover, each 5 kg/m^2 increase in body mass index (BMI) was associated with about 30% higher risk of hepatic mortality. [9]

Studies have found ethnic differences in the incidence of cirrhosis and rate of disease progression. [10,11] Specifically, one study found a 4-fold higher prevalence of cirrhosis in Cameron County, Texas (0.94%) than the national prevalence (0.27%). [11] According to the United States Census Bureau, 89.9% of the population of Cameron County is Hispanic. Furthermore, in the United States, chronic liver disease and cirrhosis are the 7^{th} leading cause of death in Hispanics, 11th in Non-Hispanics white, and 14^{th} in Non-Hispanic blacks. [12] These ethnic variations are likely due to a complex interplay between biological, social and behavioral factors.

There is a paucity of data regarding the clinical correlation of obesity and cirrhosis in a predominantly Hispanic population. Additionally, data is limited on the contribution of BMI to the incidence of liver cirrhosis in Hispanics in South Texas. Therefore, the aim of this study is to investigate the prevalence of cirrhosis stratified by BMI in a predominately Hispanic population.

MATERIALS AND METHODS

This retrospective single-centered study was approved by the University of Texas Rio Grande Valley institutional ethics and review board. Since this is a retrospective study, informed consent was waived. We retrospectively reviewed patient electronic medical records admitted to Valley Baptist Medical Center in Harlingen, Texas with cirrhosis between October 2015 to November 2020 age > 18. In-hospital admission variables were collected through review of electronic medical records. These variables include basic demographic information, vital signs, social history, past medical history, and laboratory values. Additional data collected during hospital stay were also collected, such as abdominal imaging exams (e.g., ultrasound, CT of liver) and pathology results of liver biopsies.

RESULTS

Demographics and presenting features of the patients on admission are illustrated in Table 1.

FIGURES

Table 1. Characteristics of patients.

Variable	**Total (N =)**	**Underweight (<18.5 kg/m^2) (n =)**	**Normal Weight (18.5 - 24.9 kg/m^2) (n =)**	**Overweight (25.0 – 29.9 kg/m^2) (n =)**	**Obese (≥ 30.0 kg/m^2) (n =)**	**P value**
Female						
Male						
Age, years						
Hispanic						
Non-Hispanic						
Hypertension						
Hyperlipidemia						
Liver disease						
AST						
ALT						
Alkaline Phosphatase						
GGT						
Creatinine						
GFR						
Fasting plasma glucose						
Triglycerides						
LDL						
HDL						
HCV antibody						
HBV surface antigen						
Fasting insulin						
Platelets						
Total bilirubin						

DISCUSSION

The main objective of the current study is to identify the prevalence of cirrhosis stratified by BMI in a predominately Hispanic population.

Previous study by Jiao and colleagues observed a 4-fold higher prevalence of cirrhosis in Hispanics versus the general US population in South Texas. [11] Therefore, these researchers also expect an increase in prevalence of cirrhosis in Hispanics compared to the US population. Previous studies have found an association between cirrhosis and body mass index, there is a lack in data in a predominantly Hispanic population.[8,13]

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