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Shabbir Hossain  
*Rowan University*

Adarsh Gupta D.O.  
*Rowan University*

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Correlation of Chronic Conditions and Pain Scale with Varying Levels of Obesity in the Geriatric Population

Shabbir Hossain OMS II, Dr. Adarsh Gupta D.O., M.S., FACOFP
Rowan University School of Osteopathic Medicine – Center for Medical Weight Loss & Metabolic Control

INTRODUCTION

The overall objective of this study was to establish whether obesity’s contribution to pain is stronger than vice versa – the medical deities in elderly patients that contribute to obesity. In the process, this study will allow us to achieve whether different age samples with similar BMIs demonstrate the same level of medical complexities in geriatric patients. In summary, the purpose of this research study was to correlate a relationship between obesity and aging. We hypothesized that obesity will contribute to greater pain in the aging population, and that patients – regardless of their age groups in the aging population – will have a tendency to experience more age-related health co-morbidities in a direct correlation with higher BMI, as opposed to elderly patients within normal BMI ranges who experience similar pain. Thus, making obesity the stronger influence towards age-related comorbidities. We aimed to evaluate whether obesity accelerates the aging process versus aging being the major stimulus/cause in our tendency to become obese. In the process of doing so, this study allowed us to: 1) compare geriatric pain level in patients/subjects and thus categorize them into three groups: Mild Pain, Moderate Pain, or Severe Pain; 2) compare individual Body Mass Index (BMI) ranges and determine whether that can be correlated with pain in the aging population; 3) identify whether there is a statistical linkage between chronic medical illnesses subjects possess and their BMI; 4) determine whether younger patients/individuals with similar BMIs experience the same levels of pain and/or health related disabilities as compared to older geriatric patients/individuals possessing the same BMIs; and 5) compare lifestyle habits and onset of obesity before and after the diagnosis of chronic medical conditions.

MATERIALS & METHODS

In this cross-sectional study, we interviewed and collected data from patients with their consent. We compiled a minimum 351 patient surveys in order to achieve a decent sample size. This was done by using an online program called Qualtrics to develop an online survey. For the convenience of patients, a physical copy, laptop computer, or a Quick Response (QR) code was provided for increased accessibility in person. In order to evaluate for pain in aging population, we used Geriatric Pain Measure (GPM), which is a well-validated and accredited questionnaire survey and grouping patient level of geriatric pain according to their responses, and holds significant validity in elderly individuals possessing multiple medical problems. Through the score received on this survey based on individual levels of experienced pain, patients were categorized into three groups: Mild Pain, Moderate Pain, or Severe Pain. In order to assess for obesity, we compiled patient Body Mass Index (BMI) from the height and weight provided by the patient – allowing us to develop separate patient BMI range categories. We also compiled data listing chronic medical illnesses known to play a role in obesity (hypertension, diabetes, hyperlipidemia, arthritis etc.) that the surveyed patients possess, and determine if there is a statistical linkage between the chronic illnesses and patient BMI. We then attempted to determine to what statistical extent this correlation is apparent. With the assistance of my mentor and PI, Dr. Adarsh Gupta, a comprehensive online survey was formulated that correlates patient geriatric pain score with their BMI, chronic medical illnesses/diseases, lifestyle diet preferences, age groups, average daily caloric intake, and demographics. Consistent versus varied results observed throughout the period allowed me to formulate a conclusion and determine whether younger patients with similar BMIs and similar correlated factors also experience the same levels of pain and/or health related disabilities based on my group sample.

RESULTS

From the comprehensive survey formulated with the assistance of my PI, Dr. Adarsh Gupta, we aimed to achieve these five principal objectives:

1) Separate sample size into three different geriatric pain groups/categories based on the accredited Geriatric Pain Measure survey: Mild Pain, Moderate Pain, or Severe Pain.
2) Calculate patient BMIs to determine obesity ranges
3) Separate sample size into different age groups by decades – to allow comparison between slightly younger versus older geriatric patients
4) Check for chronic medical conditions
5) Compare lifestyle habits and onset of obesity before and after the diagnosis of chronic medical conditions

By comparing lifestyle habits and onset of obesity both before and after patients were diagnosed with chronic medical conditions, we attempted to formulate conclusions as to whether our hypothesis of obesity and its prior onset being the stronger stimulus for geriatric pain is supported. On the contrary, vice versa can suggest that aging and geriatric pain being the more powerful stimulus in leading to obesity amongst our elderly population.

CONCLUSIONS

- At the age of 58 y.o. for subjects, we observed that the quadratic regression curve showed the pain scale values are at their maximum. After surpassing age 58 the pain scale for patients started to decrease. From this we can conclude that a plateau is reached around age 58 in which there was more successful aging.
- There was a significant positive correlation between BMI and an increase in pain amongst subjects with a Pearson Correlation value of 0.304. There was a significant positive correlation between age and an increase in pain, this correlation was not as strong as BMI vs. Pain.
- There was no significant correlation found between BMI vs. Age, however.
- There was a negative correlation observed for a physician advising patients with chronic medical conditions about weight management vs. their overall pain scale. A Physician advising about weight management at time of diagnosis showed decrease in overall pain activity.

REFERENCES