Erectile dysfunction in patients with chronic degenerative and metabolic diseases in a rural population from Yucatán, Mexico

Pavía-Ruz Norma, Lope-Gómez Mauricio, Vera-Gamboa Ligia.

ABSTRACT

Background: Erectile dysfunction (ED) significantly affects the self-esteem of the individual, with repercussions in patient health and quality of life. It has been associated with age, type 2 diabetes mellitus (DM2), and high blood pressure (HBP), among others. ED affects 13% to 28% of men between the ages of 40 and 80 years, worldwide. In Yucatán, there is a high percentage of persons presenting with DM2, HBP, overweight, and obesity, all of which are factors associated with ED.

Methods: A study was conducted at a rural health center in Yucatán from November 2009 to January 2010 to determine ED prevalence in 228 subjects over forty years of age that presented with DM2, overweight, obesity, or HBP. The standardized Sexual Health Inventory for Men (IIEF-5) questionnaire, validated for Spanish, was applied.

Results: Some degree of ED was present in 128/228 subjects (56%); 32% of them were between the ages of 40 and 49 years, and 93% were over 70 years of age. ED prevalence in the DM2 group was 69%. It was 51% in the...
Overweight-Obesity group, and 48% in the HBP group. A total of 83% of the individuals were prescribed metoprolol.

Conclusions: There was a high prevalence of ED in subjects with DM2, Overweight-Obesity, or HBP and given the large number of members of this population that were affected, it should be considered a public health problem.

Keywords: Erectile dysfunction, diabetes mellitus, high blood pressure, obesity, Mexico.

INTRODUCTION

Talking about sexuality is a difficult task despite the fact that it is one of the daily behavioral manifestations of human beings; during the last decade there has been a change in attitude towards sexuality in psychological, medical, and social spheres that has enabled erroneous concepts to be demythified through the opening of discussions about the problems derived from sexual dysfunctions.

It is a fact that erectile dysfunction (ED) greatly affects the self-esteem of the individuals presenting with it, having important repercussions in their health and quality of life, and even that of their partners and is a frequent problem that presents in adults. Nevertheless, the number of persons who seek medical attention for this condition is still small.

A great number of persons worldwide are affected by different health disorders, one of which includes the pathologies associated with sexual health. A greater frequency of ED is being found, as the American study, the Massachusetts Male Aging Study, conducted in the 1990s, reported. This study stated that 52% of men over the age of 40 years presented with some degree of erectile dysfunction.1

The following different standardized questionnaires have been designed to evaluate ED:
- IIEF International Index of Erectile Function
- SHIM Sexual Health Inventory for Men (IIEF-5) (a questionnaire about male sexual health)
- EDITS Erectile Dysfunction Inventory of Treatment Satisfaction (a questionnaire dealing with ED treatment satisfaction)2

The IIEF questionnaire has been validated in Spanish and consists of 15 questions about sexual activity that has taken place within the last four weeks and evaluates: erectile function, orgasmic function, sexual desire, coital satisfaction, and general satisfaction. It is also useful for detecting difficult areas and for determining the degree of severity.2

The shortened version of the IIEF is the SHIM, which is made up of five questions. Unlike the longer version, it evaluates activity over the last six months and is useful for detecting ED in risk groups (sensitivity=0.98, specificity=0.88). ED is considered to exist when the score is equal to or less than 21.2

The association of ED with chronic degenerative diseases has been reported in more recent studies, and they also identify the association with different factors such as age and the presence of different pathologies such as DM, HBP, coronary artery disease, and prostate cancer (PCa), among others. ED affects from 13% to 28% of men between the ages of 40 and 80 years.3,4 In Latin American countries like Chile, the prevalence in adults above the age of 40 years was 51.5% and in Argentina in adults from 18 to 55 years of age it was 19.5%. In Mexico, this pathology represents a health problem, as it has been reported in 18% of the population between 18 and 40 years of age, and in 55% of men older than 40;6 and there is a significant increase in the presence of associated pathologies such as DM, in which the prevalence rose to 77%;7 today the presence of ED is considered to be a marker for cardiovascular pathology, because damage to the endothelium is a common factor in both pathologies.8

According to the 2006 Mexican Nation Health and Nutrition Survey (ENSANUT), in Yucatán 5.4% of the population between the ages of 20 and 59 years is a DM carrier and for persons above 60 the figure is 13.8%; in regard to high blood pressure, a prevalence...
of 12.6% has been reported in age groups of 20 to 59 years and it is higher (26.4%) in those over 60; in the case of overweight and obesity the figure of 74.4% has been reported in adults above the age of 20 in Yucatán.9 As can be seen, Yucatán is a State in the Mexican Republic with a high percentage of persons with DM, HBP, overweight, and obesity, factors that are all associated with ED.

The objective of the present study was to determine ED prevalence in subjects over 40 years of age that presented with type 2 DM, HBP, overweight, or obesity in a rural population (Panabá) in Yucatán, Mexico.

## METHODS

The study was carried out from November 2009 to January 2010. A sample size of 228 individuals was determined from 570 adults over the age of 40 years and registered at the Health Center of Panabá, Yucatán, using a 95% confidence interval. The case records of these patients were then reviewed. A list of these same patients was made as follows: in the order the case records appeared, each case was assigned a number. The numbers started with one and ended with 570. All the patients were randomly selected. The patients that had been assigned an even number were chosen, beginning with case record number two and continuing in ascending order until the sample had 228 participants. Once the sample of individuals was obtained, they were contacted, and those that fit the inclusion criteria signed informed consent forms in order to participate in the study.

Subjects older than 40 years of age that presented with only one of the following pathologies were enrolled in the study: type 2 DM without complications, HBP, overweight, and obesity.

Groups were formed according to the pathology the patients had: one group with type 2 DM, one with HBP, and one with overweight or obesity. They were given a questionnaire in an interview that was directed at gathering sociodemographic data and the pathologic history of the associated diseases in this study; the standardized Sexual Health Inventory for Men (IIEF-5) questionnaire was applied. It is validated in Spanish and was previously used in Mexico in 2007.12 Each item is multiple choice with a value on a scale from one to five. One option is chosen per item and at the end, the points are added together. If the sum of the points was 22 or higher, the subject was not considered to have ED. If the sum was 21 points or lower then the ED was classified as follows: mild with 17 to 21 points, moderate with eight to 16 points, and severe with seven points or less.

## RESULTS

Of the 228 individuals that participated in the study, 128 (56%) presented with some degree of ED, with an age interval of 40 to 91 years. This figure was 32% for the group of the 40 to 49-year-olds. ED frequency increased with age, and so from the age of 70, 93% of that age group reported ED. The group of 50 to 59-year-olds was the least affected by the pathology (Table 1).

Because the lowest ED prevalence was found in subjects 50 to 59 years of age, confidence intervals in each age group were obtained (Figure 1).

ED prevalence varied according to the type of comorbidity. In the group with DM2 it was 69%, in the overweight/obesity group it was 51%, and in the HBP group it was 48%. More cases of ED according to comorbidity and age were observed, with a 33% total (Table 2).

### Table 1. Proportion of subjects according to age group and erectile dysfunction prevalence in Panabá, Yucatán, Mexico (n=228).

<table>
<thead>
<tr>
<th>Age groups</th>
<th>No. of individuals and % by age group</th>
<th>ED* cases and % in the age group</th>
<th>Prevalence according to age group</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-49 years</td>
<td>73 32%</td>
<td>27 37%</td>
<td>21%</td>
</tr>
<tr>
<td>50-59 years</td>
<td>42 18%</td>
<td>12 28%</td>
<td>9%</td>
</tr>
<tr>
<td>60-69 years</td>
<td>47 21%</td>
<td>26 55%</td>
<td>21%</td>
</tr>
<tr>
<td>70-79 years</td>
<td>45 20%</td>
<td>42 93%</td>
<td>33%</td>
</tr>
<tr>
<td>80-89 years</td>
<td>18 8%</td>
<td>18 100%</td>
<td>14%</td>
</tr>
<tr>
<td>90-91 years</td>
<td>3 1.3%</td>
<td>3 100%</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>228 100%</td>
<td>128 56%</td>
<td></td>
</tr>
</tbody>
</table>

ED: erectile dysfunction.
The following medications were among those prescribed for treating comorbidity: glibenclamide, metformin, intermediate insulin, captopril, nifedipine, metoprolol, clortalidone, enalapril, bezafibrate, and pravastatin. Metoprolol was the most widely prescribed medication and was given as ED treatment to 83% of the patients.

**DISCUSSION**

By applying the male sexual health (IIEF-5) questionnaire to adults attended to at the health center of a rural community in Yucatán, Mexico, that were over 40 years of age and that presented with some comorbidity, a 56% prevalence of ED was determined. This datum is rarely evaluated in rural communities at a national level and the figure is similar to that reported in Massachusetts in the 1990s and in Chile in 2004.16

In the study by Ugarte et al.17 conducted in Mexico City in 2001, ED prevalence was reported at 55% in men over 40 with or without comorbidity; this could be due to the differences in urban and rural lifestyles.

With respect to comorbidity, ED prevalence in the age groups was similar to that reported for type 2 DM and HBP,16-18 however, in the case of overweight and obesity it was 13% and 56% lower in relation to previous studies in the years 2001 and 2008, respectively.17,19

A direct relation between age and ED was observed. According to our findings ED prevalence increased, the older the patient, which concurs with previous studies. However, there was a variation in the 50 to 59-year-old age group in which prevalence was lower (29%); this difference was not statistically significant and could be explained by the fact that there were fewer subjects in that group and a smaller proportion of individuals with DM2. This comorbidity is associated with up to 67% of the ED cases.18

Metoprolol was the prescribed medication that was taken by the largest proportion of subjects with ED, a relation that has already been described in the medical literature.17

Yucatán is one of the States with the highest rates of metabolic pathologies (DM2, HBP, Overweight, Obesity) at the national level. In Mexico there are very few studies that evaluate the presence of ED in the population with or without comorbidity, and given the elevated number of patients presenting with it, there is a real necessity for carrying out opportune treatment strategies for this pathology and its underlying diseases.

Currently there are effective drug therapies for ED, that when indicated in patients with DM and HBP, would reduce the basic treatment abandonment rate due to this cause, as stated by Arreola et al., pointing out the benefit as an important cost-saving and cost-effective

<table>
<thead>
<tr>
<th>Age groups</th>
<th>DM2</th>
<th>HBP</th>
<th>Overweight</th>
<th>Total accumulated frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-49 years</td>
<td>15</td>
<td>6</td>
<td>6</td>
<td>27 (37%)</td>
</tr>
<tr>
<td>50-59 years</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>12 (28%)</td>
</tr>
<tr>
<td>60-69 years</td>
<td>11</td>
<td>6</td>
<td>9</td>
<td>26 (55%)</td>
</tr>
<tr>
<td>70-79 years</td>
<td>15</td>
<td>8</td>
<td>19</td>
<td>42 (93%)</td>
</tr>
<tr>
<td>80-89 years</td>
<td>7</td>
<td>8</td>
<td>3</td>
<td>18 (100%)</td>
</tr>
<tr>
<td>90-91 years</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3 (100%)</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>31</td>
<td>44</td>
<td>228</td>
</tr>
</tbody>
</table>

DM2: type 2 diabetes mellitus, HBP: high blood pressure.

![Figure 1. Confidence intervals in subjects with ED* according to age.](image-url)
strategy in the annual treatment of cases, improving the quality of life of these patients.

CONFLICT OF INTEREST

The authors declare there is no conflict of interest.

FINANCIAL DISCLOSURE

No financial support was received in relation to this study.

REFERENCES

10. Consultado el 01 de octubre de 2012. http://www.minsalud.gov.co/salud/Documents/Gu%C3%ADa%20Metodol%C3%B3gica%20para%20elaboraci%C3%B3n%20de%20gu%C3%ADas.pdf.