



Estimation Urinary Tract Infection in Obesity Patients

Wathiq Essam Hameed*, Fatima Fakhermohsin, Ali Mojed Al-Dhmoshy

Iraqi Ministry of health \Babel Health Directorate /Iraq.

*Corresponding Authors: Email: 07817003056wwmm@gmail.com

Abstract

Obesity is representing a global epidemic disease that causes by different factors like environmental, hereditary, medical disease antipsychotic drugs and steroids. Obese people are at high risk to develop many complications such as hypertension, diabetes, atherosclerosis, joints problems, cancers especially hormone dependent, respiratory problems and urinary tract infection and others. To show the association between urinary tract infection and obesity. Eighty-eight people were included in this study about 40 healthy peoples and 48 obese, Uren and data were collected from patients and control to detected urinary tract infection and this gropes classified according to degree of infection into mild, moderate and sever. The results show the urinary tract infection increase in obese people than non-obese. The results of this study support the evidence that obesity associated with urinary tract infection and urinary tract dysfunction is frequently associated with changes in body weight and composition.

Key words: *Obesity, UTI.*

Introduction

Obesity is situation manifested by excessive accumulation of fat in the body or abnormal distribution of adipose tissue that may lead to impairment of health [1]. Imbalance between energy intake and energy expenditure lead to accumulation of fat which is too large to be defended by the hypothalamic regulation of basal metabolic rate (BMR) [2]. Endocrine and nervous systems are the two components were responsible for energy intake and energy expenditure that is regulated body weight [3].

The causes of obesity is related collectively to many factors such as genetic predisposition ,poor practicing of physical activity and high energized food, consumption of disproportionate , and, even though a limited cases have primary causes such as genes, disorder of endocrine system, drugs, or psychological disorders [4].

Worldwide, there is about 1.9 billion adults, 18 years and older, were overweight. Of these over 600 million were obese. 205 million men and 297 million women aged twenty year or more were obese [5]. Classification of obese people and normal or overweight was constructed on body mass index (BMI).

Body mas index is calculated by: weight in Kg/height in m² [6].

Urinary tract infection (UTI) is one of the most commonly acquired bacterial infections in ambulatory and hospitalized populations. Approximately 11% of all women aged >18 years in the USA have a UTI each year. The incidence of UTI is highest among women aged 18–24 years, approaching one of five infections per year [7]. Among healthy women aged 18–39 years, the 6-month risk of recurrence following a first UTI is 24 % [8]. Approximately 5% of women with an initial UTI have multiple episodes within a year. A recent large cohort study indicated that obesity is a risk factor for UTI [9].

Aim of this Study was

The aims of the study were to compare the clinical presentation of obese (OB) *vs* non-obese (NO) and to assess the impact of obesity on the presentation of urinary tract infection.

Subjects and Methods

Subjects

A case-control study was conducted in the obesity unit in Marjan Medical City in Al-

Hilla province Babylon / Iraq from January 2015 - April 2016.

Inclusion criteria

A convenient sample of eighty individuals were included in this study (48 individuals were classified obese and 40 individuals with normal BMD), with age range from 20-51years old. All individuals subjected to the same clinical examinations and biochemical tests. The obese patients were taken from the obesity unit in the hospital while the control group individuals were friends, medical staff, medical students, and relative to the patients. We have informed verbal consent from all individuals participating in this study in both groups.

Exclusion Criteria

The study excludes any participant with history of diabetes mellitus type I, finding of high blood glucose on biochemical examination, history of taking drugs that cause obesity or increase in body weight such as antiepileptic drugs, steroids, chemotherapy also excluded, patients with diseases of high growth hormone level such as acromegaly plus any congenital abnormality and post-menopause women and or pregnant women.

Methods

Clinical Examination

General Examination

Sociodemographic characters: age, occupation, educational level, residence, history of smoking while she is current smoker, or x-smoker and no. of years of smoking. Past medical history: symptoms of thyroid disease (hyper: tremor, intolerance to heat, palpitation; hypo: intolerance to cold, obesity, thick skin, etc.).Past surgical history: history of trauma or surgery in any of the limbs.

History that include Symptoms of undiagnosed diabetes (poly urea, nocturia, polydipsia).Examination that include gait, wasting in any limb, emaciation, or contracture.

Weight Measurement

Patient is weighed with minimum clothes and bared feet by digital scale with 0.1kg as degree of error

Anthropometric Measurement

- Height: is measured by graded scale firmly fixed on the wall when participant is standing against the wall while feet are bared and the legs are held close to each other, no bending, the shoulders are straight in parallel line, the height is measured from the ground to the top of the head.
- Waist circumference: is measured by flexible tape measure graded to 0.1cm at the midline between the last rib and the upper part of iliac bone.
- Body mass index is calculated by dividing the weight in kilograms by the square of the height in meter.

Results

The overall mean age of study participants was 34.48±9.83 and 28.78±6.96 years old, respectively. Table 4.1 shows the percentage of urinary tract infection for each male obese or non-obese and female obese or non-obese, according to occupation. There was urinary tract infection classified to mild, mod ret and sever, while occupation classified to wager earner, Employee, Housewife, Student. The results have 36.4% mild urinary tract infection while 46.6% moderate and 17% sever. According to occupation housewife have highly percentage in obesity and UTI (33) than employee (23), wage earner (21) and student [11].

Table 4.1: Percentage of urinary tract infection according to occupation

occ upa tion	Gender Patient-Control	UTI			Total
		Mild	Moderate	sever	
Wag e earn er	Male-Patient	37.5%	62.5%	0%	100%
	Female-Patient	69.2%	23.1%	7.7%	100%
	Total	57.1%	38.1%	4.8%	100%
E m pl oy	Male-Patient	50.0%	25%	25%	100%
	Female-Patient	50.0%	25%	25%	100%
	Male-Control	55.6%	44.4%	0.0%	100%
	Female-Control	33.3%	50%	16.7%	100%
	Total	47.8%	39.1%	13%	100%
Ho use wif e	Female-Patient	17.9%	53.6%	28.6%	100%

Student	Female-Control	0.0%	60%	40%	100%
	Total	15.2%	54.5%	30.3%	100%
	Male-Patient	100.0%	0%	0%	100%
	Female-Patient	0.0%	0%	100%	100%
	Male-Control	37.5%	62%	0%	100%
	Female-Control	0.0%	100%	0%	100%
	Total	36.4%	54.4%	9.1%	100%
Total		32 36.4%	41 46.6%	15 17%	88 100%

Discussion

In this retrospective case-control study, obesity was found to be associated with UTI. The mechanisms underlying the association between obesity and infection are the subject of ongoing research. Obesity is associated with a variety of diseases, including non-alcoholic fatty liver disease and metabolic syndrome. Obesity-related system dysregulation, decreased cell-mediated immune responses, and respiratory dysfunction have been proposed as possible mechanisms.

The most important immunomodulatory-adipocytes in obesity are interleukin (IL)-6 and IL-1b, adiponectin, and the pro-inflammatory cytokines tumor necrosis factor alpha (TNF-a), and leptin. Low levels of adiponectin in obesity have been shown to alter the immune response, especially cytokine production and killer cell cytotoxicity by human myeloid cells.

The mean age of this study was 34.48±9.83 years for the patient and 28.78±6.96 years for the control. There was patient is obese while the control is non-obese. Regarding the results have 36.4 % mild urinary tract infection while 46.6% moderate and 17% sever.

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According to occupation housewife have highly percentage in obesity and UTI (33) than employee (23), wage earner (21) and student (11). This results support the association between obesity and UTI according to occupation because UTI increased in housewife where the obesity was increased. This result agrees with (Nseir W. et al.) [10]. Who provides evidence that obesity could be associated with UTI. And agree with (Semins, MJ et al.) [11].That trigger elevated BMI appears to be associated with an increased risk for UTI and pyelonephritis.

Conclusion

- This study provides evidence that obesity could be associated with UTIs in Housewife more than wage-earner, employers and students.
- Elevated of BMI associated with an increased risk for UTI. Further study is needed to determine whether this association may be attributed to a cause-and-effect relationship. However, these results may serve to guide clinicians who treat obese patients, because it may be an additional benefit of weight loss.

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