International Scholars Journals

African Journal of Internal Medicine ISSN 2326-7283 Vol. 7 (12), pp. 001-003, December, 2019. Available online at www.internationalscholarsjournals.org © International Scholars Journals

Short Communication

Association of central obesity and severity in cholelithiasis during cholecystectomy in adult women

Juan de Dios Díaz-Rosales[1,2]*, Lenin Enríquez-Domínguez[1], Juan Antonio Alcocer-Moreno[1], Jesús E. Romo[3], Ever Duarte[1] and Beatriz Díaz-Torres[2]

[1]Surgery Service / Hospital General Regional No. 66 - Instituto Mexicano del Seguro Social (Juárez, México)
[2]Universidad Autónoma de Ciudad Juárez (Juárez, México).
[3]Epidemiology Resident / Universidad de Guadalajara (Guadalajara, México).

Accepted 03 October 2019

Cholelithiasis is the most common biliary pathology, with a prevalence of 14% in Mexico. Although, obesity is an established risk factor we hypothesized that central obesity is related to severity of cholelithiasis. We studied patients with symptomatic cholelithiasis, which were underwent to cholecystectomy. We divided into 3 groups; Group I: patients with uncomplicated cholelithiasis; Group II: patients with acute cholecystitis, without other complications; and Group III: patients with any complications than acute cholecystitis. We analyzed age, weight, height, body mass index, waist circumference, hip circumference, and waist-hip index. We studied 212 patients, included 88 (41.5%) patients in Group I, 60 (28.3%) in group II, and 64 (30.2%) in group III. We found statistical difference only in waist circumference (98.6 cm vs 95.3 cm vs 105.3 cm; *p*=0.001) and waist-hip index (0.91 vs0.89vs 0.96; p=<0.001). Our results suggest that central obesity and waist-hip index could play an important role in patients with severe gallstone-related complications.

Key words: Cholelithiasis, cholecystectomy, gallbladder, gallstones, obesity.

INTRODUCTION

The cholelithiasis and its related complications are one of the most common digestive diseases in the world (Götzky et al., 2013).This disease is considered a public health problem in Mexico with a crude prevalence of 14.3% in autopsies, 8.5% for males and 20.4% for females (Méndez-Sánchez et al., 1993).The pathogenesis of cholelithiasis is multifactorial, it have a strong relation with obesity (Dittrick et al., 2005), diabetes, insulin resistance, and dyslipidemia.

Actually, central obesity and waist to hip ratio are risk factors for symptomatic cholelithiasis that require surgical treatment (Tsai et al., 2006). If obesity plays an important role for symptomatology in cholelithiasis, we hypothesized that the severity of cholelithiasisis associated to severe obesity.

PATIENT AND METHODS

They should present inclusion/exclusion criteria, cases selection, refusal rate, and present the corresponding numbers. If they did culture the bile, should mention it

*Corresponding autor. E-mail: jdedios.uacj@gmail.com.

Table 1. Anthropometric characteristics of the study groups.

Variables	Total		Group I		Group II		Group III		*p*
	n= 212		n= 88		n= 60		n= 64		
Age (years)	37.1	9.8	38.5	10.3	37.8	10.7	34.5	7.6	0.036
Weight (kg)	75.8	15.4	76.1	15.7	73.7	19	77.4	10.5	0.41
Height (cm)	155	6.4	154.9	5.7	154.4	6.6	154.4	6.9	0.25
BMI (kg/m^2)	31.6	6.3	31.2	5.8	31	8.1	32.6	4.8	0.31
Waist (cm)	99.7	14.9	98.6	13.9	95.3	16.1	105.3	13.3	0.001
Hip (cm)	108.5	12.5	108.6	12.5	106.9	15.5	109.7	8.7	0.47
Waist-Hip index	0.92	0.07	0.91	0.08	0.89	0.07	0.96	0.06	<0.001

Source: electronic archive HGR66 - IMSS.

Table 2. Complications in Group III.

Complication	Cases	Percentage
Biliary pancreatitis	20	9.4
Mucocele	16	7.5
Empyema	12	5.7
Choledocolithiasis	12	5.7
Cholangitis	4	1.9

Source: electronic archive HGR66– IMSS.

here and present the main results.

We realized a prospective and analytic studyduring January to December 2013 at Hospital General Regional No. 66 – *Instituto MexicanodelSeguro* Social (HGR66 – IMSS), a secondary center and government hospital in *Juárez* (*México*), and was approved by the institutional review board on bioethics research.

We studied female patients with symptomatic cholelithiasis, which were undergone to cholecystectomy (open or laparoscopic), with age range of 18 to 65 years old. We excluded patients with incomplete file and patients without write inform consent. We divided into 3 groups: Group I: patients with uncomplicated biliary colic, abdominal pain with benign abdominal examination, and cholelithiasis in sonogram; Group II: patients with acute cholecystitis, with positive Murphy sign, and findings during cholecystectomy (moderate inflammation disease), without other complications; and Group III: patients with any complications than acute cholecystitis, like cholangitis, biliary pancreatitis, choledocolithiasis, hydrocholecystis, and empyema.

We analyzed age, weight, height, body mass index (BMI), waist circumference, hip circumference, and waist-hip index. Height and weight were measured with light clothes and barefoot. BMI was calculated by dividing weight (in kilograms) by the square of height (in meters). Waist and hip circumference were measured with a flexible tape under fasting conditions, at the level of the umbilicus in standing position for waist and at the iliac crest and at the largest point for hip. The diagnosis of cholelitiasis was based on clinical presentation and confirmed with abdominal ultrasonography LOGIQ 400 PRO (GE HealthCare ©, USA).

The data for all the patients was entered into Microsoft© Excel base data, and analyzed using SPSS version 20 (Chicago, IL). Statistical analysis was done using ANOVA test, in the comparative a*p* value <0.05 was considered as significant. Percentages and proportion were calculated wherever appropriate and percentage value was rounded off to fist decimal digit.

RESULTS

We review 326 cases of cholecystectomy and included 212 cases during January to December of 2013.We divided by groups and included 88 (41.5%) patients in Group I (biliary colic), 60 (28.3%) in Group II (acute cholecystitis), and 64 (30.2%) in Group III (any complication than acute cholecystitis). The main gallstone-related complications were pancreatitis, followed by mucocele, empyema, choledocolithiasis and cholangitis. Number of cases and percentages are showed in Table 2.

The comparative between groups, there were not statistical difference in variables age, weigh, height, BMI, and hip circumference. However, there were a statistical differences in mean of waist circumference (98.6 cm vs 95.3 cm vs 105.3 cm; p=0.001), and mean of waist-hip index (0.91 vs0.89vs 0.96; p=<0.001) (Table 1).

All patients (complicated and non-complicated) were treated and discharged by health improvement and followed by outpatient consult.

DISCUSSION AND CONCLUSIONS

Obesity is a risk factor for the formation of cholesterol gallstones and exposes patients to increased risk of gallstone-related complications (Bonfrate et al., 2014).This study was done to determine if central obesity is a factor related to severity of symptomatic cholelithiasis.

We found that central obesity is associated with risk of severe complications in cholelithiasis. Also, central obesity appeared to capture additional factors about risk that is not encompassed by BMI.Although BMI is useful measure of total obesity, does not distinguish between lean body mass and body fat. For that, waist circumference may be a good estimate of overall body fat, because a large waist is an unambiguous indicator of excess body fat (Bonfrate et al., 2014) and could be a risk factor for severity.

Both waist circumference and waist-hip index are relatively easy to obtain and appear to impart clinically useful information regarding risk of symptomatic cholelithiasis in this study. A larger waist circumference or waist to hip ratio among patients with equal weight is markers of increased central obesity as well as overall obesity (Hendel et al., 1998).

Gallbladder hypomotility secondary to obesity or autonomic neuropathy has also been proposed as one of the genesis mechanisms (Portincasa et al., 2004). Both, the gallbladder volume in the fasting state and lithogenic index increased with increasing intra-abdominal fat mass (Hendel et al., 1998).

The chance to develop acute pancreatitis is higher in obese patients because of supersaturated bile and crystal formation, and visceral obesity (Bonfrate et al., 2014). Although, some studies shown that severe biliary infections (Stewart et al., 2012) and bacteremia or bactibilia (in acute calculous cholecystitis) (Bang et al., 2014) were related with normal BMI suggesting that obesity may be a protective in biliary infections. Other suggests that higher incidence of severe gallstone disease was more common in non-obese patients, and an explanation is that the body fat may have a protective effect on the inflammatory process of cholecystitis (Lee et al., 2009). In our study, BMI did not play a role in severity of gallstone disease (p=0.7). Multi-institutional studies are needed to validate these findings.

In conclusion, although cholelithiasis pathogenesis seems to be influenced by BMI. Our results suggest that central obesity and waist-hip index couldplay an important role in patients with severe gallstone-related complications. We think that central obesity could predict the risk of severity independently of BMI.

REFERENCES

Bang CS, Yoon JH, Kim YJ (2014). Clinical impact of body mass index on bactibilia and bacteremia. BMC Gastroenterol. 14:104. doi:10.1186/1471-230X-14-104.

Bonfrate L, Wang DQ-H, Garruti G, Portincasa P (2014). Obesity and the risk and prognosis of gallstone disease and pancreatitis. Best Pract. Res. Clin. Gastroenterol. 28(4):623-35. doi:10.1016/j.bpg.2014.07.013.

Dittrick GW, Thompson JS, Campos D, Bremers D, Sudan D (2005). Gallbladder pathology in morbid obesity. Obes. Surg. 15(2):238-42. doi:10.1381/0960892053268273.

Götzky K, Landwehr P, Jähne J (2013). Epidemiology and clinical presentation of acute cholecystitis]. Chirurg. 84(3):179-84. doi:10.1007/s00104-012-2355-1.

Hendel HW, Højgaard L, Andersen T (1998). Fasting gall bladder volume and lithogenicity in relation to glucose tolerance, total and intra-abdominal fat masses in obese non-diabetic subjects. Int. J. Obes. Relat. Metab. Disord. 22(4):294-302. Available at: http://www.ncbi.nlm.nih.gov/pubmed/9578233. Accessed September 29, 2014.

Lee HK, Han H-S, Min SK (2009). The association between body mass index and the severity of cholecystitis. Am. J. Surg. 197(4):455-8. doi:10.1016/j.amjsurg.2008.01.029.

Méndez-Sánchez N, Jessurun J, Ponciano-Rodríguez G, Alonso-de-Ruiz P, Uribe M, Hernández-Avila M (1993). Prevalence of gallstone disease in Mexico. A necropsy study. Dig. Dis. Sci. 38(4):680-3. Available at: http://www.ncbi.nlm.nih.gov/pubmed/8462367. Accessed June 17, 2014.

Portincasa P, Di Ciaula A, vanBerge-Henegouwen GP (2004). Smooth muscle function and dysfunction in gallbladder disease. Curr. Gastroenterol. Rep. 6(2):151-62. Available at: http://www.ncbi.nlm.nih.gov/pubmed/15191695. Accessed October 25, 2014.

Stewart L, Griffiss JM, Jarvis GA, Way LW (2012). The association between body mass index and severe biliary infections: a multivariate analysis. Am. J. Surg. 204(5):574-9. doi:10.1016/j.amjsurg.2012.07.002.

Tsai C-J, Leitzmann MF, Willett WC, Giovannucci EL (2006). Central adiposity, regional fat distribution, and the risk of cholecystectomy in women. Gut 55(5):708-14. doi:10.1136/gut.2005.076133.