

Impact of the body mass index on the duration of laparoscopic cholecystectomy in a black African population

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Dear Editor,

We read with interest the editorial in a recent edition of your journal on morbid obesity in South Africa: considerations and solutions.¹ The impact of obesity, as elaborated in the editorial, extends beyond the realm of bariatric surgery affecting surgical services in general, also in sub-Saharan Africa (SSA) where the incidence of overweight and obesity is increasing. We would like to report a short communication in this respect in which we detail the effect of body mass index (BMI) on the duration of laparoscopic cholecystectomy (LC) in a black African population.

The duration of LC is widely accepted as a quality indicator, and a number of factors which may influence the procedural duration have been identified in American, European and Asian studies.²⁻⁴ These include pathological, technical and surgeon factors, as well as patient factors such as age, gender and the presence of obesity. Many of these factors, including obesity, have been found to be associated with prolonged hospitalisation following LC in high income countries,^{4,5} whilst studies from SSA are lacking.

We would like to bring to your attention how obesity in an LC (a standard general surgery procedure) influences the duration of surgery. We conducted a retrospective analysis of patients who underwent LC for symptomatic cholecystolithiasis at the Hôpital Militaire d'Abidjan from December 2005 to November 2014. The duration of the procedure, calculated as the time from the induction of the pneumoperitoneum to final deflation after extraction of the gallbladder, was correlated with a number of variables, including age, gender, BMI and the presence or absence of gallbladder inflammation. Comparison was made for BMI category (normal < 25, overweight 25–29.9, and obese > 30). The statistical analysis was carried out by Student's t-test for continuous variables and the chi-square test for categorical variables. A *p*-value less than 0.05 was considered significant.

One hundred and twenty-two patients, 82 female and 40 male, with a mean age of 46.3 years (15.4) were studied. The mean BMI was 26.3 kg/m² (± 4.0). The gallbladder was inflamed in 74 (60.7%). The operation time in those with a normal BMI (44.5 ± 13.4 minutes) was 10 minutes shorter than in those who were overweight (53.2 ± 23.4) and obese (54.5 ± 23.8), although only 10% of patients in

the series were obese (*p* < .0001). Age was not a significant factor in determining operation duration and the distribution of gender and inflammatory state between the three BMI categories was not significantly different.

Inconsistent record-keeping over the accrual period did not allow other endpoints to be recorded, but it is well reported that increased BMI correlates with a longer hospital stay, conversion to open surgery and bile duct injury in LC.⁶⁻⁹

Age and gender were not associated with a longer duration of LC in our series, although increased age has been reported as correlating with longer duration of LC.^{3,5} The median age of patients in our series was 46 years, which is lower than the 52 and 69 median ages reported in European and Japanese cohorts.^{3,5} Male gender has also been reported to be associated with higher rates of acute or severe cholecystitis and a longer operating time.^{5,10,11} Our lack of correlation of operation length with age may be explained by the younger males in our series' patients having gallstone disease of lesser severity.

To our knowledge, this is the first report on factors influencing the duration of LC in an SSA patient cohort. Obesity, which is an increasing problem in SSA, was the only factor we found associated with a longer operative time in relatively young patients. Surgeons should be aware of the impact of obesity on increasing operating time, which the literature would suggest is a surrogate for more important endpoints, such as bile duct injury.

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