

Association between obesity and biliary dysmotility in healthy individuals in Ukraine

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Background/introduction: Lifestyle modification leads to obesity rates growth not only in developed, but in developing countries, however causes are different. Poor diet (flour-based, low quality food, high prices for high-quality food, low fruits/vegetables consumption (less than 600g/day, 46.4% lower than Europe)) and insufficient physical activity result in obesity rates increase in Ukraine (for 2004-2006 – by 31.9%). Along with obesity rates increasing, cholecystectomy in Ukraine got 2nd place among all surgical interventions. Gallstone formation is strongly connected with biliary dysmotility, which could be associated with obesity.

Objective: To characterize biliary motility in healthy subjects depending on their weight status.

Methodology: Healthy individuals (N=53: 16 men, 37 women) participated in the study. Body mass index (BMI, kg/m²) was calculated, and three groups were formed according to BMI – normal weight/control (BMI<24.99 kg/m²), overweight (OW; BMI=25.00-29.99 kg/m²) and obese (OB; BMI_30.00 kg/m²). The fasting gallbladder volume (GV, ml) and its MgSO₄-stimulated contractility (20', 40' and 60' after per oral 50.0 ml of 25% solution) (K20%, K40%, K60%, %) was measured using abdominal ultrasonography. There were used the signs to describe biliary motility features for each particular period: "+" – gallbladder contractility; "-" – its relaxation.

Results: All control group subjects had similar biliary motility: "+-". Forty percent of OW had "+-+", 40.0% - "+-+", 20.0% - "+++". Among OB 57.1% had "+-+", 14.3% - "+-+", "+++", and "+-". The fasting GV was significant larger among OB (75.8±12.7 ml) compared to control (39.5±8.2 ml, p=0.040) and OW (38.5±4.1 ml, p=0.002). OB has significant lower K20% than OW (52.9±2.0% and 61.4±5.6%, p=0.003). It was no difference in K40% and K60% between groups. A significantly positive correlation was found between BMI and GV (r=0.753, p=0.002) for OB.

Conclusions/Recommendations: Obese subjects showed larger GV, decreased contractility and disorganized biliary motility. It could be physiologically inadequate and may lead to biliary sludge/gallstone formation. These findings require more research.

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