

Computed-Tomography Measured Waist to Hip Ratio (WHR): A Reliable Predictor of Outcomes after Emergency General Surgery

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INTRODUCTION: Obesity is associated with poor outcomes after emergency general surgery (EGS). However, the impact of waist to hip ratio (WHR) on outcomes in EGS patients has never been studied. The aim of our study was to assess the impact of WHR, measured based on CT-imaging, on outcomes after EGS.

METHODS: 5-year (2012-2016) retrospective analysis of all adult EGS patients who underwent EGS. Patients who underwent CT-imaging of abdomen and pelvis before surgery were included. Circumferential waist and hip measurements were obtained From CT-imaging. Patients were divided into two groups, based on predefined cut off of WHR of 1. Outcome measures were complications, hospital-length of stay (h-LOS), mortality and 30-day readmission. Regression and correlation analysis were performed.

RESULTS: 608 patients were included in the analysis. Mean age was 49 ± 18 , and 50.8% were males. Overall complications rate was 33%, median H-LOS 4[2-6], mortality rate 3.6% and 30-day readmission rate was 24.8%. 69.7% of patients had $WHR\geq 1$. Patients with $WHR\geq 1$ had higher complications rate (44.3% vs 8.7%, $p<0.001$), h-LOS (5.7d vs 2.8d, $p<0.001$), mortality rate (7.7% vs 1.1%, $p=0.002$), and higher 30-day readmission rates (32.5% vs 7.1%, $p<0.001$) as compared to $WHR<1$. On regression analysis, $WHR\geq 1$ was independent predictor of complications (OR:7.1[4.3-9.8]), and mortality (OR: 5.7[2.5-7.8]). On correlation, WHR was weakly correlated with BMI ($R^2=0.156$).

CONCLUSIONS: WHR, as measured by CT-scan is easy to obtain and can reliably predicts the risk for development of complications, mortality and readmission rate. WHR should be considered a part of radiology reports in EGS patients who undergo CT-imaging.