IMPACT ON CAROTID INTIMA-MEDIA THICKNESS AFTER LAPAROSCOPIC SLEEVE GASTRECTOMY IN PATIENTS WITH MORBID OBESITY

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INTRODUCTION

- **Carotid intima-media thickness(CIMT):**
- AHA recommends CIMT for the assessment of the risk for atherosclerosis and CVD
- For every 0.1mm increase in CIMT, 16% increased risk of MI and stroke*
- CIMT values >0.9 mm: suggests an increased cardiovascular events
- **2D ECHO:**
- BMI is independently associated with impaired left ventricular filling
- Obesity is an independent predictor for the worsening diastolic functions
- Many studies suggest an improvement in diastolic functions after bariatric surgery

METHODS

- The study included morbidly obese patients with BMI>37.5 kg/m2 or BMI>32.7 kg/m2 with obesity-related comorbidities
- Measurement of CIMT (Near the origin of CCA, 2 cm proximal to the carotid bulb, At the level of the carotid bulb), analyzed and correlated with the %EWL
- Functional evaluation of LVF done 6 months post LSG [Ejection fraction(EF), Wave deceleration time(E), Peak early diastolic mitral annular velocity(e), Inter ventricular septum thickness measured in diastole(IVSD), Isovolumic relaxation time(IVRT), Left atrial volume index(LAVI), Left ventricular mass index(LVMI)]
- 10-year mean CVD risk was analyzed using the 2013 AHA-pooled cohort CVD risk

CONCLUSION

- Statistically significant decrease in the mean CIMT observed 6 months after LSG
- Although there was decrease on both the side, however the decrease on the left side only had a statistically significant decrease
- All the 2D ECHO parameters showed improvement which were statistically significant, however the change in EF was statistically insignificant
- Left ventricular dysfunction is reversed towards normalization post LSG

OBJECTIVE

- **PRIMARY OBJECTIVE**
- To assess the change in carotid intima - media thickness 6 months after Laparoscopic Sleeve Gastrectomy using High resolution USG Doppler
- **SECONDARY OBJECTIVE**
- To correlate percentage excess weight loss with the change in carotid - intima media thickness 6 months after Laparoscopic Sleeve Gastrectomy
- To evaluate the change in echocardiographic parameters of left ventricular function 6 months after Laparoscopic Sleeve Gastrectomy and correlate percentage excess weight loss

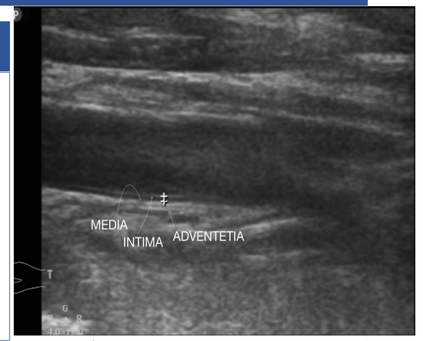


Fig 1: CIMT Measurment on USG

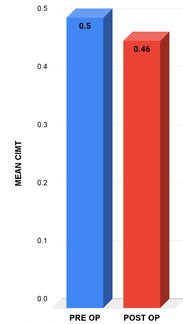


Fig 2: Mean change in CIMT

RESULT

- A total of 30 patients (27(90%) women & 3(10%) men) with the mean age of 38±7.84 were prospectively enrolled. BMI was significantly reduced from 42.66±3.79 to 37.93±3.60 kg/m2 six months after LSG. CIMT values were significantly decreased after surgery(0.50± 0.11mm vs. 0.,46±0.09mm; $p < 0.01$). However, no significant change was observed in the right mean CCA values (0.50±0.11mm vs 0.47±0.09mm: $p < 0.08$) as compared to left mean CCA values(0.50±0.11 vs 0.45±0.09: $p < 0.01$)
- On 2D ECHO, ejection fraction was increased from 60.80±5.89 to 61.93±4.47($p < 0.514$), IVRT (94.33±21.71 vs 84.36±14.85: $p < 0.03$), LAVI (38.08±11.23 vs 30.93±7.16: $p < 0.01$), LVIDD (4.32±0.52 vs 4.11±0.52: $p < 0.02$, PwD (1.00±0.19 vs 0.87±0.10: $p < 0.01$), LV mass (148.37±33.09 vs 117±29.90: $p < 0.001$), LVMI (70±16.89 vs 59.626±15.35: $p < 0.001$).
- 27 out of thirty (90%) patients were eligible for CVD risk assessment, because of the age restriction given by the ACC/AHA risk calculator. The mean 10-year risk of death due to CVD reduced from 5.45±6.6 to 2.8 ±1.7% at 6 months ($p<0.05$) and had a positive correlation with the decrease in CIMT over 6 months showing a correlation coefficient of 0.018 with statically significant analysis (p value<0.05)

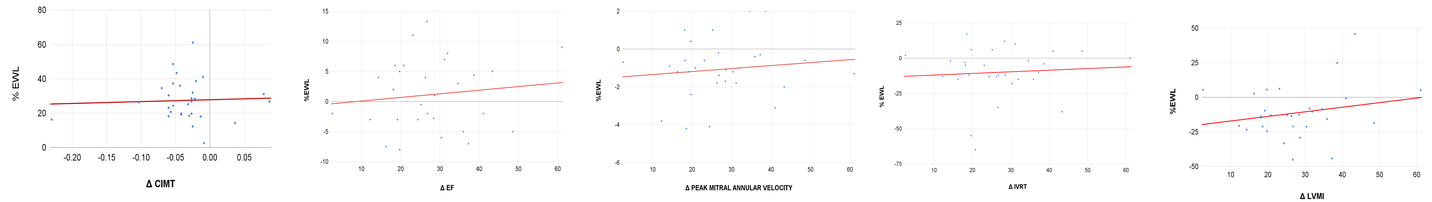
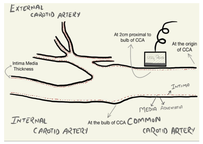


Fig. 3: Graphs demonstrating the correlation of CIMT and echocardiographich parameters with the %EWL



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