

Early Outcomes of Medical Weight Management

Vanya Jain, Kathleen Brodowski, Carter Burton, Emily Grew, Jai Patel, Dhvani Doshi, MD¹
¹Department of Medicine, Rutgers New Jersey Medical School

Background

Per the Department of Health census data, close to 30% of adults in Essex county have obesity¹, which leads to increased rates of cardiovascular disease, metabolic syndromes, and adverse health outcomes. There is a need for focused medical treatment of obesity in Newark to improve health outcomes in our community.

A comprehensive medical obesity treatment plan includes aggressive lifestyle interventions (nutrition, behavioral changes, physical activity) and the inclusion of anti-obesity medications when applicable. This study aims to assess the efficacy of an academic institution's early phase obesity medicine program in a resource-limited area (e.g. insurance coverage for FDA approved anti-obesity medications and under access to structured nutritional and behavioral weight loss programs). Based on previous literature, it is expected that patients will lose on average 4.7% of their initial body weight with lifestyle modifications², 5-10% with oral anti-obesity medications (phentermine/topiramate or bupropion/naltrexone) and 8-15% with glucagon-like peptide-1 receptor agonists (GLP-1 RA)³ (liraglutide/semaglutide).

Results

Table 1. Weight Loss and Visits

% Weight Loss	N Total=91	% of Total	Average No. of Visits	Standard Deviation	CI	P-value*
<1%	6	5.4	3	0	-	0.029
1-4.9%	27	24.3	4.63	2.17	±0.82	
5-10%	18	16.2	5.67	3.80	±1.76	
>10%	11	9.9	7.73	4.58	±2.71	
Weight Gain	26	24.3	4.69	2.69	±1.03	
No Change	2	1.8	4.50	0.71	±0.34	

*P-value by single factor ANOVA analysis comparing average visits all 6 groups

Table 2. Effect of Anti-Obesity Medications (AOMs) on % Weight Loss

	Mean % Weight Loss	P-value*
Any AOM	7.45	0.0587
No AOM	4.73	
GLP-1 RA only	9.04	0.0233
Non GLP-1 RA Meds	5.75	

*P-value by two-tailed unpaired t-test analysis

Table 4. Nutrition Visits

	≥ 1 Nutritionist Visit	No Nutrition Visits	P value*
Mean Weight Loss	2.7%	2.9%	0.8

*P-value by two-tailed unpaired t-test analysis

Table 5. Demographics

Charity Care	Medicare	Medicaid	Commercial Insurance	Asian	African American	Hispanic	Non-Hispanic White	Other
8%	18%	46%	28%	2%	58%	31%	6%	2%

Table 3. Effect on Cardiovascular factors with Medical Management

	Mean	P Value*
HbA1c initial	6.88 ± 0.47	0.00194
HbA1c final	6.30 ± 0.25	
DBP initial	73.68 ± 1.98	0.57
DBP final	74.38 ± 2.08	
SBP initial	137.12 ± 3.17	0.55
SBP final	135.93 ± 3.41	
Total Cholesterol initial	181.8 ± 14.4	0.07
Total Cholesterol final	171.5 ± 13.2	
Triglycerides initial	129.3 ± 22.9	0.91
Triglycerides final	130.5 ± 20.0	
HDL initial	50.43 ± 3.83	0.54
HDL final	51.42 ± 4.66	
LDL initial	101.79 ± 11.1	0.07
LDL final	93.19 ± 10.5	

*P value by two-tailed paired t-test

Methods

- **Study population:** A convenience sample of 115 adult patients with BMI > 30 and at least three physician visits to the Obesity Medicine program at University Hospital in Newark, NJ.
- **Study period:** October 2019 to February 2022 (initial 28 months of program).
- **Data collection:** Data was collected via a retrospective chart review of each patient. The data recorded were number of visits, initial and recent vitals, labs (HbA1C, lipid panel), therapies offered, demographic information, health insurance status, and documented visit to a nutritionist.
- **Exclusion criteria:** Non-medical intervention for obesity, such as gastric bypass surgery and BMI<30.
- **Statistical Analysis:** Quantitative statistical analysis included ANOVA, T-test, and correlation coefficient determination.

Conclusion

Key Findings: Overall, 56% of all patients achieved weight loss with an average weight loss of 5.7%. All patients were counseled on lifestyle modifications during their medical visits. Mean weight loss with no pharmacotherapy was 4.7%. 41.6% were prescribed anti-obesity medications, though due to limitations of cost and insurance coverage, most were not on combination therapy or at target doses FDA approved for weight loss. The 12% of patients on GLP-1 receptor agonists achieved significantly greater weight loss (9.0%) than those on oral anti-obesity medications or no medications (p<0.05). Using pharmacotherapy and total number of clinic visits positively correlated with more weight loss. Blood pressures and lipids did not change significantly with weight loss but HbA1c did. About 60% of patients visited a nutritionist at least once out of 98% that were referred.

Study limitations: Errors commonly associated with a retrospective analysis such as missing patient information due to either incomplete data collection in clinic, E-health visits, or loss to follow up limited our study. Variable patient-dependent time course for interval between first and most recent clinic visits is another factor. Strict exclusion criteria (i.e less than 3 clinic visits) limits the power of our study.

Summary and Future Steps: Dedicated obesity treatment visits can achieve meaningful weight loss, with more weight loss seen with the addition of anti-obesity medications. More needs to be done to improve access to established anti-obesity medications. More robust nutritional, behavioral, and physical activity program resources may further improve weight loss outcomes.

References:

- 1 Health, Department of. "New Jersey State Health Assessment Data New Jersey's Public Health Data Resource." *NJSHAD - Health Indicator Report - Obesity Among Adults*, <https://www-doh.state.nj.us/doh-shad/indicator/view/Obese.county.html>.
- 2 Look AHEAD Research Group. "Eight-year weight losses with an intensive lifestyle intervention: the look AHEAD study." *Obesity (Silver Spring, Md.)* vol. 22,1 (2014): 5-13. doi:10.1002/oby.20662
- 3 Wilding, John P.H., et al. "Once-Weekly Semaglutide in Adults with Overweight or Obesity: *Nejm*." *New England Journal of Medicine*, 18 Mar. 2021, <https://www.nejm.org/doi/10.1056/NEJMoa2032183>.