





OBESITY MANAGEMENT IN PRIMARY CARE TRAINING AND CERTIFICATE PROGRAM



Module 8 - PEARLS: Managing Patients with Obesity-related Complications

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Goal of this Session

Goal is to help you:

- Review clinical pearls from the webinar
- Application to practice case

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PEARLS From the Module 8 Clinical Webinar

1. Focus on the low-hanging fruit
2. Review for obesogenic medications at each visit and adjust as clinically appropriate
3. BMI does not reflect health outcomes
 - Staging the disease states better predicts outcomes

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PEARLS From the Module 8 Clinical Webinar

4. Excess adiposity causes obesity-related complications
5. Obesity treatment should be implemented in a comprehensive, stepwise manner
6. Utilize treatments that improve both obesity and obesity-related complications

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Application to Practice: Staging

Match Descriptions to Stage of Obesity

Patient Summary	Class and Stage of Obesity
36-year-old woman, BMI of 34.8, T2DM	
24-year-old male, BMI 44, osteoarthritis of both knees	
65-year-old female, BMI 26, HTN, dyslipidemia, prediabetes	
56-year-old male, BMI 36, NALFD	

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Application to Practice: Staging

Match Descriptions to Stage of Obesity

Patient Summary	Class and Stage of Obesity
36-year-old woman, BMI of 34.8, T2DM	Class 2, Stage 2
24-year-old male, BMI 44, osteoarthritis of both knees	Class 3, Stage 1
65-year-old female, BMI 26, HTN, dyslipidemia, prediabetes	Class 1, Stage 2
56-year-old male, BMI 36, NALFD	Class 2, Stage 1

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Application to Practice: Obesogenic Medications

Consider the list of obesogenic medications.
What could potentially be utilized instead?

Medication	Medication
glipizide	
paroxetine	
propranolol	
gabapentin	
diphenhydramine	

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Application to Practice: Obesogenic Medications

Consider the list of obesogenic medications—possible solutions

Medication	Medication
glipizide	empagliflozin
paroxetine	bupropion
propranolol	assess if medication is clinically beneficial
gabapentin	topiramate
diphenhydramine	loratadine

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Specific ORCs and Pharmacology

ORC	Medication issues
ESRD	naltrexone ER/bupropion ER and phentermine/topiramate ER not recommended in patients with severe renal impairment (<30 mL/min) orlistat should not be used in patients with, or at risk of, oxalate nephropathy can consider GLP1RAs with caution
CV	incretin may directly target VAT and EAT regulation as well as insulin resistance

Garvey, W., et al. (2016). *Endocrinology Practice*, 22(3), 1-203.

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Specific ORCs and Pharmacology

ORC	Medication issues
HTN	orlistat, phentermine/topiramate ER and liraglutide or semaglutide monitor HR and BP closely with phentermine/topiramate ER and GLP1RAs naltrexone ER/bupropion ER avoided if others can be used as no expectation of BP reduction and contraindicated in uncontrolled HTN
PCOS	orlistat or GLP1RAs and/or bariatric surgery
NAFLD	orlistat, liraglutide, semaglutide


Garvey, W., et al. (2016). *Endocrinology Practice*, 22(3), 1-203.
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Application to Practice: Case Study

Miguel is a 20-year-old

- PMH: Hyperlipidemia, NAFLD
- Medication: Algae Omega-3 850mg
- VS today
 - 5'11" 222# BMI 30.96 kg/m² Waist Circ 43"
 - BP 124/86 HR90 RR 20
- Labs
 - TC 210mg/dL, LDL 120mg/dL, Non-HDL 145 mg/dL, HDL 43mg/dL, Triglycerides 248 mg/dL, CHOL/HDL ratio 4.2
 - AST 61 units/L, Alt 72 units/L
 - Platelet count 219 x 10³/mL
 - HSI Score 40.4
- Class 2, Stage 1



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Dyslipidemia: Obesity Connection

- Hypothesis—high CHO consumption drives hepatic VLDL production
- Insulin resistance also elevates triglycerides
- HDL becomes dysfunctional due to the inflammation and oxidative stress—the ability to cause cholesterol efflux lowers—HDL clearance occurs faster than production
- Down regulation of Apo-A occurs

Han, T. & Lean, M. *Journal of the Royal Society of Medicine Cardiovascular Disease*, 5, 1-13.
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Dyslipidemia: Obesity Connection

- FFAs from adipose tissue increases the amount of VLDL— leading to more TG
- Relationship between BMI and circulating lipids is complex
- Insulin and leptin are secreted in direct proportion, and adiponectin in negative proportion, to the size of the adipose mass

Han, T. & Lean, M. *Journal of the Royal Society of Medicine Cardiovascular Disease*, 5, 1-13.

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Clinical Implications

- Lifestyle therapy
 - Physical activity, meal plan with reduced calories, minimizing sugar and refined CHO, avoiding trans fats and limits ETOH
 - PUFAs decrease TG
- 5 to 10% weight loss or more as needed to achieve therapeutic targets
- AOMS with lifestyle therapy
- Medications for hyperlipidemia if above unsuccessful (AACE)

Garvey, W., et al. (2016). *Endocrinology Practice*, 22(3), 1-203.

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Clinical Implications

- Study of interest: POUNDS LOST (2009)
 - 811 “free-living overweight or obese adults”
 - Findings:
 - Weight loss after six months and two years similar all four diets
 - Craving, fullness, hunger, and diet satisfaction similar
 - All diets improved risk factors for CV disease at six months and two years (reduced levels of TG, LDL, lowered BP, and increased HDL)
 - Heart-healthy, reduced-calorie diets, regardless of which macronutrients they emphasize, can help achieve and maintain weight loss with CV outcomes

Sacks FM, et al. *N Engl J Med*. 2009 Feb 26;360(9):859-73.

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Liver

- MAFLD (NAFLD) affects 60-80% of patients with DM + obesity and 100% of people with severe obesity
 - Pathophysiology of NAFLD includes genetic, dietary, metabolic, and hormonal factors
 - Ectopic fat accumulation combined with low-grade chronic inflammatory in an organ not able to accumulate fat
 - Hepatocytes become vulnerable to lipid oxidation, impaired apoptosis, and cytokine activity

Eslam M, et al. 2020 May;158(7):1999-2014.
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Liver

- Obesity connection
 - Visceral adipose tissue produces FFA and diverse adipokines
 - Increased TNF- α , resistin, interleukin-6
 - Decreased adiponectin
 - Increases ectopic fat accumulation and inflammation—including in the liver

Vizuete J, et al. J Clin Transl Hepatol 2017;5(1):67-75.
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Clinical Implications

- NAFLD treatment as directed at obesity
 - Lifestyle modifications
 - 7% weight loss of baseline—significant improvements in steatosis and lobular inflammation
 - 9% body weight loss showed histologic improvement (may require as high as 40%)
 - Bariatric surgery
 - Some patients experience complete resolution of NASH
 - Medication: orlistat, liraglutide, semaglutide

Garvey, W., et al. (2016). Endocrinology Practice, 22(3), 1-203.
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Clinical Implications

- NAFLD treatment as directed at obesity
 - Supplements
 - PIVENS study demonstrated Vitamin E improved steatohepatitis, enzyme levels, and inflammation
 - Curcumin—showed decreased BMI, HgBA1C
 - Flavonoids—positive effect on lipid metabolism, insulin resistance, inflammation, and oxidative stress
 - Eating plan
 - Mediterranean-type effect on hepatic steatosis independent of weight loss

Sanyal, A. J., et al. *The New England Journal of Medicine*, 362(18), 1675–1685.
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Application to Practice: Case Study



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Miguel is a 20-year-old
 • BMI: Hypertension, NAFLD
 • Medication: Algen Omega-3 850mg
 • NS Today
 • 5'11" 222lb BMI 30.98 kg/m²
 • BP 124/86 HR60 RR20
 • Labs
 • TC 210mg/dL, LDL 100mg/dL, HDL 30mg/dL, TG 43mg/dL, Triglycerides 248 mg/dL, Cholesterol-Carotid-4.2
 • AST 61 units/L, AL 72 units/L
 • Platelet count 219 x 10³/mL
 • Hb1c Score 4.4
 • Class 2, Stage 2

- Dietary Options
 - Miguel selects Whole Food Plant Based due to animal rights concern
- PA
 - Plays baseball five times a week and is in a strength training program
- Begins ILI program
 - Individual meetings every other week with provider

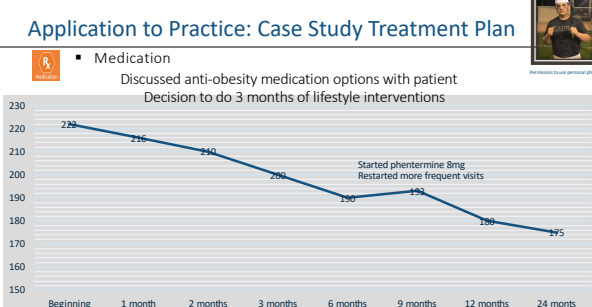
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Application to Practice: Case Study Treatment Plan

Medication

Discussed anti-obesity medication options with patient
 Decision to do 3 months of lifestyle interventions



Time Point	Weight (lbs)	Notes
Beginning	225	
1 month	216	
2 months	210	
3 months	200	
6 months	190	
9 months	192	Started phentermine 8mg, Restarted more frequent visits
12 months	186	
24 months	175	

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Thank you!

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