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Obesity

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Introduction:

Obesity according to the World Health Organization (WHO) (2016), is defined as an excessive amount of adipose tissue that accumulates in one's body and poses a significant risk to one's health. The body mass index (BMI) (weight in kg/height in m^2), is the most widely utilized formula to determine if one is underweight weight, normal weight, overweight, obese, or morbidly obese (CDC, 2020). One is considered obese if they have a BMI of 30kg/m^2 to 40kg/m^2 (CDC, 2020). Uranga and Keller (2019) report obesity is a result of excessive calorie consumption and inadequate calorie expenditure. Obesity not only impacts the health of the nation, but also places a significant financial burden on our economy. Furthermore obesity impacts people of all socioeconomic statuses, although some experience a greater prevalence. With the rates of obesity continuing to increase each year it is imperative that steps are made to focus on prevention as much as management and treatment.

Table 1: WHO BMI Chart

WHO CLASSIFICATION OF WEIGHT STATUS	
WEIGHT STATUS	BODY MASS INDEX (BMI), kg/m^2
Underweight	<18.5
Normal range	18.5 – 24.9
Overweight	25.0 – 29.9
Obese	≥ 30
Obese class I	30.0 – 34.9
Obese class II	35.0 – 39.9
Obese class III	≥ 40

(WHO, 2016)

Importance of Topic:

The topic of obesity was chosen because it is ravaging the health of our nation. Obesity is a multifaceted and complex disease that has many risks and leads to countless comorbidities. The Centers for Disease Control and Prevention reports reveal in 2017-2018 the prevalence of obesity in the United States was 42.4% (Centers for Disease Control and Prevention [CDC], 2020). Not only is obesity a concern in the United States, but also globally. Researchers continue to gain more knowledge on the direct and indirect impact of obesity on various body systems. Obesity presents a myriad of risks for multiple body systems possibly leading to organ dysfunction and co-morbidities, therefore it is crucial to focus on preventing the endocrine and metabolic disorder.

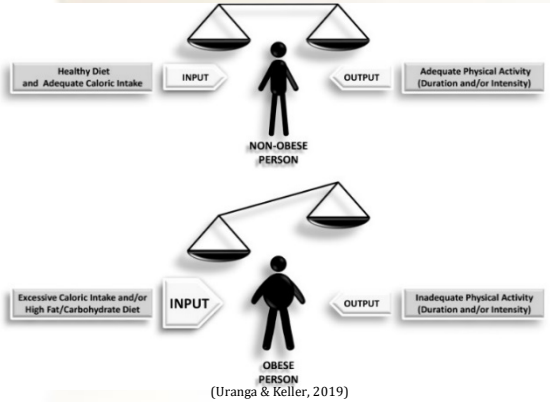
Underlying Pathophysiology:

Obesity is a complex disease that evolves from excess adiposity over a period of time when calorie expenditure exceeds energy expenditure in conjunction with environmental, sociocultural, physiological, medical, behavioral, genetic, and epigenetic factors (Gadde et al., 2018). Furthermore obesity involves the interaction between hormones, neurotransmitters, peripheral and central pathways, and adipokines (Uranga & Keller, 2019). In addition, obesity is associated with numerous chronic diseases and comorbidities including: type 2 diabetes, hypertension, cardiovascular disease, and cancer (Uranga & Keller, 2019). Pinto et al. (2019) revealed obesity is now also considered a neurobehavioral disease with genetic components that impact the hypothalamus in relation to hunger, satiety, and energy expenditure placing a patient at increased risk for obesity if they carry the gene. Common complications of obesity include atherosclerosis, hypertension, heart failure, stroke, renal vascular disease, sleep apnea, asthma, exercise intolerance, gastroesophageal reflux disorder, gallstones, fatty liver, osteoarthritis, low back pain, insulin resistance, and infertility (Heymsfield & Wadden, 2017).

Heymsfield and Wadden (2017) report the pathophysiological features include:

- anatomical effects (accumulation of lipids, primarily triglycerides in adipose tissue in addition to increase in volume of skeletal muscle, liver, and other tissues and organs)
  - Most adipocytes (the cellular basis of obesity) in the subcutaneous tissue are white adipocytes (WAT)
- metabolic and physiological effects (adipokines and hormones are synthesized by adipocytes and the secretion rate depends on the volume of adipose tissue present)
  - Chronic over activity of the sympathetic nervous system in some obese patients may contribute to hypertension and other comorbidities
- psychological effects (increased risk for anxiety, mood, and other psychiatric disorders and the prevalence increases with the level of obesity)

Figure 1: Depicts imbalance between input and output leading to obesity

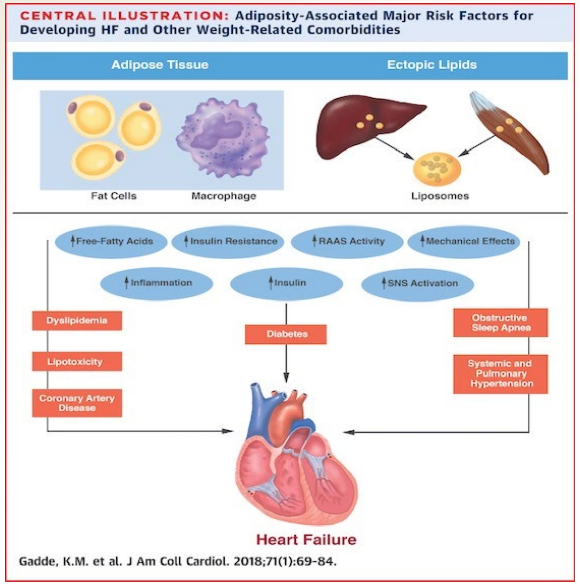


(Uranga & Keller, 2019)

Significance of Underlying Pathophysiology:

It is of paramount importance for providers to recognize that the pathophysiology of obesity is multifaceted, complex, and involves many factors. Cercato and Fonseca (2019) report obesity is not only dependent on the calories consumed and energy expenditure, but also secondary processes such as genetic factors. Additionally, "diet, physical activity, environmental, behavioral and physiological factors are part of the complex process of weight loss, since there are several hormones and peptides involved in regulation of appetite, eating behavior and energy expenditure" (Cercato & Fonseca, 2019, p. 1). Understanding the facets of obesity are crucial for treatment, management, and mostly importantly prevention. Obesity must be evaluated from multiple standpoints and on an individualized basis for positive patient outcomes. Having the knowledge to understand the pathophysiology of obesity in conjunction with working with the multidisciplinary team is key to combatting this epidemic.

Figure 2: Obesity risk factors for heart failure and other obesity related comorbidities



(Gadde et al., 2018)

Signs and Symptoms:

According to the National Heart, Lung, and Blood Institute (2019) there are no symptoms of obesity, but signs include:

- BMI of 30 kg/m^2 or greater
- Unhealthy body fat distribution (visceral obesity in men and peripheral obesity in women)

Risk factors:

The National Heart, Lung, and Blood Institute (2019) report the obesity risk factors include:

- Unhealthy lifestyle habits (lack of physical activity, unhealthy eating behaviors, not enough sleep and high amounts of stress
- Age (childhood obesity is a serious public health concern and the risk of weight gain increases with age)
- Unhealthy environments (low socioeconomic status, unsafe environment, lack of access to parks or safe walking areas and exposure to chemicals [obesogens])
- Family history and genetics (studies have revealed obesity may run in families and certain DNA elements are related to obesity)
- Race or ethnicity (rates of obesity are highest in black American men and women followed by Hispanics, then whites
- Sex (obesity is more prevalent in black or Hispanic women as opposed to men)

Implications of Nursing Care:

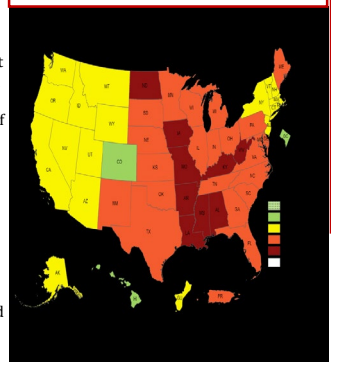
As an advanced practice provider it is crucial to be intentional each visit to evaluate your clients weight and lifestyle habits. With a practice such as this a provider is able to recognize trends and make healthy lifestyle recommendations. Taking time to speak with the client will not only allow the provider to develop a rapport, but they may also gain knowledge about the patients lack of access to healthy options or lack of transportation. Gaining knowledge such as this will allow the provider to make the necessary referrals to facilitate the patient with healthier lifestyle options. Additionally developing a rapport with the client allows for greater dialect between the client and provider to discuss difficult subjects such as obesity and lack of resources which exacerbate the situation. Also it is crucial to make the appropriate referrals to other disciplines such as a nutritionist or dietitian as needed.

Treatment:

Treatment for obesity includes a myriad of approaches. The treatment plan must be individualized and tailored to the each person. Additionally working collaboratively with other disciplines such as nutritionists and dietitians is crucial for the success of the individual. The Institute of Health (2018) recommends the following as treatment options for obesity:

- Healthy eating plans (eating less calories is usually the starting point)
- Regular physical activity (150 minutes per week is the recommended amount)
- Changing habits (setting realistic goals, be prepared for set backs, and seek support when needed)
- Weight-management programs (individualized or group sessions)
- Weight-loss medications (Xenical, Alli, Belviq, Qsymia, Contrave and Saxenda)
- Weight-loss devices (electrical stimulation system, gastric balloon system and gastric emptying system
- Bariatric surgery
- Special diets (calorie-restricted and intermittent fasting)

Figure 3: 2018 CDC obesity map



(CDC, 2019)

Conclusion:

The prevalence of obesity continues to rise dramatically and poses a significant health threat to the health of our nation (Oussaada et al., 2019). Early identification and intervention are crucial not only to combat this disease, but also to decrease the risk of the comorbidities that come with obesity (CDC, 2020). While treatment and management are crucial to clients already suffering from obesity, prevention is the key to reversing the obesity epidemic. Collaborative efforts throughout the government, health, and community arenas are pivotal in making changes that will impact the health of our people. Implementing new programs and strategies at the preschool level and continuing throughout their adolescent and teenage years will allow them to gain knowledge that will facilitate them in making wiser and healthier choices to combat the obesity epidemic.

References:

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