

PedsCases Podcast Scripts

This is a text version of a podcast from PedsCases.com on the “Approach to Eating Disorders in a Pediatric Population.” These podcasts are designed to give medical students an overview of key topics in pediatrics. The audio versions are accessible on iTunes or at www.pedscases.com/podcasts.

Approach to Eating Disorders in a Pediatric Population

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Case Overview

You are a 1st year family medicine resident working in an urban health team setting. Your patient is Roselyn, a 17 year old honour roll student who has come in for recurrent dizzy spells and syncopal episodes while participating in gym classes at school. Roselyn has been increasingly stressed over the past few months since her university applications are due soon. Her mother has noted that she seems more tired, frail and her appetite has decreased. Roselyn has not noticed any changes to her health, but is hoping for a “quick fix for [her] fainting spells” since she has “no time for weakness”.

Objectives

- To introduce the new diagnostic criteria (DSM5) for assessing eating disorders (EDs)
- To discuss the epidemiology, diagnosis and clinical presentations of EDs in children and adolescents
- To summarize various medical/systemic complications that are associated with EDs
- To suggest evidence-based therapeutic options that are available to patients and their families

Introduction

Pediatric EDs are thought to be more common than type II diabetes; however these conditions continue to be underdiagnosed by primary care physicians. New changes to the diagnostic criteria for EDs have been made in an attempt to improve the accuracy and precision of diagnoses, as reflected in the DSM-5. Over the last 10 years, childhood obesity has increased, accompanied by a growing emphasis on dieting and weight loss amongst children and teenagers. There has also been a recent increase in EDs in younger children and male adolescents.

Definitions

Adolescents and children with *Anorexia Nervosa (AN)* often present with stunted growth, dramatic weight loss, fear of weight gain and are preoccupied with food as well as body image. They may refuse to eat food that they previously enjoyed, avoid meals with family and friends and have rigid exercise habits. These characteristics are often accompanied by stunted growth, delayed pubertal development and menstrual irregularity (in girls). Subtypes include restricting and binge-eating/purging. The lifetime prevalence of AN in the US is approximately 0.5%-2%, peaking in teenagers (ages 13-18).

Bulimia Nervosa (BN) is characterized by recurrent binge eating episodes that are followed by inappropriate compensatory behaviours like fasting, excessive exercise, laxative/diuretic abuse or purging. A 'binge episode' by definition is the consumption of a greater than normal amount of food, within a discrete time period, along with a sense of loss of control. These episodes should occur at least once per week for 3 months. BN patients may belong to any weight category and undergo frequent weight fluctuation. Caregivers and friends may notice mood swings, periods of fasting, excessive exercise or increased bathroom time. The US lifetime prevalence of BN lies between 0.9%-3% with 16-17 years being the average age of onset.

Binge Eating Disorder (BED) is defined as binge eating that is not necessarily accompanied by compensatory behaviours. BED is associated with at least 3 of the following: eating rapidly, eating until uncomfortably full, eating when not hungry, eating when alone, and accompanied by feelings of disgust, depression and guilt. Episodes should occur at least once per week for 3 months, in addition to feelings of distress, to be considered clinical BED.

Avoidant Restrictive Food Intake Disorder (ARFID) consists of a variety of restrictive eating patterns such as textural aversion or swallowing phobias that do not involve distorted body image or fear of weight gain, but nevertheless lead to physical and emotional distress. ARFID also applies to individuals who have no interest in eating or a reduced appetite.

Risk Factors/Etiology

Most studies agree that a combination of genetic traits, biological predisposition, environmental influences, personal experience and psychological vulnerability, when "activated" by puberty, contribute towards ED development in children and teenagers. Some researchers theorize that neuroendocrine abnormalities like hypothalamic-pituitary axis imbalance and hormonal (leptin) dysregulation may mediate physical hyperactivity, which is a common feature of AN. Dieting has also been shown to be a risk factor. However an exact etiology for EDs remains unknown.

Diagnosis

Primary care providers should screen for EDs as part of a regular physical examination and use charting of age-appropriate growth milestones like height and weight to assess for nutritional deficits. Red flags for a potential diagnosis of ED include patients with unexplained weight loss, stunted growth, pubertal delay, abnormal eating patterns, excessive exercise, body image concerns or recurrent vomiting. Establishing a diagnosis is harder in younger patients who may present solely with failure to grow. It must be noted that overweight or obese children and adolescents risk delayed diagnosis. Additionally, children with chronic illnesses such as cystic fibrosis and insulin-dependent diabetes mellitus are at an increased risk for developing EDs and should be screened frequently.

Initial Assessment

If a patient screens positive for an ED, the physician should conduct a detailed evaluation to establish a diagnosis, ascertain nutritional status, determine severity of the disorder and conduct a preliminary psychosocial evaluation. A detailed history and physical examination should be performed. Laboratory investigations may include a CBC, electrolyte panel, calcium, magnesium, glucose levels, liver function tests, urinalysis and thyroid function tests. Additional assessments in females may include a urine pregnancy test, hormones tests (for amenorrhea) and bone density tests. If diagnosis is uncertain then consider ESR, celiac screening or radiographic imaging. An ECG must be conducted for patients with cardiovascular signs or electrolyte anomalies.

A primary psychosocial assessment may include the patient's views on food and body image, comprehension of diagnosis and willingness to receive help. Other factors to be assessed include school and home life, additional psychiatric diagnoses (OCD, anxiety and depression) as well as substance use. Consider exploring suicidal ideation and a potential history of abuse. It is also important to assess the caregiver's reaction to the illness, which could play a key role in the treatment and recovery phase.

The differential diagnosis for EDs is extensive and includes GI disorders (like celiac, IBD), endocrine dysfunction (like hyperthyroidism) psychological disorders (like OCD) and malignancies. Referrals to subspecialists or mental health professionals may be considered to complete the evaluation.

Clinical Presentation

AN: bradycardia, cardiac anomalies, hypotension, hypothermia, dry skin, orange discolouration of skin, lanugo, spinal bruising, acrocyanosis, thinning hair, cachexia, dependent edema

BN: bradycardia, arrhythmia, orthostatic hypotension, callouses on knuckles, parotid enlargement, dental enamel loss, oral ulcers, mood lability, palatal petechiae, loss of gag reflex

Associated Medical Complications

Cardiovascular Risk

This includes bradycardia, hypotension, arrhythmias and fatal conduction abnormalities due to myocardial atrophy. Repolarization anomalies like prolonged QTc should be managed aggressively. Other cardiac complications may include pericardial effusion, mitral valve prolapse, myocardial dysfunction and congestive heart failure (sometimes associated with refeeding).

Gastrointestinal Issues

Gastrointestinal complaints are thought to occur on account of malnutrition, vomiting or binge eating. Patients may experience gastric bloating and post-prandial fullness from delayed gastric emptying. Some may present with upper GI bleeds and, rarely, Mallory-Weiss esophageal tears due to persistent vomiting. Severe chronic vomiting may present as esophageal rupture or pneumomediastinum. Constipation is a common concern that requires nutritional strategies and stool softeners. Of note, stimulant laxatives should be avoided since laxative misuse may lead to rectal prolapse. Salivary gland hypertrophy is a strong indicator of binge-eating or vomiting.

Fluid and Electrolyte Abnormalities

Commonly observed in patients who engage in purging, laxative or diuretic abuse, and present in the form of dehydration, orthostatic symptoms, pseudo-hyperaldosteronism and hypokalemia. Disruptions in potassium levels give rise to arrhythmias. Chronic emesis may present as a hypochloremic metabolic alkalosis. Laxative abuse presents in the form of hyperchloremic metabolic acidosis. Patients who 'water load' in lieu of eating may demonstrate dilutional hyponatremia. Hypoproteinemia, hypophosphatemia and hypomagnesemia are commonly associated with refeeding and laxative abuse.

Endocrine Concerns

Include hypothyroidism, hypercortisolism, HPA axis dysfunction, leading to anovulation, luteal phase disturbances and hypogonadotropic hypogonadism in females. A thyroid anomaly commonly observed in severely malnourished patients is euthyroid sick syndrome, which manifests as low free T4 with normal TSH levels. This resolves with refeeding and does not require exogenous thyroid supplementation. Amenorrhea in female patients accompanies hypothalamic suppression and is a marker of acute energy deficits, low bone mineral density and osteoporosis. Pre- or peri-pubertal individuals may demonstrate growth retardation, pubertal delay and short stature.

Neurologic Deficits

Patients with AN show volume deficits in grey and white brain matter, along with increases in cerebrospinal fluid space associated with weight loss. Cognitive impairment has also been noted in AN patients, although a definite etiology remains uncertain.

Renal Abnormalities

These include dehydration and renal insufficiency, along with pyuria, proteinuria and hematuria, all of which are reversible with adequate hydration and nutrition. Some children with AN may present with increased urine output and reduced specific gravity on urinalysis due to a loss in the kidney's ability to concentrate urine.

Psychological Co-morbidities

Studies have shown an association between EDs and depression, anxiety, OCD, PTSD, personality disorders, substance abuse disorders and self-injurious behaviours. These may occur before, during or after diagnosis and treatment of EDs.

Management

Treatment often takes place in a multi-disciplinary setting, with the help of dietitians, therapists, nurses and other allied health care professionals. Care must be taken to develop a strong therapeutic relationship between the patient and physician. Contrary to older paradigms of therapy, children and adolescent patients may benefit from the mediated inclusion of family members and caregivers in the treatment process. Outpatient therapy is the preferred treatment choice. Day programs, hospitalization and pharmacotherapy should only be considered when outpatient therapy fails.

It is also important to monitor patients for refeeding syndrome, which usually occurs during the first few weeks of nutritional stabilization. Refeeding syndrome consists of a combination of metabolic, cardiovascular, neurologic and hematologic complications due to phosphate moving from extracellular to intracellular spaces, within the context of systemic phosphorus depletion. Careful, slow refeeding, monitoring of serum electrolyte levels, magnesium, phosphorus and glucose, along with adequate phosphorus supplementation may protect against these complications.

Outpatient Treatment

The main goals include medical stabilization and nutritional rehabilitation, with a primary focus on treatment and not cause. Oral feeding is ideal for nutritional rehabilitation, but supplementation or nasogastric feeding may be necessary. Meals and snacks are increased in a stepwise manner, with an emphasis on smaller, more frequent meals. In AN, suggested intake goals may go up to 2000-6000 kcal per day or more, with an expected healthy weight gain of 0.25-1 kg per week. The treatment goal weight for each patient is individualized and depends on factors like age, height, premorbid weight and pubertal stage, and should be re-evaluated frequently.

Outpatient follow-up visits (after treatment is complete) often begins with the patient and physician engaging in a confidential, open-ended conversation, where the patient is free to bring up any questions or concerns. Physicians may ask about eating, exercise and purging habits. It is important to also talk about school, family, friends and hobbies. This reinforces that the physician is interested in the child or teen as an individual and takes focus away from weight and illness. This is followed by a physical exam (if needed), and then a meeting together with parents and the child.

Family-Based Treatment (FBT)

Has good evidence in the effective treatment of AN, but is also used in BN. This is conducted over 6-12 months, in an outpatient setting, and is divided into three phases. The 1st phase involves motivating caregivers to refeed their child, using foods that the child enjoys and food exposure to treat anxiety. It is important to let the caregivers know that the ED is not their fault, but the child needs their help to get better. The 2nd phase occurs after weight restoration, and is a gradual transfer of responsibility for eating back to the child or teen. The 3rd phase is relapse prevention, addresses other issues of adolescent development and treatment termination. Contraindications to FBT include older patients, medically-compromised patients, and parents with psychopathology or hostility within the family unit.

Cognitive behavioural therapy (CBT) is mainstay treatment of BN and BED. Children with swallowing difficulties or textural aversions may also benefit from targeted occupational therapy.

Day Treatment Programs

Geared towards patients that need treatment at an intermediate level, and is also used as a stepdown approach from hospital treatment. These programs are effective because they allow for familial and social support, along with a natural setting for recovery. Treatment involves 8-10 hours of care (meals, treatment, school activities and group work) for only 5 days per week. Patients live at home and conduct their lives as usual.

Hospital Therapy

Only considered when outpatient treatment options fail to meet medical, nutritional and psychiatric goals. This varies depending on the treatment centre.

Pharmacotherapy

Medications, when used, typically target comorbidities like depression and anxiety. Although evidence is limited, atypical neuroleptics like olanzapine have been shown to improve weight gain and negative thinking in AN. SSRIs like fluoxetine may reduce binge-eating and purging in BN. More research is necessary to investigate the benefits of medication in the context of EDs.

Prognosis

Literature on prognosis varies widely, but it is generally accepted that most children and teens do well when EDs are caught early and treated aggressively. If mortality occurs, it is most likely due to medical complications or suicide. Primary and secondary prevention of EDs is important. Primary health providers can educate families to adopt a healthy diet and active lifestyle, without placing undue emphasis on weight and dieting.

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