



14. ULUSAL ÇOCUK GASTROENTEROLOJİ, HEPATOLOJİ VE BESLENME KONGRESİ

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LIMAK CYPRUS DELUXE HOTEL
KKTC

Anorektik hastada beslenme yaklaşımları

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Kocaeli Üniversitesi Tıp Fakültesi Çocuk Sağlığı ve Hastalıkları Anabilim Dalı Çocuk Gastroenteroloji Bilim Dalı

KURS 2

BESLENME VE GASTROENTEROLOJİ KURSU

Konuřma planı

-1. Tanım, sınıflandırma

Amerikan Psikiyatri Birlięi

“Diagnostic and Statistical Manual of Mental Disorders (DSM)”

1952 (ilk baskı)→2013 (5. baskı)

Anoreksia nervoza

Bulimia Nervosa

Tıkınırcasına yeme bozukluęu (Binge Eating Disorder)

Kaçınan/kısıtlı gıda tüketim bozukluęu (Avoidant/Restrictive Food Intake Disorders)

Pika

Ruminasyon hastalıęı



Konuşma planı

0. Hasta ile ilk karşılaşma / Ayırıcı tanı
1. Ekip üyeleri ile ilk iletişime geçme
2. Risk değerlendirme
 - a. Beslenme durumu
 - b. Hastalıkla ilgili medikal komplikasyon
 - c. Yatış gereksinimi
3. Kısa süreli eylem planı
 - a. Ayaktan/Yatarak
 - b. Öğün/Enteral ürün
 - c. Çevre düzenlemesi, izlem/denetim, yardımcı sağlık çalışanları, aile
 - d. Yeniden beslenme sendromu
 - e. Hedef
 - f. Taburculuk kararı
 - g. Düzenli ekip toplantıları
4. Uzun süreli eylem planı



0. Hasta ile ilk karřılařma / Ayırıcı tanı



TABLE 2 Example Questions to Ask Patients With a Possible Eating Disorder

History/Information	Example Questions
<p>Weight history</p> <p>Body image</p>	<p>What was your highest weight? How tall were you? How old were you?</p> <p>What was your lowest weight? How tall were you? How old were you?</p> <p>How do you think your weight should be? What feels too high? What feels too low?</p> <p>Which body areas that cause you stress? Which areas?</p> <p>Do you do any body checking (ie, weighing, body pinching or checking, mirror checking)?</p> <p>How much of your day is spent thinking about food or your body?</p>
<p>Diet</p> <p>24-h diet history</p>	<p>Do you count calories, fat, carbohydrates? How much do you allow? What foods do you avoid?</p> <p>Do you ever feel guilty about eating? How do you deal with that guilt (ie, exercising, purging, eating less)?</p> <p>Do you feel out of control when eating?</p>
<p>Exercise history</p>	<p>Do you exercise? What activities? How often? How intense is your workout?</p> <p>How stressed do you feel when you are unable to exercise?</p>
<p>Binge eating and purging</p>	<p>Do you ever binge? On what foods? How much? How often? Any triggers?</p> <p>Do you vomit? How often? How soon after eating?</p> <p>Do you use laxatives, diuretics, diet pills, caffeine? What types? How many? How often?</p>
<p>Family history</p>	<p>Does anyone in your family have a history of dieting or an eating disorder? Anyone on special diets (eg, vegetarian, gluten-free)?</p> <p>Anyone with obesity?</p> <p>Does anyone in your family have a history of depression, anxiety, bipolar disorder, obsessive-compulsive disorder, substance abuse, or other psychiatric illness?</p> <p>Does anyone in your family take psychiatric medication?</p>

Psychosocial history
(HEADSS)

Home

Who lives in the home?
How well do the family members get along with each other?
Is the family experiencing any stressors?

Education

Where do you attend school? What grade? Regular classroom?
Is school challenging for you? What grades do you receive? Has there been a change in your grades?

Activities

What activities are you involved in outside of the classroom?
Do you have friends you can trust? Have you experienced any bullying?
What Web sites do you most often visit when you go online? How much time is spent each day online?

Drug use

Have you ever used tobacco, e-cigarettes, alcohol, or drugs? Which ones? How much? How often?
Have you ever used anabolic steroids or stimulants? Caffeine consumption? Other substances?

Depression/suicide

How is your mood? Increased irritability? Feelings of depression or hopelessness? Any anxiety or obsessive-compulsive thoughts or behaviors?
Any history of cutting or self-injury?
Have you ever wished you were dead? How often do you have these thoughts? When was the last time? Any thoughts of suicide?
What methods have you imagined? Any attempts?
History of physical, sexual or emotional abuse?
Any previous mental health care?

Sexual history

Do you feel that the gender you feel inside matches your body on the outside?
Are you romantically or sexually attracted to guys, girls, or both? Not sure?
Have you had any sexual contact with another person? If yes, was it with guys, girls or both? Use of condoms? Use of contraceptives? History of pregnancy or sexually transmitted infection?
Has anyone touched you sexually when you didn't want to be touched?

0. Hasta ile ilk karřılařma / Ayırıcı tanı

Ađırlık kaybı	Gastrointestinal	İnflamatuvar bađırsak hastalıkları, ölyak hastalığı
	Endokrinolojik	Hipertiroidi, Diyabetes mellitus, Adrenal yetersizlik
	Enfeksiyon ilişkili	Tüberküloz, HIV
	Psikiyatrik	Depresyon, psikoz, anksiyete/obsesif kompulsif hastalık, madde kullanımı
	Diđer	Malignensi
Kusma	Gastrointestinal	Gastroözofageal reflü hastalığı, eozinofilik özofajit, pankreatit, siklik kusma s.
	Nörolojik	Kafa içi basınç artışı, migren
Tıkınırcasına yeme veya açıklanamayan ađırlık artışı	Endokrinolojik	Hipotiroidi, hiperkortizolizm
	Psikiyatrik	Depresyon
	Yatrojenik	İlaç yan etkisi
	Genetik	Prader Willi syndrome; Kleine-Levin syndrome





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Letters to the editor

Mitochondrial Neurogastrointestinal Encephalomyopathy in the Differential Diagnosis of Eating Disorders



To the Editors:

The clinical observation by Demaria et al. [1] highlighted an adolescent with mitochondrial neurogastrointestinal encephalomyopathy (MNGIE) who was initially erroneously diagnosed with anorexia nervosa. We report a second case presentation that similarly highlights a young adult with MNGIE who was initially thought to have anorexia nervosa. A 20-year-old female was referred to our eating disorders program, carrying a diagnosis of anorexia nervosa after a 2-year history of an unexplained 30-pound weight loss and abdominal pain. Upon presentation to the eating disorders program, she had a weight of 27.5 kg and body mass index of 12. She was admitted to the hospital given severe malnutrition. Initial laboratories demonstrated an albumin of 1.6 g/dL (normal 3.1–4.8), C-reactive protein of 56.6 mg/L (normal < 6.3), and lactate of 4.2 (normal .5–2.2). After extensive diagnostic testing, thymidine levels were 3,096 (normal < 700), indicating marked reduction of thymidine phosphorylase activity, and a brain magnetic resonance image of the brain demonstrated diffuse white matter, basal ganglia, and cerebellar abnormal T2/flair signal intensity without associated volume loss, both indicating the diagnosis of MNGIE.

These two cases highlight the importance of keeping a broad differential diagnosis and ruling out underlying medical conditions that may mimic eating disorders in the medical evaluation for malnutrition and weight loss. Although many patients with eating disorders may experience abdominal pain, bloating, and constipation, it is important to consider other etiologies for these symptoms. Our case also highlights anchoring bias or the tendency to rely too heavily on an initial diagnosis when making subsequent decisions. The patient's initial diagnosis of anorexia

nervosa continued to be documented through multiple clinic and emergency room visits at various medical centers for weight loss and abdominal pain.

Demaria et al. [1] discuss hematopoietic stem cell transplantation as the only potentially effective therapy, which may restore thymidine phosphorylase enzyme function in patients with MNGIE [2]. In addition, two recent case reports described a 25-year-old male [3] and 21-year-old female [4] with MNGIE who underwent liver transplantation with subsequent normalization of serum thymidine levels. At 6 months post-transplant, the 25-year-old patient had regained the ability to walk, increased oral food intake (445–1,375 kcal per day), and reported improved quality-of-life scores [3]. However, long-term outcomes of liver transplantation in MNGIE are less clear.

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References

- [1] Demaria F, De Crescenzo F, Caramadre AM, et al. Mitochondrial neurogastrointestinal encephalomyopathy presenting as anorexia nervosa. *J Adolesc Health* 2016;59:729–31.
- [2] Halter JP, Michael W, Schupbach M, et al. Allogeneic haematopoietic stem cell transplantation for mitochondrial neurogastrointestinal encephalomyopathy. *Brain* 2015;138:2847–58.
- [3] De Giorgio R, Pironi L, Rinaldi R, et al. Liver transplantation for mitochondrial neurogastrointestinal encephalomyopathy. *Ann Neurol* 2016;80:448–55.
- [4] D'Angelo R, Rinaldi R, Pironi L, et al. Liver transplant reverses biochemical imbalance in mitochondrial neurogastrointestinal encephalomyopathy. *Mitochondrion* 2017;34:101–2.

0. Hasta ile ilk karřılařma / Ayırıcı tanı

TAM FİZİK MUAYENE

Yaşamsal bulgular

Bradikardi, hipotansiyon, ortostatik
hipotansiyon, hipotermi

Baş

Parotis bezlerinde şiřkinlik, enamel erozyonlar

Göğüs

Aritmi, atrofik meme dokusu

Karın

Palpabl fekalom

Ekstremiteler

Ödem, kas atrofisi, zayıflığı, Russell işareti

Deri

Kuru deri, saç dökülmesi, lanugo, akrosiyanoz

LABORATUVAR

Tam kan sayımı, sedimantasyon

Elektrolitler, kan řekeri

Üre, AST, ALT

EKG

+

B12 vitamini, folat

Kemik sağlığına yönelik tetkikler

Ayırıcı tanıya yönelik tetkikler

...

.

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Nicholls D. Managing Anorexia Nervosa. Arch Dis Child 2011;96:977–982.

Rome ES. Eating disorders. Ped in Rev. 2016;37:323-334

Hornberger LL, Lane MA, AAP THE COMMITTEE ON ADOLESCENCE. Identification and Management of Eating Disorders in Children and Adolescents. Pediatrics. 2021; 147(1):e2020040279



- Laboratuvar komplikasyonlar ya da ayırıcı tanı açısından bilgi verebilir.
- Çoğu kez normal bulunur.
- Normal bulunması hastanın risk taşımadığı anlamına gelmez.
- Albümin çoğu kez normaldir. Düşükse organik hastalık varlığını da titizlikle araştırmak gerekir*.

*Nutrition in Anorexia Nervosa. Topic 31. Modul 31.1 ESPEN LLL Programme 2008.

*Mehler PS. Anorexia Nervosa, Albumin, and Inflammation. Am J Med 2021; ;134(6):e401.

Dasha Nicholls et al. Managing anorexia nervosa. Arch Dis Child. 2011 Oct;96(10):977-82.

Junior Marsipan Report 2012. Royal College of Psychiatrists. <http://www.marsipan.org.uk>

1. Ekip üyeleri ile ilk iletişime geçme



Çocuk Ruh Sağlığı
Çocuk Gastroenteroloji
Diyetisyen

Çocuk Kardiyoloji
Çocuk Endokrinoloji
Çocuk Nöroloji

...

Hemşirelik
Sosyal görevliler

...



0. Hasta ile ilk karřılařma / Ayırıcı tanı
1. Ekip üyeleri ile ilk iletişime geme
- 2. Risk deęerlendirme**
 - a. Beslenme durumu
 - b. Hastalıkla ilgili medikal komplikasyon
 - c. Yatıř gereksinimi



2.a Beslenme durumu

- Malnütrisyon ağırlığının derecelendirilmesi

$$\%mVKİ = \text{Güncel VKİ} / \text{Yaş ve cinse göre 50. persentil VKİ}^* \times 100$$

Table 3

A proposed classification of degree of malnutrition for adolescents and young adults with eating disorders

	Mild	Moderate	Severe
%mBMI ^a	80%–90%	70%–79%	<70%
BMI z score	–1 to –1.9	–2 to –2.9	–3 or Greater
Weight loss	>10% Body mass loss	>15% Body mass loss	>20% Body mass loss in 1 year or >10% body mass loss in 6 months

One or more of the terms would suggest mild, moderate, or severe malnutrition.

BMI = body mass index.

^a Percent median BMI.

Position paper / Journal of Adolescent Health 56 (2015) 121–125

*VKİ: Vücut Kitle İndeksi



- **Besin alımı**

- Tüketilen gıda miktarı kayıtları^{Abartılabilir}
- Sevilen/sevilmeyen, tercih edilen/edilmeyen gıdalar
- Hayvansal gıda
- Aile sofrası
- Okul ortamı
- Hafta sonları
- ...

- **Besini uzaklaştırma davranışları**

Junior Marsipan Report 2012. Royal College of Psychiatrists. <http://www.marsipan.org.uk>

2.b Medikal komplikasyonlar

TABLE 5 Selected Medical Complications Resulting From Eating Disorders

Eating Disorder Behaviors	Medical Complications
Related to dietary restriction or weight loss	
Fluids and electrolytes	Dehydration; electrolyte abnormalities
Psychiatric	Depressed mood or mood dysregulation
Neurologic	Cerebral cortical atrophy; cognitive dysfunction
Cardiac	Decreased cardiac muscle mass, right axis deviation, arrhythmias, cardiac dysrhythmias, cardiac conduction delays; mitral valve prolapse; pericardial effusion; edema
Gastrointestinal	Delayed gastric emptying, slowed gastrointestinal motility, constipation, abdominal pain, pancreatitis; elevated transaminases; hypercholesterolemia
Endocrinologic	Growth retardation; hypogonadotropic hypogonadism: amenorrhea, testicular atrophy, decreased libido; sick euthyroid syndrome; hypoglycemia/hyperglycemia, impaired glucose tolerance; hypercholesterolemia; decreased BMD
Hematologic	Leukopenia, anemia, thrombocytopenia, elevated ferritin; depressed erythrocyte sedimentation rate
Related to vomiting	
Fluid and electrolytes	Electrolyte disturbance: hypokalemia, hypochloremia, metabolic alkalosis
Dental	Dental erosions
Gastrointestinal	Gastroesophageal reflux, esophagitis; Mallory-Weiss tears; esophageal or gastric rupture
Related to laxative use	
Fluids and electrolytes	Hyperchloremic metabolic acidosis; hypocalcemia
Gastrointestinal	Laxative dependence
Related to binge eating	Obesity with accompanying complications
Related to refeeding	Night sweats; polyuria, nocturia; refeeding syndrome: electrolyte abnormalities, edema, seizures, congestive heart failure (rare)
Seen among all eating disorder behaviors	Suicide

Adapted from Rosen; American Academy of Pediatrics.²⁰⁸



Junior MARSIPAN: Management of Really Sick Patients under 18 with Anorexia Nervosa

January 2012

Vilhoob risk

Siddir risk

Orta risk

Düşük risk

80-85

>85

99g

<500g

yok

50-60/dak

50-60/dak

>60/dak

Presenkop sırada

Presenkop bulguları

yok

<2

Normal

Normal kan basıncında
sistolik kan basıncı düşüş, kalp hızı <30/dak artış

Normal

Normal

>400ms (kızlar)

<460ms (kızlar)

Düzenli
<460ms (kızlar)


>400ms(erkekler)

>400ms(erkekler)

<400ms(erkekler)

<400ms(erkekler)

	Yüksek risk	Ciddi risk	Orta risk	Düşük risk
Vücut kitle indeksi, medyan değerin yüzdesi	<70	70-80	80-85	>85
Son 2 haftada ağırlık kaybı	≥ 1kg	500-999g	<500g	yok
Uyanıkken kalp hızı	<40/dak	40-50/dak	50-60/dak	>60/dak
Senkop öyküsü	Tekrarlayan kere	Arada sırada	Presenkop bulguları	yok
Otururken sistolik ve diastolik kan basıncı yüzdeleri		<0.4	<2	Normal
Postural tepki	Sistolik kan basıncında ≥20mmHg düşüş, kalp hızında >30/dak artış	Sistolik kan basıncında ≥15mmHg düşüş, kalp hızında <30/dak artış	Normal	Normal
Kalp ritmi	Düzensiz			Düzenli
QTc	>460ms (kızlar) >400ms(erkekler)	>460ms (kızlar) >400ms(erkekler)	<460ms (kızlar) <400ms(erkekler)	<460ms (kızlar) <400ms(erkekler)

	Yüksek risk	Ciddi risk	Orta risk	Düşük risk
Sıvı dengesi	Sıvı reddi Ağır dehidratasyon (%10)	Ciddi sıvı kısıtlaması Orta dehidratasyon (%5-10)	Sıvı kısıtlaması Hafif dehidratasyon (<%5)	Dehidrate değil
Vücut sıcaklığı	<35.5°C timpanik 35.0°C aksiller	<36°C		
Biyokimya	P, Na, K, Mg, Ca, glikoz, albümin düşüklüğü	P, Na, K, Mg, Ca düşüklüğü		
...	...  <p>Vki çok düşük iken normal kalp tepe atımı hipovolemi anlamında gelebilir!</p>

2.c Yatış gereksinimi

TABLE 6 Indications for Hospitalization of Adolescent With an Eating Disorder

One or More of the Following

Hospitalization

1. ≤ 75 median BMI for age and sex (BMI calculated as patient BMI/50th percentile BMI for age and sex in reference population $\times 100$)
2. Dehydration
3. Electrolyte disturbance (hypokalemia, hyponatremia, hypophosphatemia)
4. ECG abnormalities (eg, prolonged QTc or severe bradycardia)
5. Physiologic instability:
 - a. Severe bradycardia (HR < 50 beats per min daytime; < 45 beats per min at night);
 - b. Hypotension (90/45 mm Hg);
 - c. Hypothermia (body temperature $< 96^{\circ}\text{F}$, 35.6°C);
 - d. Orthostatic increase in pulse (> 20 beats per min) or decrease in BP (> 20 mm Hg systolic or > 10 mm Hg diastolic)
6. Arrested growth and development
7. Failure of outpatient treatment
8. Acute food refusal
9. Uncontrollable binge eating and purging
10. Acute medical complications of malnutrition (eg, syncope, seizures, cardiac failure, pancreatitis and so forth)
11. Comorbid psychiatric or medical condition that prohibits or limits appropriate outpatient treatment (eg, severe depression, suicidal ideation, obsessive-compulsive disorder, type 1 diabetes mellitus)

Reprinted with permission from the Society for Adolescent Health and Medicine.⁸⁵ ECG, electrocardiogram.

2. Risk deęerlendirme

- a. Beslenme durumu
- b. Hastalıkla ilgili medikal komplikasyon
- c. Yatış gereksinimi



2. Risk deęerlendirme

- a. Beslenme durumu
- b. Hastalıkla ilgili medikal komplikasyon
- c. Yatış gereksinimi

3. Kısa süreli eylem planı (Gastroenterolog + Diyetisyen)

- a. Ayaktan/Yatarak
- b. Öğün/Enteral ürün
- c. Çevre düzenlemesi, izlem/denetim, yardımcı saęlık çalışanları
- d. Yeniden beslenme sendromu
- e. Hedef
- f. Taburculuk kararı
- g. Düzenli ekip toplantıları



Beslenme tedavisinin ilk hedefi ağırlık kaybını durdurmak ve medikal açıdan hastayı olabildiğince stabil hale getirmek.

Beslenme tedavisinin ikinci basamak hedefi ağırlık kazanımının başlaması ve uzun dönemde vücut ağırlığının metabolizma ve tüm vücut işlevlerinde normal durumu sürdürebilecek bir düzeye kavuşturulmasıdır.

3. Kısa süreli eylem planı (Gastroenterolog + Diyetisyen)

- a. Ayaktan/Yatarak
- b. Öğün/Enteral ürün
- c. Çevre düzenlemesi, izlem/denetim, yardımcı sağlık çalışanları, aile
- d. Yeniden beslenme sendromu
- e. Hedef
- f. Taburculuk kararı
- g. **Düzenli ekip toplantıları**



3.b Öğün/Enteral ürün

Risk durumu karar sürecini etkileyecektir.
İzlemde alınan kararlar değiştirilebilir.

Yüksek risk

Ciddi risk

Orta risk

Düşük risk



3.b Öğün/Enteral ürün

- Ağız yoluyla gıda tüketimi psikolojik direnç ve olası gastrointestinal motilite sorunları nedeniyle zorlu bir süreçtir.
- Eş zamanlı Çocuk Ruh Sağlığı yönetimi esastır.



3.b Öğün/Enteral ürün

- Ağız yoluyla gıda tüketimi psikolojik direnç ve olası gastrointestinal motilite sorunları nedeniyle zorlu bir süreçtir.
- Eş zamanlı Çocuk Ruh Sağlığı yönetimi esastır.
- Kolay bitirilebilecek az volümde gıdalara modüler ürün eklenebilir.
- Sofra gıdaları ağız yoluyla alınacak enteral ürünle desteklenebilir.
- Başlangıçta sofraya aşırı direnç varsa ergen ikna edildiği takdirde beslenmeye enteral ürünlerle başlanabilir.



- Değişim listelerinin kullanılmasının bazı çocuklarda kalori hesaplama yükünü ortadan kaldırarak çocuğu baskıdan kurtardığı, bazı çocuklarda ise üzerlerine yeni bir karar verme sorumluluğu yükleyerek baskı hissetmelerine neden olabildiği bildirilmiştir.
- Öğün sonrası rahatlatma ve dikkat dağıtma öneriliyor.

Dasha Nicholls et al. Managing anorexia nervosa. Arch Dis Child. 2011 Oct;96(10):977-82.

Junior Marsipan Report 2012. Royal College of Psychiatrists. <http://www.marsipan.org.uk>

Sağlıklı beslenme ve gereğinin yeri geldiği zaman örneklerle anlatılması, besin grupları hakkında bilgiler verilmesi ve tutum oluşturulması başlangıçta kalori hesabı ve değişim listelerinin konuşulmasından daha öncelikli. Çocuk «şunun yerine bunu yiyebilir miyim» diye sorduğunda bu değişim listesi için hazır olduğunu gösteriyor.

(Kocaeli çocuk diyetisyen deneyimi)

3.b Öğün/Enteral ürün

- Zorunlu durumda nazogastrik sonda kullanılabilir.
- Kısa süre ile sınırlanmalı ve oral alım arttıkça azaltıp sonlandırılmalı.
- Gündüz bolusları tercih edilir. Bu öğün hangisini tercih edersin? Tüp, katı gıda, enteral ürün?



- Nazogastrik sonda kullanımının bazı çocuklar tarafından beslenme sorumluluğunu ortadan kaldırdığı için tercih edilebildiği bildirilmiştir.
- Sürekli infüzyon ile enteral beslenme ürünü alan bazı hastaların beslenmeye karşı gösterdikleri direnç nedeni ile huzursuz oldukları gece boyu pompayı izlemekten uykusuz kalabildikleri gözlenmiş.



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Original article

Shifting Paradigms: Continuous Nasogastric Feeding With High Caloric Intakes in Anorexia Nervosa

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Article history: Received February 2, 2013; Accepted June 5, 2013

Keywords: Anorexia nervosa; Eating disorder; Nasogastric; Adolescent; Calories; Refeeding syndrome

A B S T R A C T

Purpose: The initial goal of admission for a patient with anorexia nervosa is physiologic stabilization through nutritional rehabilitation balanced against the risk of refeeding syndrome. Recent alternative approaches emphasize meal composition, limiting carbohydrates, to reduce risk. The Montreal Children's Hospital has instituted a standardized high-calorie continuous nasogastric (NG) refeeding protocol for the initial management of inpatient adolescents with restrictive eating disorders. This study aims to confirm that this protocol results in a shorter admission duration and faster rate of weight gain without increased incidence of complications.

Methods: Retrospective chart review of patients with restrictive eating disorders admitted to the Montreal Children's Hospital during December 2003 to December 2011. Those treated with higher calorie NG refeeding protocol (N = 31) were compared with those managed with a standard bolus meal treatment (N = 134).

Results: Length of stay was significantly reduced in the NG-fed cohort (NG cohort 33.8 days; bolus-fed cohort 50.9 days; $p = .0002$). Mean rate of weight gain in the NG group was significantly improved for both the first and second week when compared with the bolus-fed cohort (1.22 kg/week (1), $p = .01$; 1.06 kg/week (.9), $p = .04$). No significant difference was found in the rate of complications or electrolyte abnormalities with 90% of the NG-fed cohort receiving prophylactic phosphate supplementation from admission.

Conclusions: This study provides further evidence to support the treatment of undernourished inpatients with restrictive type eating disorders with a higher initial caloric intake to achieve rapid and safe nutritional rehabilitation.

IMPLICATIONS AND CONTRIBUTION

When admitting an anorexic patient for physiologic stabilization the need to rapidly correct weight loss must be balanced against the risk of refeeding syndrome. Current practice is to commence treatment with a low initial caloric intake. This study demonstrates that standardized nasogastric feeding with initial higher caloric intakes leads to improved early weight gain and shorter admission lengths without an increased risk of refeeding syndrome.



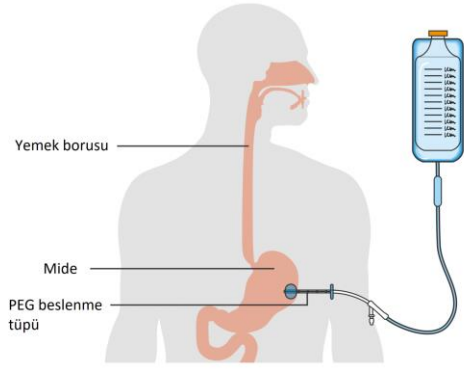
- Enteral ürün seçilirken

- İlk ürün olarak 1 kkal/1mL, polimerik, lifli ürünler tercih edilebilir.
- Enteral yol sorunlu ise hidrolize ürünlerle başlanabilir.
- Sofra gıdasına ek destek yapılan çocuklarda 1.5 kkal/1 mL lik ürünler seçilebilir.

.....

Parker EK. **A standard enteral formula versus an iso-caloric lower carbohydrate/high fat enteral formula*** in the hospital management of adolescent and young adults admitted with anorexia nervosa: a randomised controlled Trial. Journal of Eating Disorders (2021) 9:160

*%28 Karbonhidrat, %56 yağ



- Kronik ve dirençli vakalarda dikkati tedavinin farklı yönlerinde yoğunlaştırmaya olanak sağlayabileceği belirtilerek perkütan endoskopik gastrostominin kullanılabileceği bildirilmiştir.
- Seçilmiş vakalarda enteral beslenme uygulanamadığında parenteral beslenme gerekebilir. Riskleri bilinerek çok dikkatle ve yakın takiple uygulanmalıdır.



Dasha Nicholls et al. Managing anorexia nervosa. Arch Dis Child. 2011 Oct;96(10):977-82.

Wernicke ensefalopatisi (B1)
Duyusal nöropati (B12)

...

Zn

Cu

....

P, K, Mg, ...



- Mikrobesein ögelerinini yerine konması ve sunumun sürdürülmesi dikkatle yönetilmelidir.
- Kabızlık sık rastlanan bir sorundur. Buna yönelik tedavi önlemleri de beslenme tedavisinin bir parçası olmalıdır.

Diyete modüler lif ürünü eklenmesi
konstipasyon ve ilişkili tartı
problemlerinin önüne geçerek ergenin
gıda kabulunu kolaylaştırıyor.

(Kocaeli çocuk diyetisyen deneyimi)



- **Yağ asitleri** (Omega-3 kullanımı için potansiyel olabilir. Çalışmalar az)*

14 MAYIS 2022, CUMARTESİ

- **Mikrobiyata ve modülasyonu** Lif çeşitliliği, prebiyotik gıda, fermente ürün kullanımı

10.50-11.50

Yeme bozuklukları

Oturum Başkanları: Hasan Özen, Gonca Üstündağ

10.50 - 11.20 Beyin-bağırsak aksı ve yeme bozuklukları
Sema Aydoğdu

11.20 - 11.50 Çocuk ve adolesanlarda yeme bozukluklarına yaklaşım
Özlem Özcan

3.c Çevre düzenlemesi, izlem/denetim, yardımcı sağlık çalışanları, aile

- Öğünü izleyen ilk saat içinde tuvalete yalnız gitmeleri önerilmez. **Kusma!**
- Hasta odasında boş şırınga bırakılması önerilmez. **Beslenme torbası/Mide aspirasyonu!**
- Pompa infüzyon ile beslenme yapılıyorsa saatlik izlem kaydı yapılır.

3.c Çevre düzenlemesi, izlem/denetim, yardımcı sağlık çalışanları, aile

- Öğün tüketiminin nerede olacağı, kim tarafından izleneceği ve kayıt altına alınacağı
- Öğünde bitirilemeyen katı gıda olduğunda, eksik kalan kaloringin enteral ürün ile sağlanması kararlaştırılmışsa bunun kim tarafından nasıl denetleneceği

tüm paydaşlar tarafından yazılı ortamda önceden
kararlaştırılmalıdır.

Dasha Nicholls et al. Managing anorexia nervosa. Arch Dis Child. 2011 Oct;96(10):977-82.

Junior Marsipan Report 2012. Royal College of Psychiatrists. <http://www.marsipan.org.uk>

3.c Çevre düzenlemesi, izlem/denetim, yardımcı sağlık çalışanları, aile





- Aşırı egzersiz yapan bir olgudan birden tüm egzersizlerden vazgeçmesini istemek stres yaratacağı için taraflar arasında anlaşma yaparak ilk aşamada bir miktar egzersize izin vermek ve bu iznin yazılı olarak da belirlenmesi önerilmektedir.

3.d Yeniden beslenme sendromu

- Uzamış açlık sırasında kan şekeri düzeylerinde azalmayı yağ ve protein katabolizması ve intraselüler elektrolitlerin kaybı izler.
- Beslenmenin yeniden başlatılması kan şekeri düzeylerini artırarak insülin salgısını uyarır ve P, K, Mg hücre içine girer.
- Uzamış açlıkta zaten rezervler de düşük olduğu için ATP sentezi için gerekli P sağlanamaz.
- Sonuç olarak 12-72 saat içinde hayatı tehdit eden çoklu organ disfonksiyonu ile sonuçlanan yeniden beslenme sendromu gelişir.

ASPEN Consensus Recommendations for Refeeding Syndrome

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Abstract

Introduction: In the spring of 2017, the American Society for Parenteral and Enteral Nutrition (ASPEN) Parenteral Nutrition Safety Committee and the Clinical Practice Committee convened an interprofessional task force to develop consensus recommendations for identifying patients with or at risk for refeeding syndrome (RS) and for avoiding and managing the condition. This report provides narrative review and consensus recommendations in hospitalized adult and pediatric populations. **Methods:** Because of the variation in definitions and methods reported in the literature, a consensus process was developed. Subgroups of authors investigated specific issues through literature review. Summaries were presented to the entire group for discussion via email and teleconferences. Each section was then compiled into a master document, several revisions of which were reviewed by the committee. **Findings/Recommendations:** This group proposes a new clinical definition, and criteria for stratifying risk with treatment and screening strategies. The authors propose that RS diagnostic criteria be stratified as follows: a decrease in any 1, 2, or 3 of serum phosphorus, potassium, and/or magnesium levels by 10%–20% (mild), 20%–30% (moderate), or >30% and/or organ dysfunction resulting from a decrease in any of these and/or due to thiamin deficiency (severe), occurring within 5 days of reintroduction of calories. **Conclusions:** These consensus recommendations are intended to provide guidance regarding recognizing risk and identifying, stratifying, avoiding and managing RS. This consensus definition is additionally intended to be used as a basis for further research into the incidence, consequences, pathophysiology, avoidance, and treatment of RS. (*Nutr Clin Pract.* 2020;35:178–195)

Table 2. Signs and Symptoms of Severe Refeeding Syndrome.^a

Hypophosphatemia	Hypokalemia	Hypomagnesemia	Thiamin Deficiency	Sodium Retention
Neurological	Neurological	Neurological	Encephalopathy	Fluid overload
Paresthesias	Paralysis	Weakness	Lactic acidosis	Pulmonary edema
Weakness	Weakness	Tremor	Nystagmus	Cardiac
Delirium	Cardiac	Muscle twitching	Neuropathy	decompensation
Disorientation	Arrhythmias	Changed mental status	Dementia	
Encephalopathy	Contraction changes	Tetany	Wernicke's syndrome	
Areflexic paralysis	Respiratory failure	Convulsions	Korsakoff psychosis	
Seizures	Gastrointestinal	Seizures	Wet and dry beriberi	
Coma	Nausea	Coma		
Tetany	Vomiting	Cardiac		
Cardiac	Constipation	Arrhythmias		
Hypotension	Other	Gastrointestinal		
Shock	Rhabdomyolysis	Anorexia		
Decreased stroke volume	Muscle necrosis	Nausea		
Decreased mean arterial Pressure		Vomiting		
Increased wedge pressure		Constipation		
Pulmonary				
Diaphragmatic weakness				
Respiratory failure				
Dyspnea				
Hematologic				
Hemolysis				
Thrombocytopenia				
Leukocyte dysfunction				

Adapted with permission from Reference 96. Kraft MD, Btaiche IF, Sacks GS. Review of the refeeding syndrome. *Nutr Clin Pract.* 2005;20(6):625-633.

^aIn the pediatric population, manifestations of end organ involvement more commonly cause bradycardia, temperature abnormalities, and involvement of the respiratory system.

Table 5. ASPEN Consensus Criteria^a for Identifying Pediatric Patients at Risk for Refeeding Syndrome.¹¹²⁻¹¹⁴

	Mild Risk: 3 Risk Categories Needed	Moderate Risk: 2 Risk Criteria Needed	Significant Risk: 1 Risk Criteria Needed
Weight-for-length z-score(1–24 months) or BMI-for-age z-score(2–20 years)	–1 to –1.9 z-score that is a change from baseline	–2 to –2.9 z-score that is a change from baseline	–3 z-score or greater that is a change from baseline
Weight loss	<75% of norm for expected weight gain	<50% of norm for expected weight gain	<25% of norm for expected weight gain
Energy intake	3–5 consecutive days of protein or energy intake <75% of estimated need	5–7 consecutive days of protein or energy intake <75% of estimated need	>7 consecutive days of protein or energy intake <75% of estimated need
Abnormal prefeeding serum potassium, phosphorus, or magnesium concentrations ^b	Mildly abnormal or decreased to 25% below lower limit of normal	Moderately/significantly abnormal or down to 25%–50% below lower limit of normal	Moderately/significantly abnormal or down to 25%–50% below lower limit of normal
Higher-risk comorbidities (see Table 4)	Mild disease	Moderate disease	Severe disease
Loss of subcutaneous fat	Evidence of mild loss OR Mid-upper arm circumference z-score of –1 to –1.9 z-score	Evidence of moderate loss OR Mid-upper arm circumference z-score of –2 to –2.9	Evidence of severe loss OR Mid-upper arm circumference z-score of –3 or greater
Loss of muscle mass		Evidence of mild or moderate loss OR Mid-upper arm circumference z-score of –2 to –2.9	Evidence of severe loss OR Mid-upper arm circumference z-score of –3 or greater

ASPEN, American Society for Parenteral and Enteral Nutrition; BMI, body mass index.

^aNot intended for use in patients at ≤28 days of life or ≤44 weeks' corrected gestational age.

^bPlease note that electrolytes may be normal despite total-body deficiency, which is believed to increase risk of refeeding syndrome.

3.d Yeniden beslenme sendromu

- Boya göre ağırlığı çok düşük olanlar, son birkaç gün içinde ağızdan ya çok az ya da hiçbir gıda tüketmeyenler, son 3 ay içinde %15'den fazla ağırlık kaybedenler ve elektrolit bozukluğu olanlar yeniden beslenme sendromu açısından yüksek risk grubundadır.

3.d Yeniden beslenme sendromu

- Korunmak için
 - Başlangıç kalori değerleri ne olmalı?
 - Ne kadar zamanda bir ne kadar kalori artırmalıyız?
- Dünyada farklı uygulama ve öneriler var.
 - Junior Marsipan 2012: Çoğu hasta 20 kkal/kg/gün ya da fazlası ile başlayabilir, ancak yüksek riskli hastada 5-10 kkal/kg/gün gibi daha düşük düzeyler gerekli olabilir. Başlangıçta verilen kalori değeri hastanın o güne kadar zaten almakta olduğu değer altında olmamalı
- ASPEN 2020 : Başlarken en fazla hedefin %40-50'i ile başlanmalı.

Junior Marsipan Report 2012. Royal College of Psychiatrists. <http://www.marsipan.org.uk>

Table 7. ASPEN Consensus Recommendations for Avoidance and Treatment of RS in At-Risk Pediatric Patients.

Aspect of Care	Recommendations
Initiation of nutrition	<ul style="list-style-type: none"> Initiate nutrition at a maximum of 40%–50% goal, but usually starting the glucose infusion rate around 4–6 mg/kg/min and advancing by 1–2 mg/kg/min daily as blood glucose levels allow until you reach a max of 14–18 mg/kg/min. This includes enteral as well as parenteral glucose. Calories from IV dextrose solutions and medications being infused in dextrose should be considered in the limits above and/or initiated with caution in patients at moderate to severe risk for RS. If the patient is already receiving IV dextrose for several days and/or medications in dextrose and has been asymptomatic with stable electrolytes, calories from nutrition may be reintroduced at a higher amount than recommended above.
Fluid restriction	<ul style="list-style-type: none"> No recommendation
Sodium restriction	<ul style="list-style-type: none"> No recommendation
Protein restriction	<ul style="list-style-type: none"> No recommendation
Electrolytes	<ul style="list-style-type: none"> Check serum potassium, magnesium, and phosphorus before initiation of nutrition. Monitor every 12 hours for the first 3 days in high-risk patients. May be more frequent based on clinical picture. Replete low electrolytes based on established standards of care. No recommendation can be made for whether prophylactic dosing of electrolytes should be given if prefeeding levels are normal. If electrolytes become difficult to correct or drop precipitously during the initiation of nutrition, decrease calories/grams of dextrose by 50% and advance the dextrose/calories by approximately 33% of goal every 1–2 days based on clinical presentation. Recommendations may be changed based on practitioner judgment and clinical presentation, and cessation of nutrition support may be considered when electrolyte levels are severely and/or life-threateningly low or dropping precipitously.
Thiamin and multivitamins	<ul style="list-style-type: none"> Thiamin 2 mg/kg to a max of 100–200 mg/d before feeding commences or before initiating IV fluids containing dextrose in high-risk patients. Continue thiamin supplementation for 5–7 days or longer in patients with severe starvation, chronic alcoholism, or other high risk for deficiency and/or signs of thiamin deficiency. Routine thiamin levels are unlikely to be of value. MVI is added to PN daily, unless contraindicated, as long as PN is continued. For patients receiving oral/enteral nourishment, add complete oral/enteral multivitamin once daily for 10 days or greater based on clinical status and mode of therapy.
Monitoring and long-term care	<ul style="list-style-type: none"> Once patient is within adult weight ranges, refer to adult multivitamin recommendations. Recommend vital signs every 4 hours for the first 24 hours after initiation in those at risk. Cardiorespiratory monitoring is recommended for unstable patients or those with severe deficiencies, based on established standards of care. Daily weights with monitored intake and output. Estimation of energy requirements as needed for oral feeding patients. Evaluate short- and long-term goals for nutrition care daily during the first several days until the patient is deemed stabilized (eg, no requirement for electrolyte supplementation for 2 days) and then based on institutional standards of care.

ASPEN, American Society for Parenteral and Enteral Nutrition; IV, intravenous; MVI, multivitamin injectable; PN, parenteral nutrition; RS, refeeding syndrome.

2010 2021

«Re-feeding»



«Under feeding»

Hipotezler

- Yeniden beslenme sendromu düşük kalori sunumlarında da görülüyor. Bu nedenle kalorinin sınırlanması riski tek başına ortadan kaldırmıyor.
- İlk kalori sunumlarının çok düşük olması sıklıkla başlangıçta ağırlık kaybı, medikal stabilizasyon (özellikle kardiyak) ve hastane yatış süresinde uzamaya neden oluyor.
- Yüksek kalori ile başlamak hafif, orta ağırlıkta hastada yeniden beslenme sendromu açısından güvenilir bir uygulamadır.
- Yüksek kalori verilirken karbonhidrat sunumunun sınırlandırılması riski azaltan bir önlem olacaktır.

Research

JAMA Pediatrics | Original Investigation

Short-term Outcomes of the Study of Refeeding to Optimize Inpatient Gains for Patients With Anorexia Nervosa

A Multicenter Randomized Clinical Trial

Andrea K. Garber, PhD, RD; Jing Cheng, PhD; Erin C. Accurso, PhD; Sally H. Adams, PhD, RN; Sara M. Buckelew, MD, MPH; Cynthia J. Kapphahn, MD, MPH; Anna Kreiter, PsyD; Daniel Le Grange, PhD; Vanessa I. Machen, MS, RD; Anna-Barbara Moscicki, MD; Allyson Sy, MS, RD; Leslie Wilson, PhD; Neville H. Golden, MD

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IMPORTANCE The standard of care for refeeding inpatients with anorexia nervosa, starting with low calories and advancing cautiously, is associated with slow weight gain and protracted hospital stay. Limited data suggest that higher-calorie refeeding improves these outcomes with no increased risk of refeeding syndrome.

OBJECTIVE To compare the short-term efficacy, safety, and cost of lower-calorie vs higher-calorie refeeding for malnourished adolescents and young adults with anorexia nervosa.

DESIGN, SETTING, AND PARTICIPANTS In this multicenter randomized clinical trial with prospective follow-up conducted at 2 inpatient eating disorder programs at large tertiary care hospitals, 120 adolescents and young adults aged 12 to 24 years hospitalized with anorexia nervosa or atypical anorexia nervosa and 60% or more of median body mass index were enrolled from February 8, 2016, to March 7, 2019. The primary analysis was a modified intent-to-treat approach.

INTERVENTIONS Higher-calorie refeeding, beginning at 2000 kcal/d and increasing by 200 kcal/d vs lower-calorie refeeding, beginning at 1400 kcal and increasing by 200 kcal every other day.

MAIN OUTCOMES AND MEASURES Main outcomes were end-of-treatment outcomes; the primary end point of this trial will be clinical remission over 12 months. Short-term efficacy was defined a priori as time to restore medical stability in the hospital, measured by the following 6 indices: 24-hour heart rate of 45 beats/min or more, systolic blood pressure of 90 mm Hg or more, temperature of 35.6 °C or more, orthostatic increase in heart rate of 35 beats/min or less, orthostatic decrease in systolic blood pressure of 20 mm Hg or less, and 75% or more of median body mass index for age and sex. The prespecified safety outcome was incidence of electrolyte abnormalities; cost efficacy was defined as savings associated with length of stay.

RESULTS Because 9 participants withdrew prior to treatment, the modified intention-to-treat analyses included 111 participants (93%; 101 females [91%]; mean [SD] age, 16.4 [2.5] years). Higher-calorie refeeding restored medical stability significantly earlier than lower-calorie refeeding (hazard ratio, 1.67 [95% CI, 1.10-2.53]; $P = .01$). **Electrolyte abnormalities and other adverse events did not differ by group. Hospital stay was 4.0 days shorter** (95% CI, -6.1 to -1.9 days) among the group receiving higher-calorie refeeding, which was associated with a savings of \$19 056 (95% CI, -\$28 819 to -\$9293) in hospital charges per participant.

CONCLUSIONS AND RELEVANCE In the first randomized clinical trial in the US to compare refeeding approaches in patients with anorexia nervosa and atypical anorexia nervosa, higher-calorie refeeding demonstrated short-term efficacy with no increase in safety events during hospitalization.

Singapur deneyimi

2010-2017

Retrospektif

Düşük kalori X Yüksek kalori

Outcomes of a higher calorie inpatient refeeding protocol in Asian adolescents with anorexia nervosa

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Action Editor: Jennifer Thomas

Abstract

Objective: This study aims to compare the outcomes of higher calorie refeeding (HCR) and a lower calorie refeeding (LCR) methods among a diverse sample of young Asian adolescents admitted to a tertiary institution in Asia for management of anorexia nervosa (AN).

Method: This is a retrospective case control study of Asian adolescents who were managed using an inpatient HCR protocol (2016–2017) and an LCR protocol (2010–2014). Baseline characteristics, daily change in percent median body mass index (%mBMI), and rates of refeeding hypophosphatemia were analyzed between groups.

Results: A total of 125 adolescents with AN were analyzed with 61 (52%) patients in the HCR group. Mean age was 14.0 years ($SD = 1.5$) and mean presenting %mBMI was 73.2 ($SD = 6.9$) with mean length of stay of 11.9 days ($SD = 6.6$). Patients in the HCR group had significantly increased rate of change of %mBMI ($M = 0.39$, $SD = 0.31$) than patients in the LCR group ($M = 0.12$, $SD = 0.43$) ($p < .001$). There was an increased rate of mild hypophosphatemia in the HCR group (HCR: 46%, LCR: 22%, $p = .007$) but no difference in rates of moderate hypophosphatemia and no cases of severe hypophosphatemia. Lower presenting %mBMI significantly predicted the phosphate levels ($p = .004$).

Discussion: In a sample of Asian adolescents with AN, use of an HCR protocol was associated with improved rate of inpatient weight gain. There was increased risk of mild hypophosphatemia, but not moderate to severe hypophosphatemia, suggesting that an HCR protocol can be used safely with close monitoring of phosphate levels.

KEYWORDS

adolescent, anorexia nervosa, Asian, eating disorder, hypophosphatemia, length of stay, nutrition, nutritional rehabilitation, refeeding, refeeding syndrome

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2020;1–7.

EDITORIAL

Open Access

Management of the malnourished patient: it's now time to revise the guidelines



Michael R. Kohn^{1*} and Neville H. Golden²



nutrients



Review

Anorexia Nervosa—What Has Changed in the State of Knowledge about Nutritional Rehabilitation for Patients over the Past 10 Years? A Review of Literature

Katarzyna Jowik ^{*}, Marta Tyszkiewicz-Nwafor [†]  and Agnieszka Słopeń [†]

Table 4
Indications supporting hospitalization in an adolescent with an eating disorder

One or more of the following justify hospitalization
1. $\leq 75\%$ Median body mass index for age and sex
2. Dehydration
3. Electrolyte disturbance (hypokalemia, hyponatremia, hypophosphatemia)
4. EKG abnormalities (e.g., prolonged QTc or severe bradycardia)
5. Physiological instability
Severe bradycardia (heart rate < 50 beats/min daytime; < 45 beats/min at night)
Hypotension ($< 90/45$ mm Hg)
Hypothermia (body temperature $< 96^\circ\text{F}$, 35.6°C)
Orthostatic increase in pulse (> 20 beats/min) or decrease in blood pressure (> 20 mm Hg systolic or > 10 mm Hg diastolic)
6. Arrested growth
7. Disordered eating

(2) Prospective clinical trials are required to better understand the safety and efficacy of refeeding approaches in AYA with AN (grade IVC).

Multicenter studies and the development of prospective registries will facilitate research to improve medical and psychological outcomes (grade IVC)

Prospective clinical trials are required in AYA with EDs to better understand the safety and efficacy of different refeeding approaches and the short- and long-term outcomes of different treatments for physical health (e.g., low BMD) and emotional well-being. Research, including multicenter trials, would be facilitated by developing patient registries (grade IVC).

Recommendation

Increased funding from government agencies and the private sector is needed to support research in AYA with EDs.

Continued research is needed to address the many questions that continue to be significant health problems for adolescents with EDs in AYA. Research on EDs in AYA has yielded important information on etiology, diagnosis, weight restoration, and the determination of treatment goal for patients with AN. As the medical community continues to advance in the management of AYA with restrictive eating disorders, these advances will promote development of evidence-based treatments to these adolescents.

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ADOLESCENT
HEALTH

www.jahonline.org

Position paper

Position Paper of the Society for Adolescent Health and Medicine:
Medical Management of Restrictive Eating Disorders in Adolescents
and Young Adults



The Society for Adolescent Health and Medicine

Position Paper of the Society for Adolescent Health and
Medicine: medical management of restrictive eating
disorders in adolescents and young adults. 2015
Jan;56(1):121-5.

**Inpatient refeeding protocols for AYA with anorexia nervosa
can be more aggressive than previously recommended
(grade IIIB)**

American Academy
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN®

Identification and Management of Eating Disorders in Children and Adolescents

Laurie L. Hornberger, MD, MPH, FAAP,^a Margo A. Lane, MD, FRCPC, FAAP,^b THE COMMITTEE ON ADOLESCENCE

Hornberger LL, Lane MA, AAP THE COMMITTEE ON ADOLESCENCE. Identification and Management of Eating Disorders in Children and Adolescents. *Pediatrics*. 2021; 147(1):e2020040279

stable patients with eating disorders. Indications for residential treatment include a poor motivation for recovery, need for structure and supervision to prevent unhealthy behaviors (eg, food restriction, compulsive exercise), lack of a supportive family environment, absence of outpatient treatment in the patient's locale,¹⁴⁶ or outpatient interventions having been unsuccessful.¹³³ Residential treatment typically includes 24 hour per day supervision, medical oversight, group-based psychoeducational therapy, nutritional counseling, individual therapy, and family therapy. The length of stay can be weeks to months, depending on the severity of illness and financial resources. Outcome studies reported by residential programs, generally, reveal improved symptomatology at discharge,¹⁴⁷ but the results at long-term follow-up are mixed.^{148,149} However, few outcome studies are focused on adolescents, compare the efficacy of residential to outpatient treatment, or make comparisons across programs or treatment modalities.

Although some health care organizations are engaged in some programs, efficacy may be limited because of a lack of data or peer review.¹⁵¹ There was no process to ensure quality and safety. In 2016, the Commission implemented accreditation standards for health care organizations for outpatient or residential treatment.¹⁵² It

remains to be seen if these programs will pursue accreditation.

The National Eating Disorder Association Web site offers useful suggestions for outpatient treatment programs (www.nationaleatingdisorders.org).

Hospital-Based Stabilization

Suggested indications for the hospitalization of children and adolescents with eating disorders published by the Society for Adolescent Health and Medicine are listed in Table 6.

The most common goal for hospital-based stabilization is nutritional restoration. Variation occurs with regard to how quickly hospitalized patients with AN are refeed.^{153,154} It is important to balance 2 competing goals: achieve weight gain swiftly and avoid refeeding syndrome.¹⁵⁵ Refeeding syndrome refers to the metabolic and clinical changes that occasionally occur when a malnourished individual

necessarily organ dysfunction) of 14.¹⁵⁸ Over the past decade, a long

followed maxim, "start low and go slow," has been challenged.^{87,155}

Several centers have described starting calories at 1400 kcal or more per day,¹⁵⁴ including recent reports demonstrating safe treatment of mildly and moderately malnourished adolescents by using initial caloric prescriptions of 2200 to 2600 kcal per day, while achieving a weight gain of approximately 3 to 4.5 pounds per week.^{159,160} Because the risk of

refeeding hypophosphatemia may correlate with the degree of starvation, pediatricians may opt to take a more cautious approach in

severely malnourished (<70 mg BMI) children until further studies are reported.^{87,154}

gastric tube (NGT) feeding is necessary for some hospitalized

centers. NGT feeding, either exclusively at first or in combination with meals.^{162,163} Potential benefits of NGT feeding include faster weight gain and medical stabilization, with a possibility for a reduced hospital length of stay.^{162,163} Although viewed by some health care providers as invasive or punitive, others view NGT feeding as empathic, by reducing both physical and psychological pain in the early treatment stages.¹⁶¹ There is insufficient evidence to recommend one approach over another.¹⁵⁴ Independent of whether NGT feeds are used routinely, physicians involved in the treatment of hospitalized medically unstable

patients may be called on to provide NGT when nutritional goals are not met. The use of NGT carries risks, and inpatient care is the best end point for the treatment of children and adolescents with AN.

A US multicenter refeeding collaborative showed that a national cohort of 1021 21-year-olds with restrictive eating disorders, those who were hospitalized had a greater risk of being at 90 of the median at 1-year follow-up.¹⁶⁴ However, a randomized controlled trial (RCT) of treatment of adolescent AN in the United Kingdom

116.

REFEEDING HYPOPHOSPHATEMIA RISK IN ADOLESCENT INPATIENTS WITH ANOREXIA NERVOSA DURING NUTRITIONAL REHABILITATION

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Purpose: In patients with anorexia nervosa (AN), refeeding hypophosphatemia is the most common electrolyte imbalance during nutritional rehabilitation and an essential marker predicting the risk of refeeding syndrome. Clinical approaches regarding refeeding protocols vary largely and their effect on refeeding hypophosphatemia has been an intriguing research area. This study evaluated the prevalence of refeeding hypophosphatemia associated risk factors in adolescent inpatients with AN in Turkey.

Methods: Between January 2010 and July 2019 we retrospectively evaluated the 64 hospitalizations of 58 patients (mean age 14.84 ± 1.58 years) in Hacettepe University Children's Adolescent Inpatient Unit for refeeding hypophosphatemia associated risk factors. Hospitalization criteria were based on the guidelines published by the Society for Adolescent Health and Medicine. Among these hospitalizations 43 (67.2%) were AN restrictive type (ANRT), 15 (23.4%) were AN bingeing-purging type (ANBP) and 6 (9.4%) were atypical AN (AAN) according to DSM-5 criteria. If the patient was consuming a calorie less than 750 kkal/day, then 750 kkal divided into 3 meals was started on the first day of admission. If the patient was consuming greater than 750 kkal, then 250 kkal was added to the consumption and depending on the calories divided into 3 main meals and 1-3 snacks. A liquid nutrition supplement was offered for food not eaten. Supplements not

consumed orally were administered via nasogastric tube. Patients were followed closely for refeeding syndrome and electrolytes were obtained daily for at least the first 5 days. Patients did not receive prophylactic phosphate and supplementation was administered only when phosphate levels begin to decline.

Results: Oral phosphorus supplementation was given to 24 (37.5%) patients due to refeeding hypophosphatemia (75.0% ANRT, 20.8% ANBP, and 4.2% AAN; $p=0.456$). Among these patients 19 (79.2%) had mild (phosphorus level ≥ 2.5 ve <3 mg/dL) and 5 (20.8%) had moderate (phosphorus level ≥ 1 ve <2.5 mg/dL) hypophosphatemia. None had severe hypophosphatemia (serum phosphorus <1 mg/dL). The hypophosphatemia group was significantly older ($p=0.01$), with lower BMI z score at admission ($p=0.001$), higher percentage of weight loss ($p=0.002$), and longer duration of illness ($p=0.001$).

Similarly, patients with moderate hypophosphatemia had significantly older age ($p=0.015$), lower BMI ($p=0.015$) and BMI z score at admission, longer duration of illness ($p=0.000$) and percentage of weight loss ($p=0.002$) when compared to both hypophosphatemia and normal phosphorus level group. There was no difference between the groups regarding nasogastric feeding ($p=0.150$), enteral feeding solution usage ($p=0.058$) and the presence of compensatory behaviors ($p=0.428$). Similarly, no difference was observed when groups were compared according to calorie intake at admission ($p=0.443$), calorie intake at discharge ($p=0.602$) and weight gain rate during hospitalization ($p=0.096$).

Conclusions: This study demonstrated that age, duration of illness, and degree of malnutrition are the significant contributors to refeeding hypophosphatemia. Regulating refeeding protocols specific to the patient's needs, close monitoring of serum phosphorus levels and appropriate management of hypophosphatemia is essential, especially in patients with severe malnutrition.

Sources of Support: The study received no financial support.

Agresif yeniden beslenme uygulaması, yeni sorular?

- Yüksek kalori tüketimini sağlamak sonnda beslenme dışında pek mümkün gözüküyor.
- Hastaların kısa sürede ağırlık kazanmaları ruh sağlığı süreçlerini nasıl etkiliyor?

Akgül S, Holland-Hall C, Bonny A. Anxiety in Hospitalized Adolescents With Anorexia Nervosa on a Rapid Refeeding Protocol. *Journal of Adolescent Health* 66 (2020) S23eS41

- Kısa sürede alınan ağırlık, kısa sürede kaybediliyor mu?

Golden NH, et al. Higher- Calorie Refeeding in Anorexia Nervosa: 1-Year Outcomes From a Randomized Controlled Trial. *Pediatrics*. 2021; 147(4):e2020037135

Higher-Calorie Refeeding in Anorexia Nervosa: 1-Year Outcomes From a Randomized Controlled Trial

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BACKGROUND AND OBJECTIVES: We recently reported the short-term results of this trial revealing that higher-calorie refeeding (HCR) restored medical stability earlier, with no increase in safety events and significant savings associated with shorter length of stay, in comparison with lower-calorie refeeding (LCR) in hospitalized adolescents with anorexia nervosa. Here, we report the 1-year outcomes, including rates of clinical remission and rehospitalizations. **abstract**

METHODS: In this multicenter, randomized controlled trial, eligible patients admitted for medical instability to 2 tertiary care eating disorder programs were randomly assigned to HCR (2000 kcals per day, increasing by 200 kcals per day) or LCR (1400 kcals per day, increasing by 200 kcals every other day) within 24 hours of admission and followed-up at 10 days and 1, 3, 6, and 12 months post discharge. Clinical remission at 12 months post discharge was defined as weight restoration ($\geq 95\%$ median BMI) plus psychological recovery. With generalized linear mixed effect models, we examined differences in clinical remission over time.

RESULTS: Of 120 enrollees, 111 were included in modified intent-to-treat analyses, 60 received HCR, and 51 received LCR. Clinical remission rates changed over time in both groups, with no evidence of significant group differences ($P = .42$). Medical rehospitalization rates within 1-year post discharge (32.8% [19 of 58] vs 35.4% [17 of 48], $P = .84$), number of rehospitalizations (2.4 [SD: 2.2] vs 2.0 [SD: 1.6]; $P = .52$), and total number of days rehospitalized (6.0 [SD: 14.8] vs 5.1 [SD: 10.3] days; $P = .81$) did not differ by HCR versus LCR.

CONCLUSIONS: The finding that clinical remission and medical rehospitalization did not differ over 1-year, in conjunction with the end-of-treatment outcomes, support the superior efficacy of HCR as compared with LCR.

Short-term Outcomes of the Study of Refeeding to Optimize Inpatient Gains for Patients With Anorexia Nervosa A Multicenter Randomized Clinical Trial

Short-term Outcomes of the Study of Refeeding to Optimize Inpatient Gains for Patients With Anorexia Nervosa
A Multicenter Randomized Clinical Trial. JAMA Pediatr. 2021 Jan 1;175(1):19-27.



Higher-Calorie Refeeding in Anorexia Nervosa: 1-Year Outcomes From a Randomized Controlled Trial.

Golden NH, Cheng J, Kapphahn CJ, et al. Higher-Calorie Refeeding in Anorexia Nervosa: 1-Year Outcomes From a Randomized Controlled Trial. Pediatrics. 2021; 147(4):e2020037135

3.e Hedef

- Hedeflenen haftalık ağırlık kazanımı
- Medikal durum stabil hale geldikten sonra
 - Yatan hastalarda 1-1.5kg/hafta, ayaktan hastalarda 0.2-0.5kg/hafta

Rome ES. Eating disorders. *Ped in Rev* 2016;37(8):323-36.

Reiter CS. Nutrition Therapy for Eating Disorders *Nutr Clin Pract* 2010 25: 122-136

American Academy of Pediatrics Committee on Nutrition. Eating disorders in children and adolescents. In: Kleinman RE, Greer FR (eds), *Pediatric Nutrition*, 8th Itasca, IL: American Academy of Pediatrics, 2019: 1077-1104.

- 0.5-1kg/hafta

Junior Marsipan Report 2012. Royal College of Psychiatrists. <http://www.marsipan.org.uk>

3.e Hedef

- Hedef ağırlık
- Hedef ağırlık aralığının saptanması

Boy (m²) x Yaş ve cinse göre 50. persentil VKİ*

Önceki boy, ağırlık, VKİ, geçmiş büyüme eğrisi, puberte göz önüne alınmalı

Geçmiş VKİ eğrisi elde edilebiliyorsa hedef ağırlık aralığı bireyselleştirilebilir.

Atipik Anoreksiya Nervozalı olgularda da hedef ağırlık aralığı bireyselleştirilmelidir.

3.e Hedef

- Hedef ağırlık
- Hedef ağırlık aralığı dinamik olarak değişecektir. 3-6 ayda bir yeniden hesaplanmalıdır.

Menstrüasyonun yeniden başlaması kızlar için hedef ağırlığın yakalandığını gösteren biyolojik bir belirteçtir.

Spontan adet kanamaları normal ağırlığın yakalanmasından sonra 6 ay geçmeden başlamayabilir.

Ağırlık kazanımı sağlansa bile menstrüasyon başlamadan kemik mineral dansitesi artmıyor.

Dempfle, A. Predictors of the Resumption of Menses in Adolescent Anorexia Nervosa. BMC Psychiatry 2013, 13, 308.

Faust, J.P. Resumption of Menses in Anorexia Nervosa during a Course of Family-Based Treatment. J. Eat. Disord. 2013, 1, 12.

Position Paper of the Society for Adolescent Health and Medicine: medical management of restrictive eating disorders in adolescents and young adults. 2015 Jan;56(1):121-5.

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- Ağırlık kazanımlarını değerlendirirken genel ağırlık kazanım eğilimi tek tek yapılan ölçümlerden daha değerlidir.
- Ağırlık ölçümü haftada ikiden fazla önerilmemektedir.
- Ortamda olgunun kendisinin ulaşabileceği bir tartı bulunması önerilmemektedir.
- Kahvaltı öncesi, tuvaletten sonra ve iç çamaşırlarıyla ölçüm yapılmalıdır.
- Sağlık personeli ve aile ağırlık ölçümlerindeki beklenmedik değişiklikler karşısında aşırı su içme, çok giysi giyme, cebe taş saklama, kusma, gıda saklama gibi davranışlara karşı hazırlıklı olmalıdır.

3.f Taburculuk kararı

- Taburculuk kriterleri hastaneye yatış kriterlerinde olduğu gibi açıkça yapılandırılmamıştır.
- O hasta özelinde yatış gerektiren gerekçe ortadan kalktığında taburculuk düşünülebilir:
 - yatış gerektiren bir medikal gerekçenin devamı
 - beslenme durumu
 - beslenme metodu
 - psikiyatrik süreçler
- Hastanın VKİ'nin, yaş ve cinsin medyan VKİ'ne oranı %70'e ulaşana ve yeterli ağırlık kazanımının başladığı görülene dek yatış devamı dile getirilen öneriler arasındadır.

A randomized controlled trial of in-patient treatment for anorexia nervosa in medically unstable adolescents

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³ Westmead Clinical School, The University of Sydney, Australia

⁴ Centre for Research into Adolescents' Health (CRASH), Adolescent Medicine Unit, Westmead Hospital, Australia

⁵ Psychiatry and Behavioral Science, School of Medicine, Stanford University, USA

⁶ Department of Psychiatry and Behavioral Neuroscience, The University of Chicago, USA

⁷ School of Psychology, The University of Sydney, Australia

⁸ Centre for Health Research, School of Medicine, The University of Western Sydney and School of Medicine, James Cook University, Australia

Background. Anorexia nervosa (AN) is a serious disorder incurring high costs due to hospitalization. International treatments vary, with prolonged hospitalizations in Europe and shorter hospitalizations in the USA. Uncontrolled studies suggest that longer initial hospitalizations that normalize weight produce better outcomes and fewer admissions than shorter hospitalizations with lower discharge weights. This study aimed to compare the effectiveness of hospitalization for weight restoration (WR) to medical stabilization (MS) in adolescent AN.

Method. We performed a randomized controlled trial (RCT) with 82 adolescents, aged 12–18 years, with a DSM-IV diagnosis of AN and medical instability, admitted to two pediatric units in Australia. Participants were randomized to shorter hospitalization for MS or longer hospitalization for WR to 90% expected body weight (EBW) for gender, age and height, both followed by 20 sessions of out-patient, manualized family-based treatment (FBT).

Results. The primary outcome was the number of hospital days, following initial admission, at the 12-month follow-up. Secondary outcomes were the total number of hospital days used up to 12 months and full remission, defined as healthy weight (>95% EBW) and a global Eating Disorder Examination (EDE) score within 1 standard deviation (s.d.) of published means. There was no significant difference between groups in hospital days following initial admission. There were significantly more total hospital days used and post-protocol FBT sessions in the WR group. There were no moderators of primary outcome but participants with higher eating psychopathology and compulsive features reported better clinical outcomes in the MS group.

Conclusions. Outcomes are similar with hospitalizations for MS or WR when combined with FBT. Cost savings would result from combining shorter hospitalization with FBT.

Medikal stabilizasyon X Ağırılık kazanımı

Yatış sırasında ve taburcu olurken daha düşük VKİ daha kötü prognozla ilişkilendirilse de eğer taburcu olurken doğrudan bir ayaktan tedavi programının başlatılabildiği koşullarda taburculuktaki düşük VKİ'nin tedavi başarısı üzerindeki olumsuz etkisinin daha az olduğu bildirilmiştir.¹

1. Mairhofer D, et al. Short-Term Outcome of Inpatient Treatment for Adolescents with Anorexia Nervosa Using DSM-5 Remission Criteria. J. Clin. Med. 2021, 10,3190.

Kanada, 3. düzey bir merkez, 2013,
ortalama hastane yatış zamanı
37.9 gün (SD 19.7gün)²

Almanya, Japonya, İsviçre ve İskoçya'da
ortalama hastane yatış zamanı > 7 hafta²

ABD
49.1
gün¹

Avrupa
105.6 gün¹

**Son raporlara göre
ABD'de yatış süreleri
medikal stabilizasyon için
yatırılan hastalarda
uygulanan yüksek kalori
rejimlerle 3-12 gün
arasında değişmektedir.³**

1. Mairhofer D, et al. Short-Term Outcome of Inpatient Treatment for Adolescents with Anorexia Nervosa Using DSM-5 Remission Criteria. J. Clin. Med. 2021, 10,3190.

2. Isserlin et al. Journal of Eating Disorders (2020) 8:32

3. Hornberger LL, Lane MA, AAP THE COMMITTEE ON ADOLESCENCE. Identification and Management of Eating Disorders in Children and Adolescents. Pediatrics. 2021; 147(1):e2020040279

2. Risk deęerlendirme

- a. Beslenme durumu
- b. Hastalıkla ilgili medikal komplikasyon
- c. Yatış gereksinimi

3. Kısa süreli eylem planı

- a. Ayaktan/Yatarak
- b. Öğün/Enteral ürün
- c. Çevre düzenlemesi, izlem/denetim, yardımcı sağlık çalışanları
- d. Yeniden beslenme sendromu
- e. Hedef
- f. Taburculuk kararı
- g. Düzenli ekip toplantıları

4. Uzun süreli eylem planı



3.g Düzenli ekip toplantıları

Güven
Ortak söylem
Etkili iletişim

...

Bedenin sağlıklı olmadığı doğrultusunda bazı işaretler veriyor. Besin maddelerini şu anda senin için kilo alımı aracı olarak değil de ilaç olarak kullanacağız. Bunu birlikte ve adım adım konuşarak yapacağımız için kontrolsüz bir şekilde ağırlık kazanacağın korkusuna kapılma. Tıbbi bir güven aralığına gelince duracağız.



Mümkünse süreci aynı ekip elemanları tamamlamalı

Diyetisyen randevusundan hemen önce Ruh Sağlığı uzmanlarından son görüşme ile ilgili detayların öğrenilmesi verimi artırıyor.

(Kocaeli çocuk diyetisyen deneyimi)

2. Risk deęerlendirme
 - a. Beslenme durumu
 - b. Hastalıkla ilgili medikal komplikasyon
 - c. Yatış gereksinimi
3. Kısa süreli eylem planı
 - a. Ayaktan/Yatarak
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 - c. Hedef
 - d. Yeniden beslenme sendromu
 - e. Çevre düzenlemesi, izlem/denetim, yardımcı sağlık çalışanları
 - f. Taburculuk kararı
 - g. Düzenli ekip toplantıları
4. Uzun süreli eylem planı



Uzun dönemde büyümenin izlenmesi ve puberte

Kemik sağlığı Hayat boyu devam eden negatif etkiler! (*Öneriler)

Tekrarlamalara karşı dikkat

Prognoz %57 iyileşme, %26 daha iyi, %17 kronikleşme, %2 ölüm (**)

Yetişkin devri

Her hastanenin yapılandırılmış bir protokol oluşturması faydalı

4. Uzun süreli eylem planı



*Hornberger LL, Lane MA, AAP THE COMMITTEE ON ADOLESCENCE. Identification and Management of Eating Disorders in Children and Adolescents. Pediatrics. 2021; 147(1):e2020040279

**American Academy of Pediatrics Committee on Nutrition. Eating disorders in children and adolescents. In: Kleinman RE, Greer FR (eds), Pediatric Nutrition, 8th Itasca, IL: American Academy of Pediatrics, 2019: 1077-1104.

Son sözler

- Anorektik hastada beslenme yaklaşımları Çocuk ve Ergen Ruh Sağlığı liderliğinde Çocuk Gastroenteroloji ve Diyetisyen ekibi tarafından yürütülür.
- Beslenme yaklaşımları kıtalar, ülkeler ve ülke içinde hizmet sunan bölümlerin deneyim ve olanaklarına göre farklılık göstermektedir.
- Eylem planlarının her yönünü kanıta dayanarak yapılandırılan bir kılavuz yoktur.
- Beslenme tedavisinin çeşitli yönlerini araştıran çalışmalara ihtiyaç vardır.
- Türkiye Çocuk ve Gençlik Ruh Sağlığı Derneği, Türk Çocuk Gastroenteroloji Derneği ve Türkiye Diyetisyenler Derneği'nin ortak çalışmaları alanda çok değerlidir.



TÇGHBD EĞİTİM MODÜLLERİ ONLINE BESLENME AKADEMİSİ



ÜCRETSİZ KAYIT OLUN >

MODÜL 5

ÖZEL DURUMLARDA BESLENME EĞİTİMİ

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Doç. Dr. Nafiye Urgancı

Yeme-Yedirme
Bozukluklarında Beslenme
Prof. Dr. Sema Aydođdu



Teşekkürler

Geçmişten bu yana Kocaeli Üniversitesi'nde birlikte hasta izleme fırsatını bulduğum tüm çalışma arkadaşlarıma teşekkür ederim.

2002 yılından beri birlikte çalıştığım Kocaeli Üniversitesi Çocuk ve Ergen Ruh Sağlığı ve Hastalıkları Anabilim Dalı öğretim üyelerine, 2007-2010 arasında birlikte çalıştığım Diyetisyen Ercan Kaplan'a, 2012-2018 arasında birlikte çalıştığım Diyetisyen Ezgi Yılmaz Babaoğlu'na, 2019'dan bu yana birlikte çalıştığım Diyetisyen Sema Küçükkeskin'e ve son bir yıldır aramızda bulunan Kocaeli Üniversitesi Çocuk Sağlığı ve Hastalıkları AD Çocuk Metabolizma Hastalıkları BD Diyetisyenimiz Merve Eşgi'ye...