Anorexia Nervosa

People with anorexia nervosa maintain a low body weight as a result of a preoccupation with weight, construed as either a fear of fatness or a pursuit of thinness.[1] In spite of this, they believe they are fat and are terrified of becoming what is, in reality, a normal weight or shape. A diagnosis of anorexia nervosa is based on low body weight, weight loss measures (particularly extreme dieting), psychological features (usually including distorted body image), along with physical and endocrine sequelae. Anorexia nervosa can cause widespread physical and psychological morbidity, and can result in death.

Epidemiology[1]

- Estimated mean yearly incidence of anorexia nervosa is 0.4 in 1,000 per year in females, and 9 in 1,000 females will experience the condition at some time in their lives.
- Anorexia nervosa affects women more than men (ratio 10:1). However, men are more likely to be underdiagnosed, misdiagnosed and under-referred.
- The typical age of onset is during early to mid-adolescence.
- Although not common in the general population, eating disorders as a whole are thought to be the third most common chronic illness in adolescent females (after asthma and obesity).[2]

Aetiology[1]

The aetiology of anorexia nervosa is thought to be multifactorial, involving biological, psychological, developmental and sociocultural factors.[3] It is not known whether a neurobiological vulnerability predisposes to anorexia nervosa or if this is associated with maintenance of symptoms once the illness develops. Further research is needed to examine the degree to which abnormalities are a consequence of starvation or are caused by an anorexia nervosa endophenotype.[4] It may be that cultural, social, and interpersonal elements can trigger onset, and changes in neural networks can sustain the illness.[5]

The main risk factors are thought to be:

- Female gender.
- Age.
- Living in a Western society.
- Family history of eating disorder, depression or substance misuse. Results of twin studies are inconclusive, with some suggesting a strong link, and others none.
- Premorbid experiences. These include:
  - Sexual abuse.
  - Dieting behaviour within family or personal experience.
  - Occupational or recreational pressure to be slim (dancers, gymnasts, jockeys, models).
  - Onset of puberty.
  - Criticism or perceived criticism about weight or eating behaviour.

- Personal characteristics:
  - Perfectionism.
  - Low self-esteem.
  - Obsessional traits.
  - Premorbid obesity.
  - Early menarche.
  - Difficulty with resolving conflict.
  - Anxiety.
  - Borderline personality disorder.
Presentation\cite{1}\cite{2}

The defining clinical features are:

- Refusal to maintain a normal body weight for age and height.
- Weight below 85\% of predicted. This means in adults a body mass index (BMI) below 17.5 kg/m\(^2\). For those under 18 years of age, BMI centile charts should be used. In young people there may be a lack of appropriate weight gain, rather than weight loss.
- Having a dread of gaining weight.
- Disturbance in the way weight or shape is experienced, resulting in over-evaluation of size.

Other features include:

- Amenorrhoea for three months or longer. This was part of the defining criteria in the DSM-IV classification, but was removed as being essential for a definition with the advent of DSM-5 in 2013.
- Other physical: includes fatigue, hypothermia, hypotension, peripheral oedema, gaunt face, lanugo hair, scanty pubic hair, acrocyanosis (hands or feet are red or purple), and bradycardia. Delay in secondary sexual development if pre-puberty.
- Symptoms such as fatigue, fainting, dizziness, constipation and intolerance of cold.
- Denial of the problem.
- Lack of desire for intervention, or resistance to it.
- Social withdrawal; few interests.
- Enhanced weight loss by over-exercise, diuretics, laxatives and self-induced vomiting.

Early diagnosis\cite{6}

- Detecting the problem early may improve prognosis.\cite{2}
- Target groups for screening should include young women with low BMI, patients consulting with weight concerns who are not overweight, women with menstrual disturbances or amenorrhoea, patients with gastrointestinal symptoms, patients with physical signs of starvation or repeated vomiting, and children with poor growth.
- One or two simple screening questions can be used. For example: ‘Do you think you have an eating problem?’ or ‘Do you worry excessively about your weight?’. The SCOFF questionnaire (below) is a useful screening tool. Two or more positive answers should prompt a more detailed history:
  - Do you ever make yourself Sick because you feel uncomfortably full?
  - Do you worry you have lost Control over how much you eat?
  - Have you recently lost more than One stone in a three-month period?
  - Do you believe yourself to be Fat when others say you are too thin?
  - Would you say that Food dominates your life?

Examination\cite{1}

Examination should include:

- Height, weight and BMI.
- Core temperature.
- Peripheral examination - circulation, oedema.
- Cardiovascular examination - pulse, blood pressure, check for postural hypotension.
- Testing of muscle power by using:
  - Sit up test - lie the person flat and ask them to sit up without using their hands.
  - Squat test - ask the person to squat and then stand up without using their hands.

Physical risk

- The Section of Eating Disorders at the Institute of Psychiatry has produced a guide to the assessment of medical risk for eating disorders.\cite{7}
The following parameters are a guide to the need for urgent referral and appropriate medical intervention. Risk increases with degree of abnormality and patients may need immediate referral, assessment and treatment:

- Nutrition: BMI below 14; weight loss more than 0.5 kg per week.
- Circulation: systolic BP below 90; diastolic BP below 70; postural drop greater than 10 mm Hg.
- Squat test: unable to get up without using arms for balance or leverage.
- Core temperature below 35°C.
- Blood tests: low potassium, sodium, magnesium or phosphate. Raised urea or LFTs. Low albumin or glucose.
- ECG: pulse rate below 50; prolonged QT interval.

**Investigations**

- An ESR and TFTs are a useful screen for other causes of weight loss.
- Other tests will depend on the individual presentation.
- In patients with eating disorders, frequent testing for FBC, ESR, U&Es, creatinine, glucose, LFTs and TFTs is required.
- A dual-energy X-ray absorptiometry (DEXA) scan should be performed as a baseline and then annually in those who have had amenorrhoea for more than six months.
- An ECG may show bradycardia or a prolonged QT interval in those with more severe anorexia.

**Management**

The National Institute for Health and Care Excellence (NICE) recommends referral to specialist services for all those with anorexia nervosa, as treatment requires coordinated multidisciplinary care. If BMI is less than 15, referral should be urgent. The role of the GP is early detection, risk assessment, initial coordination of care, and sharing of ongoing monitoring.

Management of anorexia nervosa is usually by some form of psychological therapy as an outpatient, along with physical monitoring. Psychological treatments of anorexia nervosa include cognitive analytic therapy, cognitive behavioural therapy (CBT), interpersonal psychotherapy, focal psychodynamic therapy and family interventions focused explicitly on eating disorders.

- Self-help (with or without guidance from a therapist) may have some utility as a first step in treatment and may have potential as an alternative to formal therapist-delivered psychological therapy.
- Family interventions that directly address the eating disorder should be offered to children and adolescents with anorexia nervosa. Family members, including siblings, should normally be included in the treatment of children and adolescents with eating disorders.
- There is some evidence to suggest that family therapy may be effective compared to treatment as usual in the short term. However, a Cochrane review showed that there appears to be little advantage of family therapy over other psychological interventions.
- There is some evidence for efficacy of CBT, but it has not been shown to be superior to other psychological therapies.
- There is a very limited evidence base for the pharmacological treatment of anorexia nervosa.

**Other management issues:**

- Medication for comorbid conditions, such as depressive or obsessive-compulsive features, should be used with caution as they may resolve with weight gain alone, and side-effects of drug treatment (in particular, cardiac side-effects) should be carefully considered because of the compromised cardiovascular function of many people with anorexia nervosa.
- Risedronate has been shown to increase spinal bone mineral density when given for one year. More recently teriparatide has been shown to significantly increase spinal bone density after six months in women with anorexia nervosa.
- Managing weight gain:
  - In most patients: an average weekly weight gain of 0.5-1 kg in inpatient settings and 0.5 kg in outpatient settings should be an aim of treatment (this requires about 3,500 to 7,000 extra calories a week).
  - Regular physical monitoring.
  - Multivitamin and mineral supplements.
Admission to hospital should be considered if:
- There is risk of suicide or severe self-harm (acute psychiatric ward).
- Severe deterioration (may require admission to an acute medical ward).
- There is very low body weight (BMI less than 15 kg/m²) or rapid weight loss (admission to an eating disorders unit may be most appropriate).
- Medical complications, such as pronounced oedema, severe electrolyte disturbance, bradycardia, hypoglycaemia, or severe intercurrent infection (may require admission to an acute medical ward).
- Home environment is impeding recovery.

Managing risk:
- Risk should be very closely monitored.
- If all efforts of discussion and concordance break down and essential treatment is refused, then very occasionally there is a need to consider compulsory hospitalisation under the Mental Health Act. In the case of younger people, the right of those with parental responsibility to override the young person's refusal may be required. On occasion legal advice may be needed in order to consider proceedings under the Children Act 1989.

Complications

- Hypokalaemia: common and may cause fatal arrhythmias.
- Hypotension.
- Other cardiac problems including arrhythmias, mitral valve prolapse, peripheral oedema, sudden death.
- Anaemia and thrombocytopenia.
- Hypoglycaemia.
- Osteoporosis: restoring the patient's weight is the best treatment. Bone loss may never recover completely even once weight is restored.
- Constipation.
- Lack of growth in teenagers, and lack of development of secondary sexual characteristics.
- Infertility.
- Infections.
- Renal calculi
- Acute kidney injury or chronic kidney disease.
- Alcoholism in some patients.
- Anxiety and mood disorders.
- Social difficulties.

Prognosis

- Anorexia nervosa has a variable prognosis.
- Anorexia nervosa has the highest mortality of all psychiatric conditions. This is due to medical complications, and the increased risk of suicide.
- Approximately 50% of those with anorexia nervosa make a full recovery, 33% improve, and 20% have a chronic eating disorder.
- Mortality rate is estimated to be 2.8% over an 11-year follow-up. Older studies gave a higher estimate of 9.6%.
- Poor prognosis is predicted by a long duration of illness prior to presentation and onset in adulthood.[5]

Further reading & references

- Junior MARSIPAN - management of really sick patients under 18 with anorexia nervosa; Royal College of Psychiatrists (Jan 2012)
- Beat (Beating Eating Disorders)
- National Centre for Eating Disorders
- Eating disorder information; Academy for Eating Disorders

1. Eating disorders; NICE CKS, October 2014 (UK access only)
7. Professor Janet Treasure; A Guide to the Medical Risk Assessment for Eating Disorders, King's College London, 2009
8. MARSIPAN - The management of really sick patients with anorexia nervosa; Royal College of Psychiatrists (Jan 2010)

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