

# Characteristic and Treatment of Anorexia Nervosa: A Review

Sambangi Roopa Sri Sai, V. V. Rajesham, T. Rama Rao

<sup>1</sup>CMR College of Pharmacy, Kandlakoya (V), Medchal Road, Hyderabad- 501401, Telangana, India

**Abstract**—Anorexia nervosa is a psychiatric condition affecting many individuals, mostly adolescent women. It is a disease considered by very low body weight despite extreme depression, and has one of the highest death rates among psychiatric disorders. Treatment of AN is challenging and traditional approaches are rarely effective. Although the exact cause of anorexia is unknown, many factors can contribute to progressive of this eating disorder. As the disease progresses, the body develops a various health problems, some of which can be resolved by effectively restoring food and increasing weight, while others may persist. Throughout their illness, between one-fifth and one-third of individuals with adolescent anorexia nervosa (AN) require acute care involving the patient, their caregivers, and their immediate home surroundings, a novel and promising intensive therapy approach is presented. Research on therapy should involve parents and caregivers in order to promote cooperation with the attending professionals. To compare the efficacy and expenses of various intensive treatment programs across diverse health care systems, it is imperative to assess the mid- to long-term results of these programs. Policymakers and other stakeholders, including public and commercial insurance companies, may find this useful in improving the standard of treatment for eating disorders. The main resolution of this article is to review previous research on anorexia and provide information and effective interventions to help people with anorexia regain their health and well-being.

**Keywords**— Anorexia nervosa, eating disorder, dopamine, medical complications, refeeding.

## I. INTRODUCTION

Anorexia Nervosa is the 3rd most common long-term psychiatric condition among adolescent women [1]. It has the high death rates among psychiatric disorders, with the majority of deaths occurring between the ages of 16 and 29. The disease is associated to extreme underweight despite severe emaciation caused by self-driven food refusal, and there is a complicated interaction between environmental, psychological, and neurological components [2]. Some may experience such a profound lack of awareness that they become detached from existence and develop psychotic symptoms. It's a prolonged illness with a high treatment burden, relapse rates, and significant disease burden [3]. Therapeutic effectiveness for anorexia nervosa is limited, there are no approved medications, and little is known about the pathophysiology or biomarkers describing brain function in anorexia nervosa.

In addition, anorexia nervosa has high levels of psychological comorbidity, especially anxiety and mood disorders. Most mental illnesses have more than one effective and efficient treatment option, including anxiety disorders, psychotic disorders, anxiety disorders, serious illnesses, and more. Generally, for eating disorders, only few choices available. What distinguishes anorexia nervosa and eating disorders from most other mental disorders is the pronounced "ego-syntonic" tendency, that is, the goal of losing weight while losing weight despite adverse effects. The "eating disorder voice" that causes the disorder is often so strong that people with anorexia nervosa cannot resist these urges. On the other hand, for patients with anorexia nervosa recovery can only be achieved with a lot of motivation [13]. This energetic marks a great level of ambivalence about treatment and recovery. Drug intervention trials use a single drug and search for a particular therapeutic effect. This approach aims to detect

and target a specific brain system that triggers disease behaviour.

### *Hallmarks of anorexia nervosa:*

The main psychological characteristic of anorexia nervosa is the extreme overvaluation of one's body shape and weight. Individuals with anorexia also have the physical capability to tolerate extreme self-imposed weight loss. Diet restriction is only one of the method used to lose weight. Several people with anorexia use over exercise and over activity to burn calories [14]. They often choose to stand rather than sit; create chances for physically active; and preference for sport, athletics, and dance. Purging concerned with self-induced vomiting and the misuse of laxatives, diuretics, and "slimming medicines." Patients may also engage in "body checking," which involves weighing, measuring, looking in the mirror, and other obsessive behaviour to make sure they're still thin.

The etiology of anorexia nervosa is thought to be a complex interaction between psychological and neurobiological disorders. This has limited the development of neuroscience based treatments, and there are no approved drugs or other biological treatments for the disease.

The brain serotonin system has long been an important topic of neurobiological research on anorexia nervosa, but this system is very complex and difficult to model in terms of specific stimulus-behaviour relationships. Recent studies have suggested that the brain dopamine circuit: may play an important role in the pathophysiology of eating disorders in anorexia nervosa. This is important because the dopaminergic system is well characterized, computer models that predict the activation of dopaminergic neurons are female specific and this system can be manipulated pharmacologically [4,5].



Fig: 1. Anorexia nervosa

*Causes of anorexia nervosa:*

Anorexia is an eating disorder whose cause is unknown, although many factors may influence the psychological condition of the suffering individual.

- Anorexia is more than just a problem with food.
- It's a way of using food or rather not using it so as to feel more in control of one's life and to ease their tension and anxiety.
- While there is no single known cause of anorexia, several reasons may contribute to the development of anorexia-
- Biological Factors - Several biological factors may contribute in the onset the disorder like: Sensitivity to cold, Slow gastric emptying, Constipation, Low blood pressure, Bradycardia, Hypothermia
- Genetic Factors - Recent research has shown that in some sufferers a genetic cause may play a role in development of Anorexia, with environmental factors being the trigger factor [3].
- Culture and Social Factors - Recent trends in fashion have encouraged in perpetuating the image that extreme thinness of the human female body makes them more attractive and beautiful. Collage and school girls may redefine beauty based on the degree of one's thinness.
- Personal feelings - Generally people with anorexia may feel depressed about them and feel helpless. They hate the way they look and have an unrealistic expectation of them and strive for perfection. They may feel worthless, despite achievements and perceive a social pressure to be thin. Stressful events in life- Events in life like starting a new school or job or being teased about traumatic events like rape or mental/physical problems can lead to the onset of anorexia.
- Families - Studies have found that people with mother or sister with anorexia are more likely to develop the disorder. Other family factors include –
  - Adolescents, whose parents or close relatives think that appearance is very important may indirectly be influencing the teenager about dieting, body shape and weight loss. Growing up in this environment leads to an anorexic lifestyle.
  - Relationship problems are seen in families of patients with anorexia nervosa.

Anorexia nervosa is a biopsychosocial disorder characterized by being caused by some problems with society.

In other words, the provocative distortions of current attitudes towards the bourgeois family, the supportive family, youth, food, women, beauty and sexuality are being promoted by the media and corporations food and millionaire fashion.

Anorexia nervosa can appear as a coping mechanism for developmental issues, transitions, family conflicts, academic stress, and more [12]. Sexual abuse can cause anorexia, but it is more common than other mental illnesses. The onset of puberty and adolescence is especially important for exercise, but anorexia can also occur without a clear cause, even in well-functioning families.

*ICD-10(international classification of diseases, 10<sup>th</sup> revision) criteria for anorexia nervosa:*

- All five criteria must be met for a given diagnosis
- Body weight remains at least 15% below expected (either decreasing or not increasing) or a BMI of 17.5 or less. Pubertal patients may not reach the expected weight at puberty.
- Weight loss results from self-avoidance of "fattening foods" as well as self-induced vomiting, purging, excessive exercise or use of appetite suppressants or diuretics (or both)
- Body image is distorted in the form of a certain psychopathology, whereby the fear of being overweight remains an intrusive, overestimated thought and the patient sets a low threshold for his weight
- A generalized hormonal disorder related to the hypothalamic-pituitary-gonadal axis manifests in women as menstruation and loss of sexual interest and power in men (except for persistent vaginal bleeding in women using hormone replacement therapy, usually birth control pills). Growth hormone and cortisol levels may increase, as may changes in peripheral thyroid hormone metabolism and abnormalities in insulin secretion
- If onset occurs before puberty, pubertal events are delayed or even stopped (growth spurt); in girls, breasts do not develop and primary menstruation occurs; in boys, the genitals remain young). After recovery, puberty often ends normally, but menstruation is delayed [21]

*Types of Anorexia Nervosa:*

Anorexia is categorized into two, depending on the methods of weight loose of patients [14].

Anorexia is divided into two types –

- Restrictive type: This type of anorexia is characterized by the patient adopting unhealthy habits, such as fasting, to prevent weight gain.
- Binge or bloating: This type is characterized by a feeling of self-induced vomiting or abuse of laxatives or diuretics to prevent weight gain.

*Complications and Problems of Anorexia Nervosa:*

- ✓ The complications of Anorexia Nervosa are usually directly related to weight loss and depression.
- ✓ Most problems faced by a patient due to Anorexia Nervosa will improve as the patient recovers from the condition [1].

- ✓ It is important to seek professional help early because many of the serious medical consequences of the condition are often associated with long-term eating problems.

*The complications include-*

- Increased sensitivity to cold temperatures.
- Irregular periods.
- Loss of body hair especially on the scalp.
- Very low body weight can cause serious medical problems, like-
  - Poor circulation
  - Low blood pressure
  - Fragile bones that can fracture easily
  - Appearance of facial hair
  - Sterility
  - Fainting and dizziness
  - Hair loss
  - Dehydration
  - Kidney damage
  - Low body temperature
- Some complications such as damaged bones may never heal.
- Many patients suffering from anorexia nervosa die from this disease. One of the most famous examples is the singer Karen Carpenter, who died prematurely from the disease.

*Medical complications:*

- Cardiovascular: bradycardia <sup>[17]</sup>, hypotension, ventricular arrhythmias, congestive cardiac failure (terminal event).
- Gastrointestinal: erosion of dental enamel, benign parotid enlargement, oesophagitis and oesophageal ulcers, acute gastric dilatation, acute pancreatitis.
- Renal: electrolyte abnormalities, hypokalaemia, hyponatremia, hypochloremia, hypophosphatemia, hypokalaemia nephropathy.
- Haematological: pancytopenia, bone marrow hypoplasia.
- Skeletal: osteoporosis, pathological fractures.
- Endocrine: hypothalamic hypogonadism, high cortisol and non-suppression of DST, neurogenic diabetes insipidus.
- Metabolic: Decreased temperature regulation, decreased glucose tolerance, hypercholesterolemia
- Dermatological: lanugo, carotenoderma, thin, dry skin, purpura.

*Anorexia nervosa treatment:*

There are two treatments for anorexia: short-term and long-term. They are often combined for effective disease management.

The general treatment consists of two phases that can often be combined for effective treatment <sup>[11]</sup>.

• *Short-term treatment:*

- Manufactured to ensure weight gain and correct nutritional deficiencies.

• *Long-term treatment:*

- This is aimed at maintaining the normal weight that should be achieved after short-term treatment and preventing relapse.

*Different treatment methods include-*

- Behavioural therapy – This line of treatment is based on providing positive (sometimes even negative) support to help the patient control habits their excessive eating and drinking <sup>[20]</sup>.
- Individual psychotherapy - This therapy helps the patient;
  - Develop self-esteem
  - Confidence
  - Help the patient rationalize his or her social skills
  - Teach the patient to manage "stress and pressure" in life.
- Group therapy and family therapy – This involves educating the patient and their family about the disease, which will involve eliminating current societal beliefs about weight loss and exercise.
- Medication – It is very important to follow a medication regimen along with other treatments <sup>[6]</sup>. They help induce weight gain, reduce symptoms of depression, and increase appetite.

*Medications include-*

- Chlorpromazine
- Tricyclic antidepressants
- Cyproheptadine
- Hospitalization-If adequate care is taken by ensuring an adequate diet and then controlling weight gain, it can be very helpful in short-term treatment <sup>[10]</sup>.

*Available psychological therapies for managing anorexia nervosa:*

*Individual therapy:*

Structured individual treatments typically delivered as a weekly one-hour session with a therapist trained in eating disorder management and the therapy model used <sup>[9]</sup>.

*Cognitive analytical therapy:*

This psychotherapy uses letters and diagrams to examine habitual behavioural patterns in the presence of others and test more flexible responses.

*Cognitive behavioural therapy:*

This psychotherapy explores emotions, educates patients about body chemistry, and challenges automatic thoughts and assumptions behind behaviour in anorexia <sup>[8]</sup>

*Interpersonal Psychotherapy:*

This psychotherapy maps a person's network of relationships, choosing a focus—such as role conflict, transition change or loss—and work to create new ways to cope with suffering

*Motivational improvement therapy:*

This psychotherapy uses interviewing techniques that have their roots in substance abuse the effect of reframing “resistance” into “ambivalence” towards change, while nurturing and amplifying healthy impulses. Therapies are flexibly informed.

These therapies can also lead to weight gain and recovery if the patient is aware of the risk of failure to recover physical harm or death and recognize that certain restrictions (e.g. they must be weighed weekly, examined by a doctor monthly, and hospitalized if their weight continues to decrease) are

respected. Therapies involve speech, art, music, and movement.

*Group therapy:*

There is little evidence that therapy for anorexia nervosa benefits from group birthing over individual therapy sessions; in fact, group therapy may even make the problem worse.

However, dialectical behaviour therapy offers structured groups in addition to individual sessions.

This therapy teaches skills to help patients tolerate distress, soothe emotions, and manage interpersonal relationships.

*Family work:*

The term “family work” includes any intervention that harnesses the power of the family in combating a patient's disorder or attempting to manage family stress during face it. This includes family therapy, support groups and psychoeducational input.

*Integrative therapy:*

Evidence highlights the effectiveness of the Maudsley model of family therapy and similar interventions focuses on eating disorders.

The entire family, or at least the parents and the patient, participate in the counselling sessions together, this can cause acceptable emotional tension.

Separate family therapy, with patient and parents attending separate meetings, sometimes with two different therapists. This form of therapy appears to be effective

*Refeeding:*

Severe underweight or weight loss in a very short period of time, as in atypical AN, is one of the primary reasons for hospitalization. Therefore, in order to restore a healthy body weight and somatic stability, refeeding regimens are required [22]. It is advised to create a customized meal plan with three main meals and three snacks in order to restore regular eating habits. Patients should be provided with a nutritionally balanced diet; the number of calories required is determined by the patient's age, gender, premorbid weight, degree of activity, and the amount of weight gain required to reach the desired weight [23]. Clinicians were worried about the so-called refeeding syndrome a few years ago since it was caused by hypophosphatemia brought on by realimentation and could lead to neurological problems, heart failure, and renal failure. A recent randomized controlled trial (RCT) with 120 adolescents and young adults aged 12 to 24 years compared a low-calorie diet, which started at 1400 calories and increased by 200 kcal every other day, with a high-calorie diet, which was defined as 2000 kcal/d at the start of refeeding and an additional 200 kcal daily.

The primary outcome in this study was health stability, defined as higher heart rate and blood pressure (> 45 bpm and > 90 mmHg, respectively), higher body temperature, lower increase in heart rate and orthostatic decrease in blood pressure and overweight (75% of body mass index (BMI) for the patient's gender and age). Clinical stability was significantly restored earlier in the high-calorie diet group than in the low-calorie diet group, and hospital stay was shortened by 4 days in the low-calorie group. There were no more side effects in the experimental group with a high-calorie diet [24].

Individual and group nutritional counselling by a dietitian or an experienced adolescent nurse and their caregivers is recommended for adolescents with ED to help them meet appropriate nutritional needs. Nutritional counselling for teenagers has been shown to be very helpful in re-establishing healthy eating behaviours and gaining and maintaining weight [25].

II. CONCLUSION

Anorexia nervosa is a complex and challenging psychiatric disorder that requires a multidisciplinary approach to treatment. While traditional treatment approaches have had limited success in achieving lasting recovery for individuals with anorexia nervosa, new and innovative treatment options are being explored that may offer hope for improved outcomes in the future. By targeting specific brain systems and addressing the underlying psychological factors that contribute to the development of anorexia nervosa, researchers hope to develop more effective treatments that will ultimately improve the lives of individuals struggling with this debilitating disorder.

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*Corresponding author*

Dr. V. Venkata Rajesham, M. Pharm., Ph. D

Associate Professor, Department of Pharmacology, CMR College of Pharmacy, Kandlakoya (V)

Medchal (M & D)

Hyderabad- 501401

Email: [vvrajesham@cmrcp.ac.in](mailto:vvrajesham@cmrcp.ac.in)