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Comprehensive Review on Neurocirculatory Asthenia



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Pavankumar Wankhade¹, Sneha Landge², Shruti Kashid², Vedant Mulange² Rushikesh Pampatwar²

1. Assistant professor, Dr. D. Y. Patil College of Pharmacy, Akurdi, Pune, Maharashtra, India

2. Student of B. Pharm Final year, Dr. D. Y. Patil College of Pharmacy, Akurdi, Pune, Maharashtra, India

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ABSTRACT

For over a hundred years, variously referred to as Da Costa's Syndrome, Effort Syndrome, Neurocirculatory Asthosis, etc., many prominent have investigated this syndrome. Originally identified in men in wartime, it has been widely recognized as a common chronic condition in both sexes in civilian life. Although signs of neurocirculatory asthenia may appear after infections and various physical and psychological stresses, neurocirculatory asthenia is the most common. Identified as a familial disorder that is unrelated to these factors, although they can aggravate an existing tendency. Respiratory complaints are almost universal, including breathlessness with no effort or smothering sensation, and palpitation, chest pain, dizziness and faintness occur frequently. The physical examination is normal. The etiology is obscure, but patients usually have a normal life span. Reassurance and measures to improve physical fitness are helpful.



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INTRODUCTION:

There is an extensive and honorable history in medical literature of da Costa syndrome or neurocirculatory asthenia. It is unlikely to have disappeared; it probably exists much as before but is more often identified and labeled in psychiatric terms such as "anxiety state" or "anxiety neurosis. If the essential significance of a syndrome, its outlook and treatment are properly appreciated, then this shift in diagnostic labeling is not detrimental. Such is not always the case and, as in other medical issues, it is educational to review and summarise the past. What has been forgotten should not necessarily remain forgotten. For the purposes of this discussion, a broad definition of Da Costa's syndrome that is applicable to military and civilian patients is: a disorder of unknown origin, often familial, characterized by the presence of one or more symptoms including breathlessness with and without effort, palpitation, nervousness, chest discomfort not typical of angina pectoris caused by ischaemic heart disease, fatigability, and faintness; tending to occur in attacks which may recur over years and for which there is no specific treatment. Although the most common name is Jacob M Da Costa. Honored by history in this condition, at least one his newspaper was dated in 1871 by another relevant report. On 3 June 1863 Dr. Henry Hartshorne made a presentation regarding heart disease in the Union Army to the College of Physicians in Philadelphia. Dr. Hartshorne went on to mention that Dr. Alfred Stille had delivered an address on a somewhat similar disorder, referred to by him as "palpitation", before the Philadelphia County Medical Society four months earliest (1). Stille had noted that this palpitation was "a very frequent symptom among the soldiers, occurring in perhaps every case of intercostal neuralgia, but often, also, originating apparently in a state of extreme exhaustion..." Hartshorne described how in an 80 bed ward of a Union army hospital over a seven-month period the majority of the cardiac patients exhibited neither hypertrophy nor dilatation, or palpitation "from sympathy with irritated stomach, from nervousness, abuse of tobacco, etc.", but cardiac muscular exhaustion. This was demonstrated by shortness of breath after moderate exertion and a rapid pulse on slight effort. The men appeared well and there were no cardiac murmurs; however, sometimes the first heart sound was diminished. Although there was improvement with several months of rest this did not cure most of the cases. He considered that the process was attributable to the stress of the military campaigns with "great and prolonged exertion with the most unfavorable conditions possible -ivation of rest, deficient food, bad water, and malaria." Four years later in February 1867, Dr W C Maclean, who was a Professor of Military Medicine at the British Army Medical School, wrote a lecture entitled "Diseases of

the heart in the British Army", which was published in the British Medical Journals (2). Hartshorne's message on British soldiers was distinct from his because he was raising awareness of heart hypertrophy and dilatation brought on, he thought, by the soldier's field load, which he was carrying with tremendous effort. weighed in at more than 60 pounds, and by the way which straps restricted blood flow. Maclean's paper lists the symptoms, and it is this historical series, which was initiated by Although they shared a concern for the function of physical exhalation, Hearts Horne (3). Dr. Jacob M. Da Costa's article "On irritable heart: A clinical study of a form of functional cardiac disorder and its consequences" was the first significant work on the subject, and it appeared in the January 1871 issue of the American Journal of Medical Science(4).

SYMPTOMS:

It is frequently stated that palpitation, breathlessness, precordial pain and premature exhaustion during or after exercise or the emotional reaction provoked by the thought of effort are the cardinal symptoms of Neurocirculatory Asthenia (5,6) . The first three symptoms of sweating and trembling may occur at rest. Table 3 provides a resume of the frequency of the symptoms and signs in 200 cases of DaCosta 's Syndrome (5,6). The Neurocirculatory Asthenia symptomatology has been extensively discussed by Lewis (5). The palpitation, in his words, is "a keen consciousness of the forceful action of the heart beating regularly but usually rather rapidly." Generally speaking, the precordial pain is described as "a dull or heavy ache in the left breast, las ting for hours without radiating, but occasionally it is interspersed with sharp stabbing sensations. The difficulty breathing is "mostly subjective." It is "an unpleasant consciousness of The Ordinary Respiratory Act without Much of Any Eviden t Labor or Distress." The tendency to sigh has increased abnormally. The tremor, light headache, and dizziness are all symptoms that "suggest the instability of the n eurological state and of the "vasomotor conflict".

Table No. 1: Symptoms and Signs in 200 Cases of DaCosta's Syndrome

Systems	Symptoms	Signs
General	Fatigue Nervousness	Faces of fatigue Nervous matter
Vasomotor	Palpitation Headache Dizziness Vascular throbbing Flushes	Overacting heart Pulse>90 at rest Pulse>100 at standing BL.pr.>150/90 Pulse declines after exercise longer than 2min Cold blue hand Visible flushes
Respiratory	Breathlessness	Tachynoea Breath holding time<30 sec
Sudomotor	Undue sweating	Axillary tricking Palmar sweating
Muscular and skeletal	Trembling and shaking Cramps Left thoracic pain	Tremor and shakiness Hyperalgesia Asthenic posture
Gastrointestinal	Dry mouth Emesis	
	Anorexia	
Others	Frequent micturition Insomnia	

Differential Diagnosis-

1. Anemia, pulmonary tuberculosis, pleurisy and influenza should cause no difficulty.
2. The pain of angina pectoris and Neurocirculatory Asthenia should give rise to no confusion.

Angina Pectoris

- (1) Pain is the only complaint
- (2) Uncommon below 40 years
- (3) Sternal or across chest
- (4) Arresting pressure
- (5) During exertion only
- (6) Brief: 1-5 minutes
- (7) Relieved by amyl nitrite

Neuro circulatory asthenia

- (1) Multiple complaints.
- (2) Age 20-55 years
- (3) Left mammary or submammary
- (4) Ache (sometimes stabs)
- (5) After exertion; when tired
- (6) Continuous-hours
- (7) No relief

3. The following should be considered: Rheumatic carditis, toxic myocarditis, early hypertensive heart disease, other forms of heart disease, thyrotoxicosis, and malingering.

Etiology:

Historical Considerations: Based on observations made during the initial descriptions of the syndrome by Hartshorne (8) and DaCosta (9), the Civil War in America. It was first described as the "excitable" or "irritable". The ailment has damaged the troops' hearts. It has been highlighted in every conflict since, however, it frequently affects civilians. It has been recognized at times of calm. The uncertainty surrounding this syndrome, and in particular its voluminous terminology, strikes one as particularly striking.

etiology. In World War I, Lewis (10) coined the term Effort Syndrome, though it was referred to as quite a bit. Neurocirculatory Asthenia (11), the latter being the cause of DaCosta's Syndrome, army approved phrase in usage. The Standard defines the current official term as cardiovascular neurosis according to classified Disease nomenclature. Before World War I, it was believed that wearing bulky, tightly fitting clothing was to blame for the illness. (12) tunics, a bad diet, or "setting-up" drill," which likely increased the heart and chest were enlarged (13). In the years leading up to World War I, 1914-1918. The diagnosis of "Effort Syndrome" or "Neurocirculatory Asthenia" the physical strain and stress of disease, thyrotoxicosis, and neurosis as well as combat. Lewis(14) emphasized the importance of infection and the stress of combat as key etiological variables. But he claims that "the psychology of our patients as a group is not that of the general population ." average soldier; a significant percentage of The males are extremely anxious and tense temperament; a disproportionate number others are indifferent or melancholy, while others are sensitive or erratic. The guys were out. or lacked the ability to materialize "effort without suffering. He continues to say: "Central nervous system anomalies. The symptoms of the illness may in part be caused by the nervous system. and in some instances, this seems a strong possibility. However the syndrome is caused by a primary defect. it is doubtful that of the nervous system." That was Robey and Boas (16) and Oppenheimer and Rothschild (15) highlighted the significance of nervous instability and Psychiatric genetic and constitutional variables that contribute to this propensity syndrome. The recorded history of the United States Medical Corps Brooks (17) assumes the job in the Army that the cause of Effort Syndrome is fatigue's impact on neurotic personalities, whether it be physical or emotional. Cohn, studying both his own and the literature Patients, in 1919, stated that regardless of what the underlying cause is, such as, an infection, an endocrine disorder, exposure to the front lines of battle, etc., The core of effort syndrome is a neurosis based on worry and fear, and it is eliminated when the underlying reason vanishes, healed by methods that alleviate the nervous condition(18). A large number of papers were published in the time between World Wars I and II. and extra attention was paid to the condition books on the subject of heart illness. Neurocirculatory Asthenia started to be used frequently as the syndrome's neurotic origins were well understood. Lewis, however, only makes passing references to the issue in his work on heart disease (19) the potential presence of a neurotic component interested in the cause of the condition. In 1934, Erile (20,21 and 22) presented his theory that Neurocirculatory Asthenia is "a pathologic state of excessive blood flow." The adrenal sympathetic nervous system activation the neurological system," and suggested surgery involving denervation of the

adrenal medulla. He stated that 76 per regarded cases "uncomplicated" by psychoneurosis as healed. Guttman and Jones (23), Soley, Shock, and Jones (24) investigated the idea that the Effort Syndrome symptoms were because to excessive breathing, but remark on the likelihood that the latter is merely a symptom of the underlying strain and worry. Are Da Costa's Syndrome symptoms really exaggerated sensations of effort in healthy people? Wood (25), in his sole attempt to provide a comprehensive response, made this claim. It is highly unlikely that the symptoms of DaCosta's Syndrome are just over exaggerated sensations of effort in healthy individuals, according to the data listed in Table 2 below.

Table No. 2 Symptoms of Neurocirculatory Asthenia

Symptoms of physical exertion	Primary symptoms reported by normal central subjects	Primary symptoms reported by patients with Da Costa Syndrome
Breathlessness	80%	20%
Fatigue	12%	11%
Palpitation	4%	30%
Dizziness	2%	10%
Precardial Pain	0%	20%

In contrast to patients with DaCosta's Syndrome, where palpitation was the primary symptom of exercise-induced breathlessness in patients with normal participants, Breathlessness was only the primary symptom reported by 20% of patients, while coughing was the primary symptom in 30% of patients. With DaCosta's Syndrome, dyspnea is characterized by quick, shallow breathing and the difficulty in taking a deep breath; there is also an abnormal rise in sighing tendency. The patients exhibit uneasiness towards the exertion; they excessively perspire in the axillae, palms, and soles in the manner of anxiety, but not as much elsewhere as the control individuals do in reaction to exercise. It is not essential to make an effort; the symptoms can appear at any time in response to emotion. The symptoms and signs mirror those that accompany well-known psychoneurosis states or those brought on by emotion. 30% of people said that their main symptom was. These findings suggest that DaCosta's Syndrome symptoms are not caused by a hypersensitive peripheral autonomic system but rather somatic manifestations depending on central activation. They contend that the main trigger is an emotional one or a fear associated with the dread of exertion. Effort Syndrome

patients have a positive psychiatric family history in between 56 and almost 100 percent of cases, according to several authors (Wood, 56 percent; Jones and A. Lewis, 60 percent; Oppenheimer and Rothschild, 61 percent; Leigh, more than 50 percent; Brooks, almost all). Wood, however, is one of the very few who took the time to examine a control series of people, and just 7 percent of them had a favorable mental family history. Previous Patient History: Wood Studies suggest that parental influence induced inferiority and shyness, but not effort intolerance. According to Kower et al. (26), a control series was not explored, and 29 out of the 50 patients studied had experienced the first sign of effort intolerance in daily life. Most of the patients cited a history of avoiding conflicts and rough play as children but vehemently denied being "nervous" as youngsters, suggesting that parental attitudes appeared to be a significant component in determining neurotic patterns in their sample of patients. Although there is a dearth of actual data, there are many remarks concerning the patients' past familial relationships. Patients' personalities or emotional qualities have been varied and in very generic ways characterized by internists who treat patients with neurocirculatory asthenia. Examples of phrases used include "emotional maladjustment," "subconscious repressions," "apathetic and depressed," "supersensitive, anxious, overly conscientious worriers," "constitution timidity and character inferiority," "early tendency to avoid the rough and tumble sports and world around them," "no realization that they are mentally and not physically ill," "had transferred conscious anxiety to the cardiovascular system," etc. The true condition is anxiety related to the patient's propensity to stress his physical ailments, according to the psychiatrists (15,27,28 and 29), and neurocirculatory asthenia is the emotional manifestation of anxiety—conscious or unconscious—on the cardiovascular system about going back to "the front." The physical symptoms of anxiety might be triggered by just thinking about "the front" or by exerting oneself physically. These symptoms typically last for a long time after the trigger event has passed. Although the patient has a limited capacity for anxiety perception, they act as though they are continually afraid. Cases were observed "at the front" when the soldier was experiencing anxiousness. two feeble attempts to categorize personalities.

Table No. 03 - Anxiety States

Acute	17%
Chronic	14%
Depressives	12%
Psychopathic personality	18%
Hysteria	11%
Hyperventilation tetany	1%
High grade mental defi.	4%
Schizophrenia	1%

Thomas Lewis (10,5) discovered sedentary workers during World War I. Effort Syndrome was more likely to affect workers. According to A. Lewis, this wasn't because they weren't capable of making the effort; rather, it was because they weren't used to physical labour, didn't like it, or were afraid of it. 35 manual laborers and 15 sedentary employees out of 50 unselected instances of effort syndrome in civic life, according to Wittkower et al (26).

Physiological Studies on Neurocirculatory Asthenia

Respiration. A B.M.R. (oxygen) equipment was used to record the respirations for 4 to 5 minutes after a trial run in the exercise respiratory tolerance test carried out by Jones and Scarisbrick (30).

Haldane, Lewis, and Priestly's (46) effort Syndrome research, was used in addition to patients with the diagnostic Patients who were victims of the Effort Syndrome having been gassed. They were certain an agitated Herring-Breuer reflex alternatively a hypersensitive nervous system quick shallow breathing (20–60) was the cause. A tidal air of 250–350 cc is used (per minute). With little change in tidal after exercise, the rate climbed unnaturally. In 100 cases, Jones and Scarisbrick used air of Effort Syndrome, only 5 per more than 35 percent with resting rates. They I think gassed patients were the main subjects Haldane et al. investigated. According to Soley and Shock (30), hyperventilation is a symptom of effort syndrome. Jones and Scarisbrick each experienced an episode of hyperventilation tetany twice. Both patients were individuals with normal resting respiratory rates of 20 per minute and minute volumes after the exertion of 57 and 38 litres, respectively. An emotional mood led to the hyperventilation. Haldane was primarily concerned with anoxia, while Soley and Shock were

worried about acapnia. Time in Circulation. In Effort Syndrome, Spillane (47) discovered no alteration in circulation time. The rate of circulation is sped up in thyrotoxicosis.

TREATMENT

On the whole, it's impossible to think that any particular medical procedure will have any impact on this disease. The cycle might be broken by treating the irritable symptoms (31). Psychotherapy through boosting self-esteem, is difficult to assess but definitely seems to be the most significant therapy for this illness. Moment, is the remarkable healer who, albeit cautious, is successful in removing the majority of symptoms and signs that a young person has this illness. In contrast to the endocrine strategy would undoubtedly seem hopeful, but efforts in this direction—whether through depression or stimulation of the activities of glands of all kinds. drugs with a specific sympathetic nervous system effect Sadly, the nervous system has not performed as expected and has minimal impact on strengthening this aspect The management of these situations will continue until more specialized techniques are available. It should be approached in the following manner following a successful diagnosis. To convince the patient of the fact, a lengthy conversation is required. That a sympathetic nervous system disruption is the cause of all of his symptoms network of nerves. The patient quickly understands why this is pretty simple. had the realization that all of his symptoms are similar to stage fright. Time, though spent eradicating certain phobias, particularly those related to the heart. It takes more than one session with the patient to get rid of and restore confidence and allay anxieties. The vicious cycle's mechanism and It is necessary to explain conditioned reflexes because the patient cannot comprehend why someone could get symptoms after consciously Most of the time, these patients have lofty goals, which include their lack of endurance. They should make an effort to come to an understanding on the topic of over ambition. Struggle and competition dissuaded from doing. We must emphasise the crucial need to get enough physical rest Most of these individuals respond extraordinarily well to 10 hours of bed rest, however seldom survive on less. It's important to get some sleep in the morning The development of poise and confidence should also be prioritised as they increasingly integrate into social groupings. It's especially beneficial to take public speaking classes, join sports teams, and go to church. This form of treatment must be administered with caution to prevent hasty implementation. It is best to marry young and to someone who values social interaction. Many of these people never get married when N.C.A. persists into later life, which it occasionally does. No one can definitively say which is cause and which is effect. It's impossible to completely cover all the strategies that must be used in each situation

to boost confidence and reduce the anxiety that inhibits people from taking action. Encourage the patient to perform brisk callisthenics as a very straightforward and efficient approach of treatment for the irksome vasomotor symptoms Exercise for ten minutes, aiming to work up a decent sweat. If this is difficult, wear appropriate attire when exercising. Immediately after this, he should take a cold shower or dive into a tub of Cold water that has already been drawn. Baths that are too long or too hot should not be used as They induce the peripheral vascular system to enlarge even more. after the cold After taking a dip, the patient first dries as usual before rubbing himself. until the skin starts to glow, using a dry, rough Turkish towel. The following thirty minutes should be set out for leisure after this. As much as possible, avoid using medications, and the patient should be made to feel certain that he is well and doesn't require medication. But occasionally, sedation is required for excessive anxiety and sleeplessness. treatment for digestive and Symptoms typically necessitates a brief pharmaceutical regimen. It is crucial to both explain and get rid of bothersome symptoms. because nothing is more reassuring than their absence, their benign nature. The patient builds confidence with each small progress and In this way, the length of N.C.A. treatment can be shortened. Some people can avoid developing chronic N.C.A. because there is little hope if the problem is still present in those who are over 35. Occasionally, the disorder will begin in later years as a result of significant psychic traumas that produce a serious loss of confidence. It is a very challenging situation unless it is identified early and treated appropriately, in which case it is short-lasting. Finding enough time to spend with these patients is one challenge in handling them. The amount of time spent on them will affect the quality of the results. Visits ought to be commonplace. A patient loses motivation, loses the advantages they've gained, loses confidence, and either stops trying to get help altogether or goes too long between sessions.






CONCLUSION

In this article detailed information of neurocirculatory asthenia is written such as etiology, symptoms, diagnosis, physiological study and its treatment. This review article will helpful for further study on neurocirculatory asthenia.

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	<p>Pavankumar Wankhade Assistant professor Dr. D. Y. Patil College of Pharmacy, Akurdi, Pune, Dr. D.Y. Patil Educational Complex, Sector No. 29, Pradhikaran, Akurdi, Pune, Maharashtra, India 411044.</p>
	<p>Sneha Landge Student of B. Pharm Final Year Dr. D. Y. Patil College of Pharmacy, Akurdi, Pune, Dr. D.Y. Patil Educational Complex, Sector No. 29, Pradhikaran, Akurdi, Pune, Maharashtra, India 411044.</p>
	<p>Shruti Kashid Student of B. Pharm Final Year Dr. D. Y. Patil College of Pharmacy, Akurdi, Pune, Dr. D.Y. Patil Educational Complex, Sector No. 29, Pradhikaran, Akurdi, Pune, Maharashtra, India 411044.</p>
	<p>Vedant Mulange Student of B. Pharm Final Year Dr. D. Y. Patil College of Pharmacy, Akurdi, Pune, Dr. D.Y. Patil Educational Complex, Sector No. 29, Pradhikaran, Akurdi, Pune, Maharashtra, India 411044.</p>
	<p>Rushikesh Pampatwar Student of B. Pharm Final Year Dr. D. Y. Patil College of Pharmacy, Akurdi, Pune, Dr. D.Y. Patil Educational Complex, Sector No. 29, Pradhikaran, Akurdi, Pune, Maharashtra, India 411044.</p>