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# Dyspnea on exertion in patients of heart failure as a consequence of obesity: An observational study

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## Abstract

Heart failure (HF) is the inability of the heart to fill with or pump out enough blood to meet the body's needs. It is not one single disease, but rather a group of signs and symptoms caused by many different disease processes that have weakened the heart over time and left it unable to pump blood efficiently. Hypertension, diabetes mellitus, cardiovascular disorders are few of such disease processes responsible for conditions in HF. Even though, the co-morbidities mentioned above are well-established in the present system of medicine, its association with respiratory risk on obese patients especially in HF, still needs to be explored. The aim of this study is to determine the presence of dyspnea on exertion (DOE) in patients of HF as a consequence of obesity. Strategies to prevent the risk of HF, which would complement the current approaches aimed at Ayurvedic perspective especially, the obesity, its related comorbidities and contributors in the form of information on life-style leading to obesity needs to be focused. An ethical clearance for the project from the same institute was obtained on 101 patients of HF. All patients with ejection fraction <50% having DOE, New York Heart Association category were selected. Those with restrictive cardiomyopathy valvular abnormalities and under psychiatry treatment were excluded. Patients were informed about the project and their written consent was obtained followed by filling the Case Report Form (CRF). Their recent reports of left ventricular ejection fraction were attached along with details of 6 min hall walk test. Analysis was performed using the Statistical Package for the Social Sciences software, IBM version-17.0. The significant outcomes on lifestyles of HF related to co-morbidities were found.

**Key words:** Dyspnea on exertion, heart failure, obesity

## Introduction

Heart failure (HF) is a condition with cluster of many diseases resulting into structural or functional cardiac disorder impairing the pumping ability of the heart. The most common precursors of HF is cardiovascular disorders (CVD), which in turn is preceded by morbidities related to obesity such as hypertension (HTN), type II diabetes mellitus (DM2), dilated cardiomyopathy (DCMP) and peripheral vascular diseases (PVD). These patients frequently report dyspnea on exertion (DOE) during the normal daily activities.[1] This clinical syndrome as HF, not only reduces life expectancy, but such associated symptoms (breathlessness and fatigue) markedly impairs quality-of-life.[2]

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Patients of HF normally presents abnormalities of left ventricular functions seen as diminished ejection fraction (left ventricular ejection fraction [LVEF] <50%) via two-dimensional (2D) echocardiographic screening.[3] They commonly experience effort intolerance,[4] measured through 6 min hall walk test.

Obesity linked to increased blood volume, increased cardiac work load, dilatation of the left ventricle and fat deposits in the heart leading to myocardial infarction (MI) results into HF.[5] Although, most of the comorbidities relating obesity to coronary artery disease increase as body mass index (BMI) increases.[6] This relation appears to exist for both, men and women with minimal increase in BMI, especially in HF cases. In 14 years prospective study, middle-aged women with a BMI > 23, but <25 had a 50% increase in risk of non-fatal or fatal coronary heart disease and men aged 40-65 years with a BMI > 25, but <29 had a 72% increased risk.[7] HTN is approximately 3 times more common in obese than normal-weight persons.[8]

This article is based on a systematic review of the literature with observations done on obese patients of HF associated with

DOE focused on the left ventricular systolic dysfunction along with their exercise capacities.

### Ayurvedic concept

*Hridaya* is the origin of *Pranavaha and Rasavaha Srotas*,[9] their vitiations causes morbidity in the *Hridaya* associated with *Shramashwasa* (DOE), *Hridrog* (CVD), *Daurbalya* (fatigue), etc.,[9]

HF is such a condition of *Hridaya*, where it becomes weak to perform its normal functions to meet the needs of the *Sharira*. It is normally seen as *Hridaya Daurbalya*, an *Upadrava* of *Hrdrog* (complication of cardiac disorder), which involves more than one *Vyadhi*, where all the three *Doshas* with *Rasa*, *Rakta*, *Mamsa* and *Meda* as *Dushyas* are present. There is interference of more than two *Srotas*, i.e., *Rasavaha*, *Raktavaha*, *Mamsavaha*, *Medovaha* and *Pranavaha Srotas* in the above said condition, exhibiting *Shramashwasa* (DOE) as one of the *Pradhana Lakshana* (predominant symptom).[10]

*Shramashwasa* (DOE), is also seen in diseases caused due to over saturation (*Santarpana Janya Vyadhi*), where there is excessive increase of *Meda* and *Mamsa Dhatu*,[11] resulting into *Sthaulya* (obesity), popularly seen as increase in waist hip ratio >1 and BMI >25.

Obesity makes a person intolerant to exercise along with DOE.[12] The diseases such as diabetes (*Prameha*), *Vatavyadhi* and other dreadful diseases are the consequences of *Sthaulya* (obesity), which if not managed properly, leads to death.[12]

Thus, *Shramashwasa* (DOE), in obese condition, enables the *Hridaya*, inefficient to pump sufficient nutrients to the entire body leading to improper formation of *Dhatu*[12,13] This results in exercise intolerance (due to malnourishment) leading to *Shramashwasa* (DOE) in turn. This cycle is repeated at the cost of further vitiations in *Pranavaha* and *Rasavaha Srotas* making the *Hridaya* more and weaker to pump, resulting into *Hridaya Daurbalya*.

## Materials and Methods

This study was conducted from a well-equipped hospital with all latest cardiac specialties and expertise. After ethical approval, 101 patients were selected with ejection fraction <50% and explained the purpose of study to them. With due permission from the Cardiologist, they were enrolled in the study trial for a single visit observation in between 2007 to 2010. Written consents were obtained followed by filling up of CRF. Their recent 2D echo reports of LVEF% were attached. All the patients were asked to do a 6 min hall walk test. The distances walked by them were noted in meters. Their target of completing the walk in a given time was also noted along with the reason to terminate so as to analyze their exercise capacity.

### Statistical analysis

An observational single visit study was as carried at a multi-specialty hospital. Registered (101) subjects LVEF <50%, on conventional heart failure therapy (HFT), prescribed and screened by the Cardiologists, were studied. The findings were categorically analyzed depending upon the parametric and non-parametric variables. Statistical analysis was performed using the Statistical Package for the Social Sciences software, IBM version-17.0. Descriptive statistics were given in terms of mean ± standard deviation for numerical variables such as age, weight, LVEF% and the total distance walked. Independent *t*-test was performed to evaluate the value of significance, *P* level, less than 0.05 was considered to be significant.

Percentage frequency was given for categorical variables such as HF categories, comorbidities, gender, BMI and clinical signs.

Non-parametric test was performed on variables such as New York Heart Association (NYHA) class (DOE and fatigue). They were graded in terms of four point Likert's Severity Scale.

Cross tabulations (Pearson Chi-Square test) was used in quantity variables to bring association between two or more variables such as association between life-styles such as food habits as munching, starving, late night dinner, suppression of natural urges like-flatulence, bowel, urine, sleep and DOE. They were graded as four point Likert's Scale, where grade one was coded as "no habits" and grade four as "frequent habits" (more than 4 days a week). Only significant frequent grades were mentioned in the tables.

## Observations and Results

According to NYHA, there are three categories of HFs.

Mild HF – LVEF %: 41-50%, moderate HF – LVEF %: 31-40% and severe HF – LVEF %: below 30%. Moderate HF was found in majority in my study [Figure 1].

HF patients who agreed to enroll in this study were from ischemic cardiomyopathy (post-MI) and HTN, followed by DM2 and DCMP. Majorities of them were associated to obese conditions having BMI >25, i.e., −56% as seen in Figure 2.

The life-style with comorbidities of HF patients is given in Table 1. They have been strongly found significant as precipitating factors. All HF patients ($n$ = 101) with frequent habits of munching, starving, suppressing natural urges and late night dinner, for more than 4 days a week were considered in the study. Eating within 3 h of previous intake as munching habit, were seen in 34 HF patients, where 28 post-MI were from munching category ($P$ = 0.037). Patients with nothing by mouth for more than 6 h as starvation were found in 61 HF cases, where 47 were from post-MI category ($P$ = 0.039) and 52 of them were HTN ($P$ = 0.039). 29 and 3 out of 62 were DM2 and PVD respectively, who ate food beyond 10 pm as late night dinner ($P$ = 0.002, 0.07). Ninety four HF cases has habits from suppression of natural urges such as flatulence, bowel, urine, where 57 were DM2, 85 HTN ($P$ = 0.00), 78 post-MI ($P$ = 0.05) and 48 DCMP. Seventy six HF had a habit of suppressing sleep, 67 were HTN ($P$ = 0.06) and 59 post-MI ($P$ = 0.027). Suppression of DOE (when the symptom is left untreated) was found in 98 HF cases, significantly found in 47 DCMP ($P$ = 0.05) and 6 in PVD. The statistics of vacant sectors against life-style and comorbidities were not found significant.

Majority of HF cases were found to have registered between 59 and 61 years of age. A sudden social/financial burden of running their family probably made them mentally stressed, particularly between this particular age group from both sex. All patients were already on HFT, their systolic and diastolic blood pressures

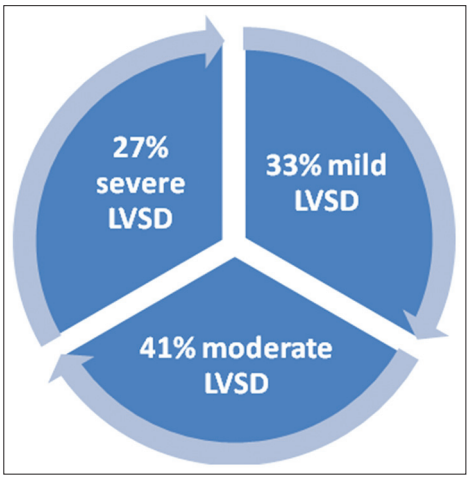


**Figure 1: Percentage frequency of left ventricular systolic dysfunction**

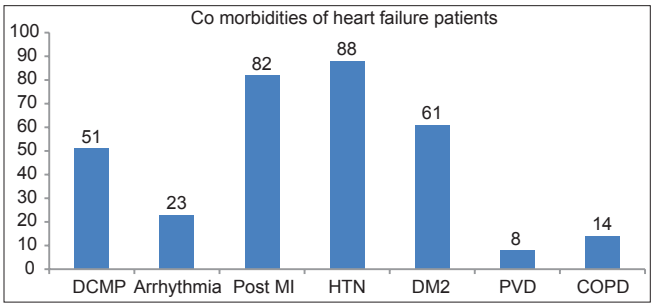


**Figure 2: Frequency bar chart having comorbidities, *n* = 101. Diabetes mellitus, hypertension, arrhythmia, chronic obstructive pulmonary disease, post-myocardial infarction, peripheral vascular disease and dilated cardiomyopathy**

had fairly been managed. In spite of HFT, their weight and BMI were found to be above optimum level, which still raises the risk of disease progression [Table 2].

It was ensured that the 2D echo screening was done through a single observer and the same machine as the parameters from echo screening are observer dependent. Majority were from moderate HF category [Table 3], where 50.5% were DCMP.

DOE and fatigue [Figure 3] are the prime clinical cardinal symptoms of HF according to NYHA, which is categorized into four classes: NYHA class-1: Asymptomatic/symptoms at severe exertion. NYHA class-2: Symptoms at moderate exertion. NYHA class-3: Symptoms at mild exertion. NYHA class-4: Symptoms at rest. It was observed that those with NYHA functional class 4 were more from severe left ventricular systolic dysfunction category.

## Exercise capacity

It was observed that very few HF cases attempted to lose weight through exercise regime seriously [Figure 4]. Even though, 75 HF patients were never intolerant to exercise, 79 were lacking them doing it regularly.

The capacity for performing exercise depends upon the ability of the heart to augment its output to exercising muscle and ability of skeletal muscle to use oxygen delivered via circulation.[14] Generally, cardiac output is increased 4-6 times in normal subjects exercising to maximal capacity.[15]

## 6 min walk test

It is one of the most common modalities for evaluating the functional capacity of patients with HF. It is used to evaluate low-level or sub-maximal work and is more compatible with activities of daily living.

Patients were asked to walk for 6 min at whatever pace as comfortable on a flat surface. The number of meters covered during 6 min was recorded. A distance of less than 300 m is considered indicative of severe exercise intolerance.[16] Patients with chronic HF can be objectively characterized by determining exercise tolerance.

All patients who underwent this litmus test for detecting their functional status and cardiac reserve were found to be below optimum level [Table 4], which confirmed their low cardiac performance as reduced cardiac output and reduced muscle perfusion. The severities of patients with HF are determined with their exercise capacity.

**Table 1: Cross tabulation of comorbidities having various life-styles of heart failure patients (*n*=101)**

| Life-styles with comorbidities | Post-MI % | DM2 % | HTN % | PVD % | DCMP % |
|---|---|---|---|---|---|
| Munching | 38.9 | - | - | - | - |
| Starvation | 57.3 | - | 60.4 | - | - |
| Sup-f/b/u | 95.1 | 93.4 | 96.6 | - | 94.1 |
| Sup-sleep | 81.9 | - | 79.8 | - | - |
| Sup-DOE | - | - | - | 75 | 97.9 |
| Late dinner | - | 47.5 | - | 37.5 | - |

MI: Myocardial infarction, DM: Diabetes mellitus, HTN: Hypertension, PVD: Peripheral vascular diseases, DCMP: Dilated cardiomyopathy, DOE: Dyspnea on exertion

**Table 2: Baseline demographics**

| Baseline details (*n*=101) | Statistical details: Mean (±SD) |
|---|---|
| Age | |
| Male (*n*=69) | 59.41 (±11.60) |
| Female (*n*=32) | 60.90 (±12.60) |
| Weight | |
| Male | 70.20 (±10.68) |
| Female | 60.90 (±12.10) |
| BMI >25 | 56% |
| Heart rate | 81.34 (±76) |
| SBP | 130.34 (±7.77) |
| DBP | 83.51 (±10.73) |

BMI: Body mass index, SBP: Systolic blood pressure, DBP: Diastolic blood pressure

**Table 3: Group statistics of 2D echo findings showing average mean along with SD of LVEF, LVIDs, LVIDd, LA**

| 2D echo | Mean | SD |
|---|---|---|
| LVEF % | 37.44 | 8.45 |
| LVIDs | 41.66 | 9.85 |
| LVIDd | 52.87 | 10.64 |
| LA % | 35.34 | 6.87 |

LVEF: Left ventricular ejection fraction, LVIDs: Left ventricular internal dimensions at systole, LVIDd: Left ventricular internal dimensions at diastole, LA: Left atria, SD: Standard deviation

Patients of DM2, HTN, post-MI and DCMP were all having DOE along with fatigue as they walked below optimal average distance [Figure 5]. Somehow 43% could complete the given task where as 23% ended up with DOE.

### Clinical signs

Clinical signs of retentions were seen in patients of edema-ankle, feet and face. It is the characteristics of HF, where there is failure to pump blood at a rate commensurate with the requirements of the kidneys, results in reduced salt and water clearance and hence fluid retention. Ankle, feet and face edema occurs more commonly in congestive HF especially due to the chronic venous insufficiency. Raised Jugular venous pulse is present mainly in right HF secondary to pulmonary HTN as a result of chronic pulmonary disease. Pulmonary crackles or wheeze occurs due to crepitations of pulmonary alveolar edema leading to precipitation of NYHA functional class. The third heart sound (S3) is resultant of cardiac strain, which occurs in the rapid filling period of early diastole. It is often present in systolic dysfunction.[17] Abnormal S3 is considered to be caused by altered physical properties of ventricle or increased in the rate and volume of blood flow in the rapid filling phase during the ventricle diastole[18] [Figure 6].

In patients with mild, moderate and severe HF, both systolic and diastolic LV myocardial performances are impaired, which is associated with the increase of LV filling pressures, decrease of cardiac output and worsening of NYHA functional class, thereby detecting an alteration of the global function of the LV.[19]

**Table 4: Distance walked in meters by the patients with heart failure as average mean value along with standard deviation**

| 6 min walk test | Mean | Standard deviation |
|---|---|---|
| Distance walked (*n*=100) | 188.48 | 101.79 |

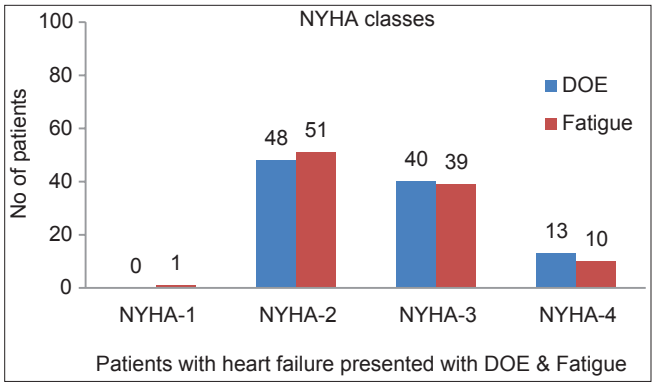


**Figure 3: Frequency chart of heart failure patients (*n* = 101) having dyspnea on exertion and fatigue of New York Heart Association class**

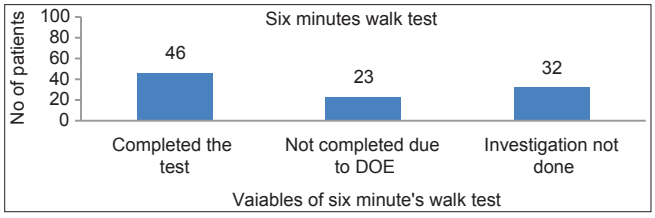


**Figure 5: Determination of exercise capacity through 6 min walk test**

## Discussion (Ayurvedic Perspective)

The *Shwasa* (breathlessness) that appears after exertion,[20] is *Shrama Shwasa* (DOE). It is manifested when *Vayu* is preceded by obstructed *Kapha*, in the *Urah* (chest) passages allowing the disturbed *Vayu* to wander.[21]

*Shrama* (fatigue) occurs due to improper increase of *Meda* (fats) in the body.[22] Authors of classical texts of Ayurveda has explained it in various stages depending upon the type of exertions, i.e., *Shrama*, which appears in mild or no effort (*Aayasa*) – *Klama*,[23] the *Shrama* that appears with moderate effort[24] and that which occurs after severe exertion.[25,26]

Thus, when breathlessness is associated with exertion,[27] it causes all the above mentioned symptoms in stages as *Shrama Shwasa* (DOE). It is one of the symptoms of vitiated *Pranavaha Srotas*.[28] It is caused due to suppression of natural urges,[28] irregular meals and injury to vital parts (i.e., *Hridaya Marma*),[29] leading to *Hridroga*.

*Shrama Shwasa* (DOE) is also found as one of the dominant symptoms in obesity (*Athisthaulya*) combined with *Daurbalya*

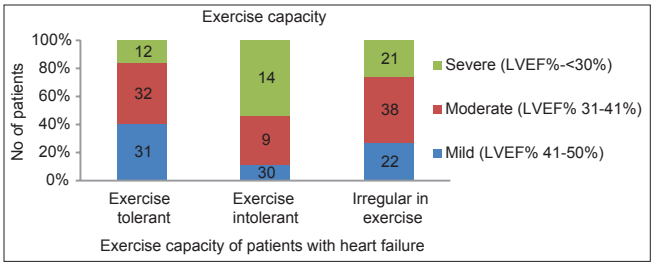


**Figure 4: Stacked column in percentage of exercise capacity of patients (*n* = 101) as exercise tolerant and exercise intolerant in mild, moderate and severe heart failure patients along with patients with irregular exercise habit**

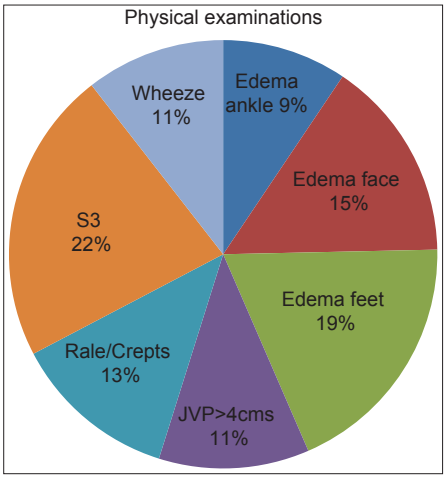


**Figure 6: Pie chart of percentage of patents presenting clinical signs of volume overload in chronic heart failure**

(fatigue). This happens due to insufficient nourishment, causing imbalance in *Dhatu* formation.[30,31] It is also due to the vitiations in part (*Ansha*) of *Kayaagni*,[32] present *in Dhatus*,[32] especially in *Rasa*, *Rakta*, *Mamsa* and *Meda*. This vitiation is a resultant of improperly processed metabolites present in the alimentary canal *Aama*.[33]

When *Vayu* moves about abundantly in *Koshtha* (belly) due to obstruction by *Meda*, it stimulates the *Agni* followed by *Pachana* (digestion). This enables the person to digest food quickly and desire for more frequent food intake. Eventually, accumulates more *Meda* and *Mamsa* making pendulous buttocks (*Sphik*), breast (*Sthana*) and belly (*Udara*),[31] making the body more and more bulky (*Sthula*).

Since *Hridaya* is the origin of *Pranavaha Srotas*,[9] its vitiation causes morbidity in the heart. As it is also the origin of *Rasavaha Srotas* morbidity in the heart causes *Hridrog* (cardiac disorders) leading to disturbances in *Rasavikshepana* (ejection of rasa), eventually above vitiations gives rise to *Shrama Shwasa* as a *Pradhana Lakshana* (predominant symptom).

*Shrama Shwasa* (DOE) in *Sthaulya* (obesity), is caused due to *Aama* and *Medodushti*, leads to obstruction of channels (*Srotorodha*), fatigue (*Daurbalya*) and Severe fatigue (*Klama*).[34,31] Thus, *Shrama shwasa* (DOE) in obese condition, enables the *Hridaya* as *Rasavaha Srotas*, inefficient to pump sufficient nutrients to the entire body leading to improper formation of *Dhatu*[31,35] This results in exercise intolerance (due to malnourishment) leading to DOE in turn. This cycle is repeated at the cost of further vitiations in *Pranavaha* and *Rasavaha Srotas* making the *Hridaya* more and more weaker to pump resulting into *Hridaya Daurbalya*.

## Etiopathology *Anukta Vyadhies* (Disorders not Mentioned in *Ayurvedic* Texts)

Morbidity in *Dhatus* depends on the quality of *Doshas* contributed through their life-styles (*Ahara* and *Vihara*).[36] Frequent suppression of natural urges such as flatulence, bowel, urine, sleep and DOE redirects the *Vata* in the opposite direction (*Prathilom Gati*) vitiating *Pranavaha Srotas* leading to further precipitation in DOE. This redirected *Vata*, due to above factors aggravates *Vyana and Apan Vayu* in *Prameha* (DM2),[37] disturbances in *Gati* (speed),[38] by abnormal speed,[39] of *Vyana Vayu* leads to morbidity in *Vahana* function (circulation),[40] of *Rasa*, *Rakta* across the body,[41] causing an *Anukta Vyadhi* like HTN, dilation of *Hridaya* as *Hrid Vyasa*, i.e. DCMP, caused due to vitiated *Vata*.[42] Breathlessness is manifested even due to injury of *Hrid-Marma*,[43] (a vital spot), which in turn is caused due to above suppressions.[44]

Frequent irregular meals like munching, late night dinner (*Akaala Bhojana*) causes breathlessness.[45], Munching (*Adyashana*) or over eating (*Atimatra Ashana*) contributes to vitiations of *Meda* along with *Rasavaha Srotas-Hridaya*, leading to the formation of *Aama*, blocking the channels (*Srothorodh*) in case of post-MI patients.

It is bad to eat anything before 3 h and starve for more than 6 h.[46] Frequent starving (*Anashana*) leads to aggravation of *Vata* and *Ojakshaya*,[47] causing HTN and post-MI. Serious psychological stress has a negative impact on the heart,[48] which can contribute to all the comorbidities precipitating the present status.

Severe fatigue in obesity is one of the symptoms caused due to over saturation of *Doshas* as *Bahudosha*,[49] which needs to be managed as diseases caused due to over saturation. A patient of HF coexisting with such conditions has obesity as one of its complications, which is always associated with vitiation of *Medodhatu* along with *Vata* and *Kapha*.

## Role of *Vyana Vayu* and *Avalambaka Kapha* in HF

There is a tremendous amount of moist exudates (*Kleda*) formed due to the vitiation of *Kapha* and *Meda* in HF patients especially in comorbidities mentioned above. The management of fluid in the body (*Ambukarma* of *Avalambaka Kapha*) is disturbed in such patients. Normally, *Avalambaka Kapha* should support the *Hridaya* with the help of *Anna-Veerya* (by the power of the essence of food). However, those in case of HF with DM2, this function are disturbed more predominantly. The *Aama* formed here causes edema (*Gaatrashoth*).[50] The wheeze and crepitations are due to vitiation of predominant *Vata* and *Kapha* in *Pranavaha Srotas*.

The distribution of nutrients across the body is disrupted along with *Vyana Vayu* in the *Hridaya* established as left ventricular systolic dysfunction. Thus, the abnormalities of fluid management (*Ambukarma*) in the *Hridaya* along with vitiations in contraction and expansion function of *Vyana Vayu* as *Akuchana* and *Prasarana karmas* (contraction and expansion of the heart) respectively, enables improper distribution of nutrients (*Rasa*) across the body. This dys-synchrony in contraction/expansion of vitiated *Vyana Vayu* along with imbalance in volume status due to vitiated *Avalambaka Kapha* in the *Hridaya* gives rise to the third heart sound instead of two.

### Exercise performance (*Vyayama*)

There is a vicious cycle occurring in HF patients regarding exercise performance, i.e., DOE increases with exercise as *Vyayam* (exercise) is a causative factor in *Pranavahasrotas Dushti*, but it is mandatory to do so in patients with *Medovahasrotas Dushti*. Thus, DOE does not allow the *Medas* to be destroyed in Obese, enabling them to be more exercise intolerant at the cost of poor performance of *Hridaya as Rasavaha Srotas*.

### Preventive measures

The condition of obesity should be managed by destroying excess of *Vayu*, *Kapha* and *Meda* in the belly.[51] Consumption of salt less than 2 g a day, fluid restrictions <1.2 l a day and a constant vigilance on weight management were the instructions given to all patients of HF as advised by American Heart Association.

## Conclusion

*Shramashwasa* (DOE) is associated with *Sthaulya* (Obesity) as well as *Hridroga* (cardiac disorders). If ignored (suppressed) becomes a cause of *Hridroga*. It is one of the *Pradhana Lakshana* (Prime symptom) found in HF. *Anukta Vyadhies* such as HTN, DCMP and MI along with *Prameha* (DM2) are the major cause of *Sthaulya Janya Hridrog* leading to HF. Due to constant association of *Sthaulya*, *Hridrog and Shramashwasa*,

patients become intolerant to exercise, leading to further precipitation of *Hridaya* to perform *Rasa Vikshepana* with difficulty resulting into *Daurbalya* in the *Hridaya* causing HF. Vitiation and accumulation of *Vata*, *Kapha* and *Meda* in patients of HF from *Sthoulya* origin was evident as an increase in the body weight and raised BMI.

Etiological factors such as, frequent munching, starving, late night dinner, suppression of natural urges like-flatulence, bowel, urine, sleep and DOE proved to be vital and prone for above complications. Vitiations in *Vyana Vayu*, *Avalamabaka Kapha* and *Rasa Dhatu* are the major contributors to disturbances in *Rasa Vikshepana* functions leading to overt HF.

### Implications

The study of oxygen perfusion in the lungs after 6 minutes walk test through spirometry needs to be studied and implied through Ayurved perspective.

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# हिन्दी सारांश

## मेदोजन्य दुष्टि से उत्पन्न श्रमश्वास का हृद्दौर्बल्य के रुग्णों में–निरीक्षणात्मक अध्ययन

सावित्री वासुदेव बैकम्पाडि

आधुनिक चिकित्सा पद्धति मे भले ही बहुत प्रगति हुई है परन्तु हृदय विकार से पिडित रोगी जो उत्तरोत्तर हृदय दौर्बल्य के शिकार हो चुके हैं, उनके जीवन मे सुधार या उनके लक्षणों पर नियन्त्रण, आज भी एक शोधन का विषय है । लोगों ने अपने आपको इस बदलती आधुनिक जीवनशैली मे इतना ढाल लिया है कि वे – निरन्तर संतर्पण जन्य व्याधियों के शिकार हो रहे हैं । ऐसे विकारों में दोषों का संचय इतना प्रबल हो जाता है कि वे बहुदोष लक्षणों को दर्शाते हैं; जैसे श्रम–श्वास, दौर्बल्य इत्यादि। रोगी आमजन्य विकृति के अलावा स्थौल्य, प्रमेह, वातव्याधि जैसे विकारों के भी शिकार हो जाते हैं । इन्ही उपरोक्त कारणों से हमने मेदोजन्य दुष्टि के कारण होनेवाले श्रमश्वास, जो हृदय दौर्बल्य मे प्रबल रूप से दिखाई देता है, पर संशोधन करने का प्रयास किया है तथा प्रयत्न है कि ऐसे रोगियों की जीवनशैली मे सुधार आ पाये ।