REVIEW OF KARSHYA W.S.R. TO UNDERNUTRITION

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ABSTRACT

Karshya is a clinical condition which can be correlated with Undernutrition. In this disease the body gets emaciated gradually. It is also an ApatarpanjanyaVyadhi. Among the eight socially undesirable Persons (purush) as mentioned by CharakKarshya has been categorized under nutritional deficiency. Rukshaannapan, Langhana, Promitasan etc. are the main causative factors of Karshya. They all causes aggravation of Vayu alteration of Agni leads to insufficient production of Rasa dhatu along with other Dhatus chronologically. SushkaSphigaUdarGriba etc. are the main clinical features of Karshya which can be clinically assessed by Anthropometric measurement like BMI, MUAC, Waist and Hip circumference. Proper diagnosis and treatment is very much necessary in Karshya because untreated cases are prone to develop Pleeha, Kas, Kshaya, Swas, Gulma etc. diseases which may become life threatening at any time. In Modern perspective Undernutrition is an outcome of insufficient food intake and repeated infectious disease. This article explains the Ayurvedic view of nutritional disorder which will help in diagnosis as well as proper management of the disease.

Keywords: Karshya, Undernutrition, Apatarpan

INTRODUCTION

Karshya is an Apatarpanjanyaavyadhi. It is a disease in which the body get emaciated, gradually. According to CharakKarshya is described under eight despicable persons (AstauNinditiyaPurush) (1). Ultimately the patients of Karshya are subjected to Balahani (loss of immunity) and proceed towards death (2). These eight physical states are described considering its unwanted clinical and social complications. These undesirable diseases are hereditary, hormonal, and nutritional in origin. In course of time following the untried exploration of ancient physician, afterward the social or community medicine is developed. An approach is made to prevent and treat the disease that is based on the study of human heredity, environmental social structure and values. Among the eight socially undesirable persons as mentioned by Charak, Karshya has been categorised under nutritional deficiency. Aetiology aetiopathogenesis, sign and symptoms and treatment of Karshya is described in
detail in CharakSamhita, Sutrasthan 21st Chapter to combat Karshya and sustain health in community therefore in nation.

Altered function of Vayu and Agni leads to insufficient production of Rasa Dhatu. Upososhan of Rasa Dhatu takes place leading to Dhatuk haya chronologically. Hence the patient of Karshya suffers from indigestion, malabsorption and defective metabolism. Meda and Mamsadhatuk haya at microscopical level, ultimately express its symptoms macroscopically. These sequences are very much correlated to under nutrition.

Under nutrition is defined as the outcome of insufficient food intake and repeated infectious diseases. It includes being under weight and height from one’s age (stunted growth) with associated vitamin and mineral deficiency (UNICEF). According to FAO reports there are about 460 million, i.e., 15 percent of the world population excluding China who are malnourished, of which about 300 million live in South Asia constituting one third of the population. Globally priority is given to malnourished persons as kwashiorkor, marasmus, xerophthalmia, nutritional anaemia, endemic goitre, morbidity in young children, retarded physical and mental growth takes place as a squeal.

AIMS AND OBJECTIVE
Hence the study is aimed on—
(i) Compilation of Karshyaroga from various ancient literatures and its correlation with under nutrition
Conceptual part:
Definition and etymology of Karshya :
Derivation of the term k iśa / karśya

The term Karshya is clinically related to the word Krisha. Krisha is a constitutional state in the human beings as described in the ancient literatures. It is stated as an undesirable physical constitution.

Literally derivation of this two term krisa and Karshya are following:

- K is – To become lean and thin, become emaciated or feeble, to wane, attenuate, emaciate, keep short of food
- K śa – tanukarane ... alpesuk me

So the above mentioned derivations signify that the term Karshya is derived from the word K isha which means to keep short, to become lean, emaciated, to lessen, diminished, alternate, weak, feeble, spare, small, little, minute, insignificant.

The word K śa is derived from “k šatanukarane” dhatu which means Alpa,Suk hma. Literally the small substances or particles are denoted as Krisha.

Definition of Karshya
The commentator AcharyaDalhan has explained the meaning of AtiKarshya while commenting on the Susruta verse as—
“Soatik iśaityanenopachayalak anbalābhābod arśitah”
--So it literally means reduction in Upachaya, Rupa and Bala.

Nidan of Karshya
AharajaNidan:
- Kashaya rasa atiseban
- Langhana
- Promitasan
- Rukshaannapan
- Vatalaahara
ViharajaNidan
- Atisnanabhayas
- AtiVyayama
- AtiVyavaya
- Dhyana
- Nidra Nigraha
- KshudaNigraha
- Pipasa Nigraha
- RukshaUdvartan

ManasikNidan
- Bhaya
- Chinta
- Krodh
- Shok

Evaluation of NidanSamprapti in Karshya:

Rukshannapan

Rukshaguna causes Kharatwa (roughness), Vaisadya (non-sliminess), Roukshwa (dryness). The substances which are consisted of Roukshwa, Laghu, Khara, Tikshna, Ushna, Sthira, Apicchila, are causing Roukshan Karma

Rukshaannapan is constituted of intake of katu(pungent), tikta (bitter), kashaya (astringent) substances oil cakes of mustard, tila, honey, etc.

Rukshaguna is predominant by Vayu.Vayuis consisted of Suksma, Ruksha, Khara, Shishir, Laghu, Visadguna. Due to these qualities it causes Laghaba, Glapana, Virukshan, and Vicharan. The resultant action of these mentioned qualities denote the absolute cellular degeneration and decrease secretion of hormone.

The root of Pranavahasrota is Hridaya and Mahasrota. Pranavahasrota is mainly VayuVisi taSrota where directly respiration taken place. As Pranvahasrota get affected therefore Kasa, K haya, Swas, etc. occurs in the tertiary stage of Karshya.

Langhana

Langhana is a process which reduce the body and the substances which has been consisted of Laghu, Ushna, Tik hna, Vi ada, Ruksha, Kshara, Sara, Kothinaguna (light, hot, sharp, non-slimy, rough, subtle, respectively). Langhana is of 10 types. Four types Samsuddhi (elimination therapy – Vaman, Virechan, Niruha and Nasya), Pipasa (control of thirst), Marut and Atap Seban (exposure to wind and sun), Pachan (digestion stimulates), Upabas (fasting), Vyayama (physical exercise).

Langhana therapy reduce the strength of the patient due to aggravation of Vayu. Vayu gets aggravated by the destruction of the Dhatu and also by the obstruction of the channels of circulation. Langhana aggravate the destruction of Dhatus. Trishnanipirana (Thirst), Atapseban (exposure to sun), AtiVyayama (excessive physical exercise), directly afflicts Ambubahasrota, Raktavahasrota, Asthivahasrota and Swedavahasrota respectively. The root of Ambuvahasrota is Talu and Kloma, Raktavahasrota is Yakrit and pleeha, Asthivahasrota is Meda and Jaghana, Swedavahasrota is Meda and Lomakupa. All these Srotas get affected in Karshya resulting K haya, Pleehavriddi, Twakasthirosh, SushkaSphigaUdarGriba respectively.

Pramitasan
For the maintenance of positive health, adequate quantity of ingested food plays an important role in construction and nourishment of body, but the inadequate quantity of food is termed as Pramitasan. The quantity of food is depended upon the power of digestion, absorption, and metabolism. Subsequently it varies according to the season and age, of an individual. Quantity of food is categorised as the food as a whole and the food of different ingredients. If the food as a whole is taken according to the prescribed quantity but its ingredients has different taste like sweet, sour, etc. are not in prescribed ratio, then the equilibrium of Dhatus and Doshas get definitely disturbed due to imbalance in the ratio of composing rasa and consecutively digestion of food will also be affected. It is also a type of Pramitasan. Quality is also very important. Quality of food is of two types - heavy food and light food. Light foods are dominated by qualities of Vayu and Agni Mahabhuta, and by nature it stimulates the appetite.

These light foods are very easy to digest on contrary to heavy foods which are dominated by the qualities of Prithvi and JalaMahabhuta. These types of food are difficult to digest. The light food in minimum quantity or inadequate quantity aggravates Vayu resulting in depletion of Dhatus. The regular intake of heavy articles such as Bollura (dried meat), Sushkasak (dried leafy vegetables), Saluk (lotus rhizome), Visani (lotus stalk), Kurchika (boiled butter milk), Kilat (inspired milk), Soukar (pork), Gabyamamsa (beaf), and mas (black gram), are contraindicated in maintenance of good health. The magnitude of Pramitasanin terms of inadequate quantity not only represent the minimum quantity but also the improper quality of food articles which are not easily digestible, resulting the suppression of Agni and ignite Vayu, which ultimately affect digestion, absorption and metabolism at G.I. tract level resulting in Rasa k haya and Karshya.

Kriyatiyog

The term Kriyatiyog is implied here in respect to the administration of Vamana, Virechana, Niroha-anuvasan, nasya and sirovirachan in excess. The excessive administrative of Vaman leads to the manifestation of Trishna (thirst), Moha, Murcha, Anilkopa, Nidrahani, Balahani etc. Subsequently excessive administration of Virechana causes Kapha and Pitta kshaya which results Anilkopa, which causes Suptata, Angamarda, Nidralpata, Balabhav, Tamarpraves, Unmad, Hikkaetc. Excessive administration of Nirohaavasti causes the sign and symptoms identical to that of due to excessive Virechana. This sign and symptom due to excessive administration of Panchakarma ultimately causes aggravation of Vayu in specific. The aggravated Vayu causes the depletion of Dhatus in terms of pathogenesis of Dhatukshaya and cause Karshya.

Shoka

Shoka is a psychological phenomenon which signifies the miserable state causes due to death of the closest-relative. This condition leads to aggravation of Vayu.

VegaNidra Vinigraha

Forceful suppression of all the physical urges, specially the suppression of sleeping urge leads aggravation of Vayu, in specific. Pranavahasrota gets affected due to suppression of urges with manifestation of severe breathing difficulty. Night awakening (Ratri-
jagaran) causes roughness in the body as result of the aggravated Vayu, (with the manifestation of Sushka-Sphiga-Udara-Griba-Dhamani-Jala-Santato.

**RukshmaUdvartan**

Udvartan is done after Abhyanga for the external purification of the body. This action naturally mitigates Kaphahara, Medaprabilayanam. Excessive Udavartan or massaging of the body with RukshaDravya causes excess MedaPravilayan (fat depletion) resulting Dhamani-jala-santata.

**SnanAbyas**

Snan improves the physical and mental strength of the body but on other hand it is strictly contraindicated in ArditaRoga which signifies that excessive Snan causes aggravation of Vayu.

**Prak itirJvara**

The term prak iti stands for “Beej” or hereditary. Heredity plays a prime role for krisha. Though apparently they are Krishna but significantly they do not present the sign and symptoms of Krishna, where as in case of accelerated biological aging due to hereditary causes presenting the absolute clinical features of Karshya.

**Vikaranusaya**

The diseases naturally cause Karshya in due course of time proceeds towards degeneration in different level at the site of pathogenesis.

**Purvarupa of Karshya**

Diseases are produced with some specific sign and symptoms and definitely by the cardinal signs, but at the time of the onset of disease when Doshas get lodged in a specific site and Dushya is also vitiated the then prior to those manifestations some specific features are manifested and termed as Purvarupa. Therefore, Purvarupa is that which represent the forthcoming disease. In KarshyaRoga no such specific Purvarupa has been mentioned.

**Rupa (Clinical features of Karshya)**

- Sushka, Sphiga, Udar, Griba (Emaciated buttock, abdomen, neck region)
- DhamanjalaSantato (Prominent venous network)
- TwakAsthishesh (Skin bone appearance)
- SthulaParba (Prominent joint)
- Patient can’t tolerate
- AtiVyaayama (excessive exercise)
- KshutPipashaOushadha (Hunger, Thirst, Medicines)
- AtiShitaUshnamaithuna (excessive cold, hot, sexual intercourse)

**Samprapti:**

The causative factors of Karshya aggravate vayu which ultimately vitiate the Agni causing Agnimandya, subsequently leading to formation of Ama. Following the absorption of Ama in the system from gastrointestinal tract the system treats the Amaas a toxic material. Ama migrates to the heart and spread through the rest of the body channels. Ama by the virtue of its quality of Daurgandhatva, Picchilatva, Tantumatva, Guruta, obstructs the minute vessels. Accordingly due to, movement of Ama the nutritive materials cannot reach their destination. Ultimately there is a sequence of malformation of chronological formation of Dhatus. Consumption of food that of no nutritive value is incapable to form Raktadhatus. Consequently the volume of blood depletes...
and its function gets retarded, since nutritive nutrition is hampered and the degenerative process leads to *Karshya*.

**SCHEMATIC PRESENTATION OF KARSHYA**

<table>
<thead>
<tr>
<th>AHARAJA</th>
<th>VIHARAJA</th>
<th>MANAS</th>
</tr>
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<tbody>
<tr>
<td>Rookshaannapan</td>
<td>Ativyayama</td>
<td>Chinta</td>
</tr>
<tr>
<td>Alpo bhojan</td>
<td>Ativyavaya</td>
<td>Bhaya</td>
</tr>
<tr>
<td>Langhana</td>
<td>Atiadhayana</td>
<td>Shok</td>
</tr>
<tr>
<td>Kāsaya rasa seban</td>
<td>Bharvahan</td>
<td>Krodh</td>
</tr>
</tbody>
</table>

- Vatvriddhi
- Rukshagunavriddhi
- Uposhosan of Rasadhatu
- Rasakshaya
- Jatharagni
- Dhatwagni
- Mandya
- Mandya
- Malformation of Rasadhatu
- Malformation of other dhatu
- Rasak haya
- Dhatuk haya
- Absence of Prinan or AlpaPrinan
- Alpaposhan of dhatu
- Specially Mamsak haya, Medak haya, Tvachasuskata
- Karshya
Samprapti Ghatak:
- Dosa - Vata
- Dusya - Rasa dhatu
- Agni - Mandagni
- Ama - formation of ama due to agnimandya
- Udvadhanath - Amasaya
- Srotas affected - Rasa vaha, raktavaha, medavaha, mamsavaha,
- Type of Srotodusti - Sanga
- Rogmarga - Abhyantarrogamarga
- Vyaktasthah - Sphiga, Udar, Uriba, Twak, Asthi
- Vyadhiprakar - Chirakari.
- Sadhyasadhyatwa - Kricchasadhya

Upadrava of Karshya
The Karshya patients are prone to develop the following diseases like Pleeha, Kas, Kshaya, Swas, Gulma, Arsha, Udar, Grahani.

CHIKITSA SUTRA (PRINCIPLE OF MANAGEMENT):
1. Laghu Dravya Santarpan Chikitsa that means light and nourishing diet should be administered in Karshya Rogi. (18)
2. In chronic state of Karshya the refreshing therapy should be administered slowly depending upon the physical constitution, power of digestion, Doshas vitiated, nature of therapy, dose, season and time of administration. For such patients, meat soup, milk and ghee of different animals, different types of bath, enema, massage and nourishing drinks are useful.

PATHYAPATHYA:
Pathya

Ahar:
Intake of freshly harvested rice, fresh wine, meat soup of domestic marshy aquatic animals, curd, ghee, milk, sugarcane, Sali rice, masa, wheat sugar candy preparations etc.

Vihar:
Sleep, joy, comfortable bed, contentment, tranquility of mind, abstinence from anxiety, sexual act and physical exercise, pleasant sight, regular oil massage, unctuous unction bath, use of scents and garlands, use of white apparel etc.

Ousadh:
1. Enema consisting of unctuous and sweet drugs, elimination of Dosas in time and administration of rejuvenating and aphrodisiac drugs.
2. Payashya, Aswagandha, Salparsi, Shatavari, Bala, Atibala, Nagbala, etc. Madhuradrugs should be administered.

Apathya:
Intake of pungent, bitter and astringent substances, oilcake of mustard and til, honey, sexual indulgence, night awakening, excessive physical and mental exercise etc should be avoided in Karshya.

PROBLEM OF MALNUTRITION
Malnutrition has defined as a pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients. It comprises four forms:

I. Undernutrition
II. Overnutrition
III. Imbalance
IV. Specific deficiency
1. UNDERNUTRITION- This is the condition which results when insufficient food is eaten over an extended period of time. In extreme cases, it is called starvation.

2. OVERNUTRITION- This is the pathological state resulting from the consumption of excessive quantity of food over an extended period of time. The high incidence of obesity, atheroma and diabetes is attributed to over nutrition.

3. IMBALANCE- It is the pathological state resulting from a disproportion among essential nutrients with or without the absolute deficiency of any nutrients.

4. SPECIFIC DEFICIENCY- It is the pathological state resulting from a relative or absolute lack of an individual nutrient.

Definition of Under Nutrition

Undernutrition is defined as the outcome of insufficient food intake and repeated infectious disease. It includes being underweight for one’s age, too short for one’s age (stunted), dangerously thin for one’s height (wasted) and deficient in vitamins and mineral (micronutrient malnutrition) [UNICEF]. On other side it is defined as deficient bodily nutrition due to inadequate food intake or faulty assimilation.

Types of malnutrition

Malnutrition is a group of condition in children and adults generally related to poor quality or insufficient quantity of nutrient intake, absorption or utilization.

There are two major types of malnutrition:

1. Protein energy malnutrition- resulting from deficiencies in any or all nutrients.

Under nutrition can be assessed by Anthropometric measurements like BMI (weight in kgs/Height in meter$^2$) mid upper arm circumference, Waist and Hip ratio.

<table>
<thead>
<tr>
<th>BMI (kg/meter$^2$)</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;30</td>
<td>Obese</td>
</tr>
<tr>
<td>25-30</td>
<td>Over Weight</td>
</tr>
<tr>
<td>&lt;18.5</td>
<td>Moderate malnutrition</td>
</tr>
<tr>
<td>&lt;16</td>
<td>Severe malnutrition</td>
</tr>
</tbody>
</table>

DISCUSSION

Thorough literally review reveals that in ancient classics Karshya has been categorized as an undesirable sociological condition. In these disease constitutional features of an individual is altered.

In Charak Samhita, the disease of Karshya is described in a view of nutritional deficiency. As Charak considered this condition as an undesirable phenomenon, hence line of treatment and principle of management is advised as because of Karshya become susceptible to many other systemic diseases, like, pleeha, Kas, K haya, Swas, Gulma, Arsha, Udar, Grahani. Karshya should be treated as early as possible to combat these diseases Charak has described in detail about the disease Karshya in Astoni-ditiyaAdhaya.
Sushruta has also considered Karshya as a clinical state of under nutrition. The role of rasa in genesis of Karshya has been described. This sequence of chronological Dhatuk haya, Ojak haya and Balak haya is emphasized. This clinical condition is to be treated accordingly with classical therapies as mentioned. In context of Karshya Dalhan has mentioned the definition of Karshya. The concept of immunological deficiency due to Dhatuk haya is contributed.

In Astanga Hridaya Karshya is mentioned as an adverse effect of Langana. Following Sushruta, administration of Brimhan therapy is also advised in Astanga H idaya.

In Kashyap Samhita Karshya is included in Vataja Roga. In treatment schedule Brimhan therapy is highlighted.

In Madhav Nidan separate chapter regarding Karshya is not found, but the state of Karshya holds its great clinical importance almost in every aspects during description of various systemic diseases. So Karshya in Madhav Nidan is described on Roga Lakshana rather than individual Roga.

Sarangadhar has included Karshya in Nanatmaja Vatavyadhi.

In Bhav Prakash Karshya has been depicted as a separate chapter. The Nidan, Lakshana, Samprapti, Chikitsa all are explained here.

In Yogaratnakar Karshyaroga is mentioned in the Medoroganidan. Rukshannapan, Langhana, Promitasan, Kriyati yoga, Shok, Vegadharan, Nidranigraha, Ruksha udvartan, Atisnanabhayasa, Prak itijara, Ati Vyayama, Ati Vyavaya, Dhyan, Adhyana, Ati Seban of Kashaya rasa, Vatalaaharaseban, Kshudanigraha, Pipashanigraha, Krodh and Vikaraanusaya are the aetiological factors of Karshya. These factors have been categorized into dietary factor, behavioural factor, malpractices, mental factors and iatrogenic factor as described in disease review. All these factors favour aggravation of Vayu and formation. Aggravation of Vayu causes Uposohan of Rasa dhatu in both Pachakagni and Dhatavagni level. The exaggerated Rukshaguna of Vayu, Ushnaguna of pitta and loss of Snigdhaguna of Kapha causes Soshankarya of Rasa dhatu in Jatharagni level. So Rasa dhatu is not formed properly. The main function of Rasa dhatu is Tusti and Prinan which means Rasa dhatu provides nutrition to onward Dhatus. This function is hampered. Formation of Ama in Dhatavagni level hampers the ultimate absorption and metabolism of Rasa dhatu. Dysfunction of these Vyanvayu in Karshya causes defective transformation and circulation in metabolic activity phenomenon jointly causes alteration in digestion, absorption and metabolism in Jatharagni and Dhatavagni level, hence formation and nutrition of Dhatus in chronological order is not maintained. Patient suffers in chronic Agnimandya and Dhatuk haya. This causes gross malnutrition in a patient of Karshya.

As a sequel of malnutrition there is loss of fibro muscular component in the extremities. Fat depletion, burning of fat causes loss of peripheral adipose tissue. The patient suffers from immunological deficiency and become susceptible to many diseases like Pleeha, Kas, Swas, K haya, Gulma, Arsha, Udar, Grahani, Vataroga, Agnisad, Raktapitta etc.
Table 2: Showing the conceptual correlation between Karshya and Undernutrition

<table>
<thead>
<tr>
<th>Karshya</th>
<th>Under Nutrition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karshya is considered as a disease</td>
<td>Under nutrition is a state of malnutrition.</td>
</tr>
<tr>
<td>Etiopathogenesis and treatment is described separately.</td>
<td>No specific pathogenesis is mentioned.</td>
</tr>
<tr>
<td>Mentioned as both Lakshana and Roga.</td>
<td>Symptoms of multidimensional factors.</td>
</tr>
<tr>
<td>Specific medicine along with dietetic regimen is mentioned in classical text.</td>
<td>Importance is given on dietary regimen than specific medicine.</td>
</tr>
<tr>
<td>Karshya is described with an approach to prevent several diseases like Gulma, Arsha, Udar, Griba etc.</td>
<td>Malnutrition predisposes infection and infection to malnutrition.</td>
</tr>
<tr>
<td>Typical sign and symptoms are SushkaSphiga, Udar, Griba etc. are mentioned.</td>
<td>Measurement of BMI, MUAC, Waist Hip ratio etc are recommended by WHO as the universal tool.</td>
</tr>
</tbody>
</table>

**CONCLUSION**

Karshya is a disease caused by nutritional deficiencies in which the body gets emaciated gradually. Mainly the gluteal region, abdomen and neck show gross bulk muscle loss and subcutaneous fat depletion. This condition is correlated with undernutrition.

The description of Karshya as a disease along with its diagnosis and treatment are available in classical text of Ayurveda. A systemic study of these conditions provide insight in to hazards of nutritional deficiency. And represent different aspects of nutritional deficiency and proper understanding of pathogenesis of condition provide valuable key for the effective management.

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