

SIGNIFICANCE OF WATER IN HEALTH SCIENCE: PERSPECTIVE OF AYURVEDA

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ABSTRACT

Water is said to be the life of all living creatures on this planet. Water is required not only for drinking for the purpose of sustenance of life but it possesses the capability of healing many of the physiological and psychological ailments. Ancient Ayurvedic scholars have described varieties of water depending upon its properties, sources, types and season. Two types of water i.e. hot water and cold water have been given much preference for various purposes. Intake of hot water is found to be much beneficial for maintenance of agni, better digestion and balancing the three doshas for which water is said to be best wholesome. It was revealed that in Ayurvedic literature more emphasis is given for internal use of water considering its action directly on jatharagni and tridosha. However, in contemporary science like Hydrotherapy emphasis is laid on external application of water. Although, the basic principle of Panca-mahabhuta behind both is same.

Keywords: Water, Ayurveda, Hot water, Cold water, Hydrotherapy.

Introduction-

Water is defined as clear, transparent, colourless, odorless and tasteless liquid. Life first evolved in water, thus it is essential for the maintenance of many forms life on earth. It is an excellent solvent for many of the substances. Water covers 71% of this earth in different forms. Not only human beings but also other creatures from unicellular to multicellular require water for their survival. Plants need water in the process of photosynthesis.

There is famous quotation of *Vridhha Chanakya* "There are actually three gems on this earth-food, water and beautiful speech, but fools have designated pearl and diamond like stones as gems". *Acarya Vagabhata* also quoted that water is the life of all living creatures on this earth and major portion of earth contains water. Healthy or ill-patient both can't survive without water.¹ Water, also called '*Apas*' in Sanskrit, is the fourth one out of five elements of universe (*pancha-mahabhuta*). Water possess properties like cool (*shita*), pure (*shuchi*), *shiva*, sweet (*mrishtha*), *vimala* and light (*laghu*), tasteless (*anirdeshya rasa*), nectar (*amrita*), life (*jivana*), nourishes body (*tarpana*) and wholesome in all conditions.² The purest form of water is said to be of *antariksha* i.e. water in clouds and its properties change according to the quality of place where it falls.³ *Acarya Caraka* mentioned three types of water which are *Aindra*, *Kara* and *Hima*⁴; whereas *acarya Sushruta* described four types viz. *Dhara* (free flowing water), *Kara* (snowfall), *Taushara* (dew) and *Hema* (water from glaciers)⁵. Water/ *jala* occur in four stages which are *ambha* (above solar system), *marichi* (in between solar system and earth), *mara* (water present on earth) and *apa* (underground water).⁶ Water is the base of the six tastes (*shadrasa*) and the sense of taste (*rasanendriya*).

Aims and objective-

Water being the most essential substance for the sustenance of life, the aim of this study was focused on exploring the different aspects of utilization of water as mentioned in Ayurvedic literatures. Along with this, comparative study on usage of water in Ayurveda and contemporary science i.e. Hydropathy in the field of health maintenance and management of various ailments is done.

Water and our Body-

Origination of life in water proved its essentiality in the sustenance of life. Water plays vital role in assisting many of the physiological processes within the body and as a solvent providing medium for various metabolic reactions. It is essential for the maintenance of homeostasis of body, tonicity, regulation of body temperature, helping the brain functions, acts as a shock absorber for brain, spinal cord and fetus, forms saliva, aiding in digestion, helping in nutrient absorption, lubricates joints, flushing out several metabolic wastes, preventing several diseases etc. It is useful to body both internally as well as externally which varies according to place, quantity, time (day or season) etc.

Physiological aspect of Water-

Up to 60% of adult human body is water. Source of water intake in our body is drinking water and other beverages, but food also contributes a small amount to this. In body, water exists in the form of interstitial

fluid, plasma, intracellular and extracellular fluids, saliva, CSF, lubricant in joints, in gastrointestinal tract as digestive juices, peritoneal and ocular fluids and some amount in adipose tissues and muscular tissues. Water is excreted from body as urine, sweat and some amount in respiration and faeces.

In *Ayurveda*, use of hot and cold water is indicated for both external and internal purposes according to the season and condition of the individual.

a) External uses- Bathing with water removes tiredness and sweat, brings about cleansing of body, aphrodisiac and beneficial for longevity. Besides, it also increases strength and immunity of body. Bathing is also included as nourishing substances (*brinhana dravyas*)⁷. It is advised to use warm water in winter season, cold in summer and luke warm water in spring season for different purposes. River water is contraindicated to be used in rainy season. 'Hansodaka' type of water obtained in only autumn season (*sharada ritu*) is best to be used for various purposes.⁸

b) Internal uses- Water is said to be the best universal drink. It brings about various physiological functions within the body. It is best in bringing calmness and stiffness in the body.⁹ Every time after fatty and oily diet it is advised to take hot water for its better digestion. *Acarya Caraka* stated that stomach should be filled one-third by solid food, one-third by liquid drink and one-third should be left empty for *doshas* to work on it.¹⁰ This reveals that water provides medium and so is required for the digestion. However it is contraindicated to drink sufficient quantity of water just after meal.

c) Method of water intake- It is always advised to drink water wisely. There is a myth among people to drink as much as possible within a day but this is not actually so. One should drink water according to different conditions. Different time of water intake in relation to food brings different results. Drinking water just before meal makes you lean and thin as it decreases the digestive fire (*agnimanda*). Similarly drinking water just after meal results in indigestion by hampering the action of *doshas*. This leads to obesity and aggravates *kapha dosha* in stomach. However, sipping water in between the meal leads to better digestion of food and healthy body.¹¹ One should use warm water to drink after having heavy, fatty or oily food. Even it is beneficial to always prefer luke warm water to drink as it aids the digestive fire. This is why it is said to be the best among *anupana* (after meal drinks).¹² Drinking water in large quantity at a time also pacifies digestive fire and vitiates *pitta* and *kapha* disorders. Specially, when a patient suffering from fever drinks water, it leads to *mandagni, ama-dosha*, thirst, sleep, lassitude, abdominal distension, heaviness, rhinitis, etc.¹³ *Acarya Sushruta* while describing the method of food intake mentioned that water and other drinks should be served in either copper vessel or clayware and should be placed on the left side of food items.¹⁴

Regulation of water balance is through thirst mechanism and ADH mechanism. The thirst centre is present in the lateral nucleus of hypothalamus. As per *Ayurveda*, for the regulation and transportation of water in our body, *udakavaha srotas* (channel system) is present. These channels have their roots in *talv* (palate or roof of mouth cavity) and *kloma*. Causes which bring vitiation in these channels are- hot food and comforts, indigestion, fear, excessive consumption of alcohol, dry foods, habit of withholding the urge of thirst.¹⁵ Symptoms appearing are- dryness of tongue lips palate throat, increased thirst.¹⁶ However, *Sushruta* has mentioned that any type of injury to *udakavaha srotas* will result in severe thirst and immediate death.¹⁷

Pathological aspect of Water-

Water not only supports life but its improper use may also result in various pathological conditions. Over drinking and lesser drinking, both lead to physiological disturbances and eruption of pathological state. Insufficient intake of water is one of the causes of dehydration. The signs and symptoms may vary from dryness of mouth, excess thirst to damage of organs like brain, liver, kidney, mental depression and confusion etc. depending upon severity. Other pathological conditions in which dehydration occurs as symptom include diarrhea (*atisara*), vomiting (*chhardi*), excessive sweating (*atisweda*), and excessive urination (*prameha* and *bahumutrata*).

On the other hand, over hydration or water intoxication result in drowsy, inattentiveness, nausea and vomiting, loss of weight, anemia, acidosis, hemorrhage, shock, muscular symptoms, delirium, seizures etc. Since brain is more vulnerable to it thus behavioral changes appear first.¹⁸ According to *Ayurveda*, over drinking of water leads to *mandagni* (decreased digestive fire) resulting in formation of *ama-dosha*. This *ama-dosha* causes *srotorodha* (obstruction of channels) and thus affecting normal physiological functions of various *dhatu* (body tissues and organs) which further lead to above mentioned symptoms. While modern medicine consider thirst as a symptoms in various diseases, *Ayurveda* has, in addition, described it itself a disease occurring due to vitiated *vata* and *pitta doshas*. These *doshas* after getting vitiated by different causes (physical or mental) dry up drunk water, its channels and water content of the body present in different forms like *rasa dhatu* etc. This results in thirst and desire of drinking more water.¹⁹

Withholding the urge of thirst also leads to various diseases like dryness of mouth and throat, deafness, lethargy, lassitude and heart diseases.²⁰

Besides this, there are many diseases which occur due to intake of impure or polluted water. The water borne diseases include typhoid, diarrhea, cholera, dysentery, hepatitis, malaria, dengue fever etc.²¹

Applied aspect of Water-

Consumption of water according to the properties of water has been very beautifully described in *Ayurveda* which mainly focused on hot use of hot and cold water. On whole, hot water has been preferred in majority of the conditions but certain conditions have been mentioned in which cold water has to be used. Besides this, use of medicated water and contraindication of water has also been focused.

a) Hot water- *Hikka* (hiccups), *Svasa* (dyspnoea), *Naveena jvara* (acute fever), *Pinasa* (rhinitis), *Ghrita* intake, *Parsva roga* (chest diseases), *Galaroga* (throat diseases), *Vata-kaphaja* diseases and after *pancakarma* are the conditions in which intake of hot water is indicated.²²

b) Cold water- It is indicated in thirst, burning sensation, fainting/ syncope, dizziness, *Madaty roga*, *rakta-dosha*, poison intake and other *pitta*-aggravated conditions. In diseases due to *tridosha*, water boiled and then cooled is advised.²³

c) Less water- Consumption of water in small quantity is indicated in *Pandu roga* (anemia), *Uadara roga* (abdominal disorders), *Pinasa* (rhinitis), *Prameha* (diabetes), *Gulma*, *Mandagni*, *Atisara* (diarrhea) and *Pliha roga* (spleen diseases).²⁴

d) Contraindication of water- In burning sensation, dizziness, delirium and diarrhea intake of hot water is contraindicated while cold water is advised.²⁵ In certain diseases like *vatika* disorders of head region, *hikka*, *svasa*, *kasa*, chest injury and to those persons which are involved in singing, excess talking and study, intake of water just after meal is contraindicated.²⁶

e) Medicated water- Water when processed with drugs is called medicated water. It is done according to the disease and type of dosha vitiated. *Shadanga-paniya* (water processed with six drugs) is indicated in fever and thirst.²⁷ In fever occurring due to *pitta-dosha* and alcohol intake, water processed with *tikta-dravya* (pungent drugs) is advised.²⁸ Water added with honey or processed with *trina-pancamula* and *dhanyambu* are advised in thirst.²⁹ Medicated water is also used in fomentation therapy.³⁰

f) *Snanam shramaharanam*³¹- This is well known quotation of *acarya Caraka* that bathing with water is best among the measures to remove tiredness.

g) Withholding the thirst is one of the ten types of lightening therapies.³²

h) In obese person, regular intake of *madhudaka* (water added with honey) is advised to burn their fat and make them lean and thin.³³

i) Water Incompatibilities- Intake of honey with hot water or *Semecarpus anacardium* with hot water; intake of water and honey, oil and water in equal proportions are incompatibles, thus, these combinations should be avoided.³⁴

j) It has to be given emphasis that properties of different formulations of *kritanna varga* (*manda*, *peya*, *vilepi*, *yavagu* etc.) varies according to the ratio of water added to them.³⁵ This reveals the significance of water in preparations of various formulations and food items too.

Hydrotherapy-

Hydrotherapy or water therapy is one of the types of naturopathy. It is also a powerful method to cure variety of ailments. For treating various diseases, it involves hot and cold water combinations with sea water containing sea salts and mud, weeds etc. Such kind of sea water usage for treatment purpose is called 'Thalasso therapy'. Water therapy could be classified into: hydrotherapy and water exercise therapy. Here, water exercise therapy requires special guidance of a trained therapist while hydrotherapy can be performed cautiously at home. Some of the well known procedures are Enema, Sitz bath, Spinal bath, Colon irrigation, Foot bath, Arm bath, Jacuzzi, Steam bath, Circular bath, Underwater massage, Immersion bath, Wet pack, Ice pack, Compresses, Fomentation etc.³⁶ These different types of procedures are according to various ailments of different body parts. This therapy involves application or exposure of water to the body part for specific duration of time. Bathing methods vary according to temperature of water utilized, area to be exposed and additional substances added to it.

Discussion-

Each and every substance in this universe is made up of five elements (*panca-mahabhuta*) and there is no substance on this earth which is not a medicine.³⁷ Thus every substance should be used wisely to maintain health and cure ailments. Properties of water make it a powerful natural weapon for curing different ailments as it touches every part of body. It can store energy. However, consumption of water in wrong way definitely results in pathological conditions. It has been stated by *Caraka* that strength, health, longevity and life are dependent on *agni* (digestive fire) and food and water are the fuels of this fire. If one doesn't

consume food and drinks his *agni* will burn whole body.³⁸ Water being the base of many metabolic reactions, medium of transportation and elimination of various waste products from body and maintaining the homeostasis of body it has got much significance in the sustenance of life.

It was found that maintenance of normal physiology and cure of different ailments mainly depend upon two types of water i.e. hot water and cold water. Describing the properties of hot water *acarya Caraka* stated that consumption of hot water pacifies *vata dosha*, increases *agni*, dries *kapha dosha*, is easily digestible and pacifies thirst.³⁹ *Acarya Sushruta* added to it that hot water burns fat, digest *ama-dosha*, purifies bladder, cures cough, dyspnoea and fever and is always most wholesome.⁴⁰ While, cold water by its cool potency and suppression property pacifies *pitta dosha* and diseases related to it like delirium, burning sensation, diarrhea etc. *Vridhha Chanakya* also analyzed that hot water intake in indigestion in place of food acts like medicine, intake of water after complete digestion of food increases strength, sipping water within the meal acts like nectar (*amrita*) and drinking water just after meal is just like poison.⁴¹ Further in *Kshemakutuhala*, it is stated that excess water intake leads to improper digestion and same result is obtain from less water intake, thus, to increase digestive fire one should drink water frequently in small quantity.

Ancient scholars elaborately described qualities of water according to various sources and types. For example water collected from river aggravates *vata*, increases *agni*, is rough, light and weight reducing; water of sea or ocean possess odour, salt and vitiates all *doshas*; water collected from well is alkaline, vitiates *pitta* and pacifies *kapha dosha*, increases *agni* and is light; and so on.⁴² Qualities of water which vary according to different seasons were also mentioned for proper consumption accordingly and maintaining healthy body.⁴³ Keeping in mind the waterborne diseases and significance of potable water in health maintenance, *acarya Sushruta* mentioned the 4 methods of water purification, 7 substances to be used for purification and 5 methods of preserving water safely to avoid contamination.⁴⁴

Understanding the significance and necessity of water in our body along with the consequences of thirst disease and pathology in *udakavaha srotas*, *acarya Caraka* mentioned the *Trishna-nigraha mahakashaya*⁴⁵ and *acarya Sushruta* mentioned *Sarivadi*, *Parushakadi*, *Utpaladi* and *Trapvadi gana*⁴⁶ (classes of drugs) to be used in pacifying thirst. These drugs quench thirst, retains water content in body and cure pathology in *udakavaha srotas*.

In the emerging era of natural treatments, there is boon of naturopathy along with *Ayurveda*. Hydrotherapy, a part of naturopathy, is also leading in achieving therapeutic benefits through water. Basic principles for hot and cold water application and their mode of action are- a) application of warm or hot thing to tissues lead to muscle relaxation and dilatation of blood vessels; b) short cold application contracts blood vessels, which has decongesting effect on tissues and is rapidly followed by dilation of blood vessels and tissues are flushed with fresh oxygen rich blood; c) alternate hot and cold application brings circulatory interchange and improved oxygen drainage to all tissues. This is so because short cold application enhances circulation, while long cold exposure decreases it hampering the metabolism. Also, long hot application leads to congestion and make the area static. Reason behind the hydrotherapy just by exposure of water to body surfaces superficially is that the skin of different region in body is contacted to different internal organs or organ system either through circulatory channels or through nerve supply.

It is found that there is slight variation in the method of treatment through water in *Ayurveda* and Hydrotherapy, although the mode of action and result are same in both. In *Ayurveda*, ancient scholars have laid emphasis on internal use of hot and cold water considering its action on *agni* and the three *doshas*. While, majority of the procedures of hydrotherapy involves external application of hot and cold water considering its action on blood vessels and nerves connecting the exposed skin and the internal organ. However, in between these two pathy, it should be focused that bathing procedure and its benefits as described in *Ayurveda* is similar to complete hydrotherapy of whole body at once, with same outcomes. Root cause behind this is that both the systems of medicine are based on the principle of *panca-mahabhuta*.

Conclusion-

Water has been proved necessary for sustaining life as from single cell to multi-cellular organ each require water for their functioning. *Ayurveda* focuses on proper utilization of water according to its properties, time, season, quantity required, condition of patient and disease etc. Hot water has been preferred by all scholars to be consumed and is stated as most wholesome to living being. Study of *Ayurvedic* literature revealed that ancient scholars emphasized more on internal use of water for curing ailments. Whereas, in contemporary science like naturopathy, external application of water is explored. However, both are based on the principle of *panca-mahabhuta*.

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⁴¹ Dr. Bhaskara Govinda Ghanekara, Vaidyakiyasubhashitasahityam, Jalavigyaniya adhyaya (10; 19), P. 67, Chaukhambha Prakashan, Varanasi, 2016.

⁴² Sushruta Samhita, Ayurveda Tattva Sandipika Hindi Commentary, Shastri Ambikadutta, Sutrasthana, Dravadravyavigyaniya adhyaya (45; 31-46), P. 221, Chaukhambha Sanskrit Sansthan, Varanasi, 2014.

⁴³ Agnivesha, Charak Samhita, Vidyotini Hindi Commentary, Shastri Kashinatha and Chaturvedi Gorakhanatha, Sutrasthana, Annapanavidhi adhyaya (27; 203-206), P. 549, Chaukhambha Bharti Academy, Varanasi, 2013.

⁴⁴ , Sushruta Samhita, Ayurveda Tattva Sandipika Hindi Commentary, Shastri Ambikadutta, Sutrasthana, Dravadravyavigyaniya adhyaya (45; 12,17,18), P. 219, Chaukhambha Sanskrit Sansthan, Varanasi, 2014.

⁴⁵ Agnivesha, Charak Samhita, Vidyotini Hindi Commentary, Shastri Kashinatha and Chaturvedi Gorakhanatha, Sutrasthana, Shadvirechanashatashritiya adhyaya (4; 29), P. 87, Chaukhambha Bharti Academy, Varanasi, 2013.

⁴⁶ Sushruta Samhita, Ayurveda Tattva Sandipika Hindi Commentary, Shastri Ambikadutta, Sutrasthana, Dravyasangrahaniya adhyaya (38; 39,43,52,62), P. 186-188, Chaukhambha Sanskrit Sansthan, Varanasi, 2014.