



**ORIGINAL RESEARCH PAPER**

**Ayurveda**

**AYURVEDIC APPROACH TOWARDS WATER AND ELECTROLYTE IMBALANCE : A REVIEW ARTICLE**

**KEY WORDS:** Body fluid, Electrolyte, Ayurveda, Dinacharya.

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**ABSTRACT**

Human body contains 70% of total body weight. It is divided in extracellular and intracellular fluid compartment. Potassium and phosphate are the main cation and anion respectively of the cells, while sodium and chloride preponderate in the extracellular fluid. Water and electrolyte imbalance is one of the common conditions in medical emergencies. It is a clinical manifestation of multiple disorders like SIADH, Metabolic ketoacidosis, Ascitis, Ana saraca etc. Researches should be conducted to get easy availability and to conclude the effectiveness of treatment for this particular condition. We can put forth Ayurvedic(Herbal)preparation to overcome from this condition. We can deal this condition under various principles; like under *Samanya vishesh siddhanta*, *Panchabhautic siddhanta*, *Lok purush nyaya siddhanta* etc. *Dinacharya* and *Ritucharya* are described for *Samyavastha* (Equilibrium) of *Sharirastha Bhava*. Here an attempt has been made to define rationale of *Ayurveda* in water and electrolyte imbalance.

**INTRODUCTION:**

*Ayurveda* is one of the most renowned traditional systems of medicine, which has survived and flourished from ages till date. With the enormous knowledge of nature based medicine, the relationship of human body constitution and function to nature and the elements of universe that act in coordination and affect the living being, this system will continue to flourish in ages still to come. There are many avenues still to be explained by the researches among them this is one to be consider for further exploration.

Human body contains 70% of total body weight. It is divided in extracellular and intracellular fluid compartment. The composition of fluid in these two compartments is different. Potassium and phosphate are the main cation and anion respectively of the cells, while sodium and chloride preponderate in the extracellular fluid.<sup>1</sup> The difference in ionic composition between the two compartments is well maintained in health, the distribution of water between the cells and the fluid bathing them being regulated by the osmotic pressure of solutes. An increased concentration of substances on one side of the membrane will draw water from the other.

Water and electrolyte imbalance is one of the common conditions in medical emergencies. It is a clinical manifestation of multiple disorders like SIADH, Metabolic ketoacidosis, Ascitis, Ana saraca etc.<sup>2</sup> Researches should be conducted to get easy availability and to conclude the effectiveness of treatment for this particular condition. As we know there are three types of dehydration, as mild, moderate & severe.<sup>3</sup>The use of oral rehydration solutions to treat diarrhoeal disease in both children and adults is one of the most important treatments worldwide, particularly in developing countries. They can also be useful in the management of short bowel or inflammatory bowel disease in hospital or at home. We can put forth *Ayurvedic*(Herbal) preparation to overcome from this condition.

*Ayurveda* is a Science where lots of methodologies are narrated according to different *Avastha* of *Swastha* as well as in *Vyadhita Purusha*. We can deal this condition under various principles; like under *Samanya vishesh siddhanta*, *Panchabhautic siddhanta*, *Lok purush nyaya siddhanta* etc. *Dinacharya* and *Ritucharya* are described for *Samyavastha*

(Equilibrium) of *Sharirastha Bhava*. Concepts described under these heading can be beneficial in proper maintenance of body fluids and electrolytes.

Here an attempt has been made to define rationale of *Ayurveda* in water and electrolyte imbalance.

**DISCUSSION:**

Water and electrolyte imbalance is the one among medical emergencies, which needs intensive care management/ indoor patient management. Many clinical and surgical emergencies are complicated by derangement of water and electrolyte balance, the management depends on clinical assessment along with auxiliary laboratory values. The major part of the water content of the body is an integral part of the cell structure. Potassium and phosphate are main cation and anion respectively of the cells, while sodium and chloride preponderate in extracellular fluid. Sign and symptoms mostly exhibit of neuron pathway which disturbs normal physiological condition of the patients. Some of the disease pathology exhibits with manifestation of fluid and electrolyte imbalance symptoms like in disorders SIADH, Metabolic ketoacidosis, Ascitis, Anasaraca etc. So to understand the concept here attempt has been made to understand *Ayurvedic* concept of this for better outcome in diseased patients with integrated approach.

As in our science no direct reference we get under the one shelter but with scattered reference we can get in different chapter under like in *Samanya vishesh siddhanta*, *Panchamahabhautic siddhanta*, *Lokpurush nyaya siddhanta* etc. *Dinacharya* and *rutucharya* are the preventive aspects narrated by *Acharya* were we can consider for the balancement of fluid and electrolyte imbalance. Further we are explaining with few examples *Ushapan*(Drinking of kosha jala in empty stomach). Different *Jalaprayoga*, *Peyaprayoga*, *Pramathya* etc. These are the basic fluid and electrolyte supplementation according to the *Ayurveda*. Because of the lacking of research work in this field we only attempting the concept but advance researches are needed in this area.

In *Ayurveda* we can deal with this condition under various principles of *Ayurveda*. *Ayurveda* is a Science where lots of methodologies are narrated according to different *Avastha* of

Swastha as well as Vyadhita Purusha. Samanya Vishesh Siddhanta is one of the leading concept which can be utilised while treating water and electrolyte imbalance. Samanya means having exact same qualities. In conditions like diarrhoea, vomiting body fluids lost from body which can be re-established by employing subjects having Samanya Guna, Dravya or Karma.<sup>4</sup> In diarrhoea Rice water can be given as it is having same properties that of body fluid. These preparations are based on the principle that salt absorption in the small bowel is linked to that of carbohydrate and is, therefore, enhanced by glucose, glucose polymers and starch (e.g. rice water).<sup>5</sup> Kharjuradi Mantha is an example of Karma Samanya Its Dehaanusariva (Isotonic), Sadyasantarpana<sup>6</sup> properties can prove beneficial in these imbalance condition

Dinachrya and Rituchrya are described for Samyavastha (Equilibrium) of Sharirastha Bhava. Concepts described under these heading can be beneficial in proper maintenance of body fluids and electrolytes. Ushapan, drinking of Koshna jala early in the morning, empty stomach. It maintain proper hydration of body.<sup>7</sup> Hansodaka in Sharad Ritu have Samskara of Sunlight and moonlight which enhance its devine qualities<sup>8</sup> we can prevent fluid and electrolyte imbalance by these aids of Dinacharya and Ritucharya.

While describing treatment protocol of various diseases Ayurveda Acharyas focused on concept of Siddha Jalaprayoga, pathyapthya etc. Water provides a medium for transporting substances such as hormones, enzymes, blood platelets, and red and white blood cells, facilitates cellular metabolism and proper cellular chemical functioning. It acts as a tissue lubricant. Water is the principle body fluid which is essential for life.<sup>9</sup> Considering these all points; application of such Ayurvedic preparations having markable amount of water content like Paniya kalpana, Siddha Jalaprayoga will be beneficial in conditions like water and electrolyte imbalance. These are some examples in which these kind of preparations are explained. Viscosity increases the contact time between the mucosa, intra and extra cellular membranes and drug, which enhance the potential of these Kalpanas along with the Aushadhi Dravyas.

Jwara - Vitiated Dosha is the basic factor in the manifestation and progress of any Vyadhi. Due to this Siddha jalaprayoga is mentioned according to types of Jwara, Dosha involved in that particular type of Jwara i.e. Ardhashesha Ushnodaka for vatpittaja jwara, Tikta dravyasiddha jala for madyottha and pttaja jwara. These siddha jalaprayoga has beneficial effect in trushnaprashamana due to its amapachana quality. Shadangodaka : In jwarachikitsa adhyaya chrakacharya has described Shadangodaaka which is having properties like pipasa and jwaranashana due to its amapachana, Shita, dahashamaka qualities.<sup>10</sup>

Raktapitta - In Raktapitta there is blood loss from body either from mouth, nose, ear, Urethra, vagina, anus or subcutaneous bleeding. In such condition to maintain equilibrium of the body Tarpana Dravyas can be implemented. Laja Tarpana, Kharjuradi Tarpana, Amla Tarpana<sup>11</sup> have potency to overcome from these condition. Raktachandana, ushira, musta, parpata siddha jala can be given to overcome thirst in Raktapitta Vyadhi. These drugs are kashaya, tikta raspradhana which leads to Raktastambhana, Amapachana, Trishnaprashamana.

Charakacharya indicated least water intake in Santarpanottha diseases like Prameha, Udara, etc.<sup>12</sup> As we see in Udara there is extracellular fluid collection in third spacing of body<sup>13</sup> so there is mandatory to avoid water intake in these diseases. With the rising prevalence of diabetes, particularly type 2, the perioperative fluid and metabolic management of diabetic patients has become increasingly important. In such cases Ayurvedic concept of Siddha jala can prove beneficial. In Prameha, Madhu and Khadir siddha jala is indicated which deals with Trushnaprashamana as well as kafanashana,

kledanashana.<sup>14</sup>

Udara - Takra and dugdhapana is indicated.<sup>15</sup> Water is absolutely contraindicated. Ushgradugdha have Lavanarasa,<sup>16</sup> so it can be used in dilutional hyponitraemia.

Atisar - Pramathya (pachan dipan kashaya), Yavagu, vilepi, khadyusha<sup>17</sup> are indicated. In mild hypovolemia we can use Ayurvedic preparation as a oral rehydration solution. These preparation promotes anti diarrhoeal as well as rehydration effect.

Chardi - Laja mand is indicated which is useful in pregnancy also without any harm. It is easily consumable and effective.<sup>18</sup> Trushna - Mrudvika, sariva, pippali siddha jalaprayoga mentioned. Due to its Amapachana property it leads to Trushnaprashamana.<sup>19</sup>

Krutanna varga - It is one of the speciality of Ayurveda. It is group of Pathyakara ahara like Manda, peya, vilepi, Yusha etc. Manda is having Sarvadhatusatmyakruta property.<sup>20</sup> These preparations can be employed in mild dehydration condition as a oral rehydration.

### CONCLUSION :

Vaya, Dosha Avastha, Vyadhi avastha, Desha, Kala are also the important factor to be considered during managing the water and electrolyte imbalance cases.

Keeping in view of the above factor it can be concluded that essential part of various Kalpana Dravya reaches to the intra as well as extra cellular compartment of the cells, which will be helping us to overcome from imbalance of electrolyte of the body by correcting the Samprapti at cellular level. Further correcting the neurological, endocrine or cellular circulatory functions thus showing systemic effects.

Various delivery systems affects the site of deposition and degree of absorption.

With above examples of various Kalpanas we can obtain with consideration that it is easily consumable and along with rich source of energy. However, this is the review article. To get significant conclusion clinical studies are needed to strengthen the concept.

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