



## D & D Dealt with H- Diabetes & Dehydration Dealt with Homoeopathy

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### Abstract

### Review Article

Water is a key element in diabetes control but the most neglected component among diabetics. Usually when people discuss diabetes, the controlling factors like diet, exercise, sleep & medicines are talked about. What is not talked about is the issue of drinking water & maintenance of fluid balance. It is critical to note that mild dehydration can lead to spike in blood sugar there by damaging the entire body over a period of time. Similarly, one should know that water is the most vital part of our fluid intake while we should also have fluids with electrolytes. The fluids should have an optimal concentration of glucose to facilitate absorption. The current article brings forth the issue of dehydration in diabetes & sees the role of Homoeopathy in dealing with these bi-issues. The article discusses the issue of dehydration in detail before delving into the role of dehydration specifically to diabetes. While it brings out the issue of Homoeopathy through its Essential Medicine properties, it also suggests a treatment protocol based on homoeopathic therapeutics. At the distal end, it discusses the burden of the issue at national level & the way ahead to deal with is Non Communicable Disease (NCD).

**Keywords:** Diabetes, Dehydration, Homoeopathy, Materia Medica, Miasm, NLEAM, NLEM.

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## INTRODUCTION

When the body gets dehydrated, the circulating blood glucose becomes more concentrated & there occurs a spike in blood sugar levels. Thereafter, the

kidneys work more to filter the blood through more production of urine. As the condition of diabetes ensues, the three cardinal symptoms diabetes is seen in the body- Polydipsia, Polyphasia & Polyuria. These three

conditions especially the profuse urination in Polyuria accelerates dehydration & predisposes the body to Diabetic Ketosis. In this condition, the body does not produce enough insulin to allow blood sugar to enter cells for use as energy [1-6].

In the absence of glucose, the body uses the fat as alternative source of energy & thus fat is broken down for fuel which in turn causes acids to build up which can lead to coma. That's why the first line of treatment is rapid infusion of fluids in to the Diabetic Ketosis body to address dehydration. Next, the insulin is administered after the body has been rehydrated [1-6].

### LITERATURE REVIEW

In this section, the modalities, physiology & pathology related to dehydration is discussed. Diabetics are at more risk. The section focuses on various aspects of dehydration & its physiology & pathology in the body.

The same process hold good for diabetics as well. The only significance is that these processes become risky especially in pediatric diabetic cases although adult diabetics are equally affected. In case of pediatrics, the risk of mortality is higher than the morbidity & its related complications [1-10].

As the article deals with the issue of dehydration, the discovery that sodium transport & glucose transport are coupled in the small intestine so that glucose accelerates absorption of water & solute is potentially the most important medical advance of the 20<sup>th</sup> century [1-10].

Normally, 20 litres of water is secreted & same is absorbed every day. The soluble metabolites from digested food are absorbed through blood stream through a process. The process is detailed in the table below [1-10].

**Table 1: Secretion & Absorption of Water in the body per 24 hours [1-10]**

Intake	Volume (in ml per day)	Output	Volume (in ml per day)
Drink	1300	Urine	1500
Food	850	Expired Air	400
		Skin	500
Metabolic Water	350	Faeces	100
<b>TOTAL</b>	<b>2500</b>	<b>TOTAL</b>	<b>2500</b>

During dehydration, this balance is lost & is upset. Much water is lost than reabsorbed. With water,

sodium is also lost. The following table shows the electrolytes during dehydration.

**Table 2: Cations & Anions in Plasma, Interstitial Fluid & Intra Cellular Fluid [1-10]**

Cations (mmol/l)	Plasma	Interstitial Fluid	Intra Cellular
Sodium	140	144	10
Potassium	4	4	155
Calcium	2.5	2	1
Magnesium	1	1	15
Anions (mmol/l)			
Chloride	102	114	5
Bicarbonate	27	30	10
Phosphate	1	1	50
Sulphate	0.5	0.5	10
Protein	2	0.1	8
Organic anions	3	6	2

Kidneys maintain Sodium normally. In dehydration, because of Anuria, the Na<sup>+</sup> regulation cannot work. If more than 10% of body fluid is lost, death occurs.

The following table gives the details of the body fluids in various compartments of the body.

**Table 3: Body Fluids in Extracellular & Intracellular compartments [1-10]**

Compartment	Volume in Litres	% of Total Body Water
<b>Extracellular</b>	17	40
Plasma	3.2	7.6
Interstitial	12.8	30
Transcellular	1	2.4
<b>Intracellular</b>	25	60
<b>Total</b>	42	100

Increased relative concentration of Na<sup>+</sup> across the intestinal wall pulls water through causing dehydration as a result of osmosis. Starch is metabolized into glucose & it has less osmotic effect. Cooked brown rice water is an ideal starch.

Let us see the concentration of salts in conditions like Cholera & Enteritis especially in U5 children. It is important to note that pediatric diabetes is also critical & hence discussing the issue of dehydration in this condition as well.

**Table 4: Concentration of Salts in some conditions [1-10]**

Conditions	Na <sup>+</sup>	K <sup>+</sup>	Cl <sup>-</sup>	HCO <sub>3</sub>
Cholera in Adults	140	13	104	44
Cholera in U5 Children	101	27	92	32
Condition				
Enteritis in U5 Children	56	25	55	14

To manage the concentration of salts in dehydration, the Oral Rehydration Solution (ORS) has the sodium & glucose in 1:1 ratio thus nullifying the

osmotic effect. The following table gives the details of the salts in the composition of old ORS formula & new ORS formula.

**Table 5: ORS- Old & New- Salts in mmol/l [1-10]**

ORS	Glucose	Na <sup>+</sup>	K <sup>+</sup>	Cl <sup>-</sup>	HCO <sub>3</sub>	Total
Old	111	90	20	80	30	341
New	75	75	20	65	Citrate-10	245

The role of the Anti Diuretic Hormone (ADH) called Arginine Vasopressin (AVP) has a key role in maintaining the fluid & electrolyte/salt balance in the body. Reduced water intake affects its functioning. Another mechanism by which the body prevents dehydration & keeps the salt & water balance is through the kidneys is by controlling the volume & composition of the urine. In case the kidney is unable to regulate the balance of water & salts, the condition can lead to fluid & electrolyte abnormalities [1-10].

day to remain hydrated. Drugs like ‘Metformin’ reduce appetite. This in turn decreases water intake & water absorption from solid foods [1-6].

Usually, diabetics need to consume at least two & half litres per day & if they are on SGLT2 inhibitors, the consumption should be 3 litres per day. Diabetics with heart or kidney failure need to look after their water & salt intake [1-6].

The presence of one or more contributory factors like insufficient fluid intake, hot weather, strenuous exercise, alcohol intake, non diarrheal conditions like fever, tropical fevers, viral infections, respiratory tract infections, urinary tract infections, nausea, vomiting puts the diabetic patients at an increased risk of dehydration & electrolyte imbalance [1-10].

**Ways to watch out**

Blood glucose levels fluctuate more in hot weather & hence monitoring glucose levels more often & matching readings with the intake of fluids is essential. Heat exhaustions are to be watched out. Diabetics are at higher risk of overheating & developing heat related conditions. Diabetics need to avoid exercising outdoors [1-10].

The most common symptoms of dehydration among diabetics are excessive thirst & dry mouth. In more severe cases, the skin loses elasticity. Accompanying symptoms are headache, dry eyes, dry skin, dark yellow urine, dizziness, general weakness & exhaustion. At times, the dehydration symptoms are not obvious until the body goes into a crisis mode. Following that, there is rapid & thread pulse. There is confusion & lethargy as well [1-10].

Consumption of alcohol, consumption of sugar, caffeine, sweetened beverages need to be regulated. Drinks with Fluids, Electrolytes & Energy (FEE) can be used readily. Water is to be preferred & fruit juices or sweetened drinks are to be avoided [1-10].

**Pharmacology & Dehydration**

Drugs like ‘Canagliflozin’, ‘Dapagliflozin’ & ‘Empagliflozin’ are Sodium Glucose Cotransporter2 (SGLT2) inhibitors leads to flushing of glucose through the urine. Diabetics who are on these drugs need to increase their water intake by at least half to one litre per

**Epidemiology**

The overall weighted prevalence of diabetes in India is 11.4% & for pre-diabetes the prevalence is 15.3%. All metabolic Non Communicable Diseases except pre-diabetes were more frequent in urban than rural areas. In many states with a low Human Development Index (HDI), the ratio of diabetes to pre-diabetes is less than 1 [6].

**National Burden**

The prevalence of diabetes in India is around 12% (rounding up of 11.4%). Taking the projected population of India to 150 crores, there are 8 crore diabetics in India. In addition, there are about 16% (rounding up of 15.3%) pre-diabetic cases in India & the number would be 24 crores. Hence, dehydration is a risk factor for 32 crores population in India that includes diabetics & pre-diabetics [11-15].

As per studies, 10% of the population in India use homoeopathy currently. This means the active integration of homoeopathy will be a succor to 15 crore population of India. This will reduce the current burden of Non Communicable Diseases (NCD) in India out of which diabetes is the leading NCD [11-15].

### Conventional Approach

As mentioned above, the conventional approach includes hospitalization & fluid therapy. It is to be remembered that dehydration is not only a phenomenon in summer but it is a perennial feature for diabetics. As we saw that about 1/5<sup>th</sup> of the population in India are at risk because of the dyad of dehydration & diabetes. Hence, the better approach would be the domiciliary approach where the dehydrated diabetics can be treated with ORS, other oral fluids like coconut water, lemon water, roasted powdered cereals drinks, butter milk & cooked brown rice water. It is here that homoeopathy can be a boon if integrated at a large scale level [1-6].

### Homoeopathic Approach

The phenomenon of dehydration is an acute phenomenon & diabetes is a chronic phenomenon. Dehydration is an acute miasm. Along with fluid therapy that are given orally & intravenously, homoeopathy will help the body to retain fluids & bring equilibrium in the concentration of electrolytes [16-27].

The issue of dehydration can be dealt with drugs like 'Arsenic Album', 'Veratrum Album', 'Camphor', 'Natrium Mur', 'Glonoine', 'Natrium Carb', 'Bryonia', 'Nux Moschata', 'Natrium Bicarb', 'Zinc Sulph'. Medicines that address diarrhea like 'Kurchi' can be given in mother tinctures if the diabetic has diarrhea. Similarly for vomiting, 'Amygdalus Persica' can be given in mother tinctures. The section below deals with the diabetes specifically [16-27].

As mentioned above, the phenomenon of diabetes is actually a destructive one. From the Homoeopathic angle, the 'Syphilitic' miasm is in the background as this miasm causes destruction in the body. In Homoeopathy 'miasms' are disease causing dynamic influences that are infectious in nature [16-27].

There are three types of diabetes, one is diabetes mellitus & the other is diabetes insipidus & the third one is Type 3 that attacks the brain. Here, all types are discussed as complication is a common phenomenon to all the types [16-27].

The drugs that are mentioned here act in high sugar levels thereby preventing diabetes. This diabetic condition leads to potent diabetes & related complications. These drugs are Bovista, Helonias, Phosphorus, Phosphoric Acid, Tarentula, Terebinth & Uranium Nitricum [16-27].

Besides the potency medicines, the mother tinctures of Indian drugs can also be prescribed. IR is the leading cause of diabetes here & because of diabetes, the body gets weakened & complications occur. Hence, the medicines that cover both diabetes & complications are to be prescribed [16-27].

Pancreatic cells & the Hepato Biliary system is affected in diabetes. To prevent diabetes, drugs like 'Pancreatinum', 'Iris Ver', 'Iodium', 'Abies Nigra', 'Calcarea Ars' are to be prescribed [16-27].

Besides, the specific drugs like Arsenic Bromide, Alloxan, Phaseolus, Phlorizin can also be prescribed to deal with diabetes thereby preventing diabetes in the long run [16-27].

For prevention of uncontrolled sugar levels, miasmatic prescribing should be done based on the predominant miasms [16-27].

Similarly, the appropriate Bowel Nosodes that are related to the drugs mentioned above need to be prescribed along with the above-mentioned drugs [16-27].

On the same lines, the indicated Bach Flower remedy also needs to be prescribed depending on the mental status of the patient [16-27].

As a supplement, Bio Combination Number 7 (seven) can also be prescribed along with other drugs [16-27].

### Steps in Future

Dehydration can only be checked if there is some sweating in the body every day. The concept of 'trimal' in Ayurveda is critical. 'Trimal' stands for three excretions in the body per 24 hours. These are 'Stool', 'Urine' & 'Sweat'. People worry if they have not evacuated stool or urine. It is surprising to see that they are usually not bothered if they have not sweated [15].

Modern life means less exercise, more stay indoor & in air conditioned rooms, consumption of aerated drinks, sugary drinks & beverages, packaged foods & this means more dehydration. Water should be 3/4<sup>th</sup> of the total fluid intake per 24 hours. The other fluids should not be only tea & coffee & rather these should be replaced by natural drinks like coconut water, butter milk. One banana per day is a must for diabetics as it provides 80% cleanest water. Cooked brown rice

water is best for the stomach & intestines as it has less osmotic effect & is converted to glucose inside the body [15].

### Crucial Issues

Fluid loss is critical & crucial as more than 10% of body fluids loss leads to death. Warning signs of dehydration in diabetics like dry eyes, dry skin, reduced skin turgidity, reduced output of urine are to be watched out. Electrolyte balance has to be maintained through ORS & other fluids. Diarrhea & vomiting has to be treated to ensure that dehydration does not lead to complications [1-6].

Diabetes causes chronic inflammations & dehydration causes acute inflammation. During the pandemic, homoeopathy dealt with inflammations in the body successfully & here also homoeopathy will deal with these two inflammatory conditions successfully [26, 27].

### CONCLUSION

In this era of climatic change, humidity & rise in environmental temperature is inevitable. On one side, the cases of diabetes are increasing & on the other side, climatic change related issues are also increasing. This dyad will lead to more dehydration cases among diabetics.

All diabetics need to know about dehydration in diabetes as it is an issue that is multi-factorial. The first reason is the constant inflammation inside the body. The second reason is the poor life style & dietary factors that are also poor. The third is the impact of climate change leading to rise temperature. The last is the side effects of the anti-diabetics drugs that the diabetics are consuming through allopathic prescriptions.

As the National List of Essential Medicines (NLEM) & the National List of Essential AYUSH Medicines (NLEAM) portrays the cardinal properties of Homoeopathy, it should be integrated on a large scale for masses for their benefit.

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### Declaration

The lead author declares that the Homoeopathic protocol given here is only suggestive in nature.

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