CONCEPTUAL STUDY TO UNDERSTAND THE EFFECT OF KSHAARIYAJALA (ALKALINE WATER) ON SHUKRA WITH SPECIAL REFERENCE TO MALE INFERTILITY

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ABSTRACT
Ayurveda is considered as science of life, it does not merely concentrate on the diseases rather it promotes practicing healthy life in order to prevent the diseases. To maintain this Dinacharya, Rutucharya and Sadhvrutta has been advised. Adopting these along with Trayopastambha helps to maintain state of Swastha. Jala (water) is the prime factor for existence of life and survival. Two third part of body is comprised of fluids. Water forms most of the fluid part of the body, varying from 45-75% of total body weight. Lakshanas and Guna-Karma of Shuddajala which is suitable for consumption are stated clearly in classics. Water having the pH more than 7 is considered as alkaline in nature. pH of commercially available packed drinking water and water from the purifier ranges from 8 up to 12 or even more. Shukra is seventh among the Sapta Dhatus and Garbhotpadana is considered as the principal function of Shukra. Kshaara is Shresta Pumsatvopaghataka and Shukraghna (spermicidal), Prolonged usage of Kshaara is not advisable, as Kshaara posses Gunas which are opposite to that of Shukra it causes adverse effects on the reproductive system of body. Here attempt is made to explain alkaline water (Kshaariyajala) is one of the contributing factors for male infertility by taking different sources explained in Ayurveda classics and contemporary knowledge related to alkalinity.

Keywords: Kshaariyajala, Shukra, Semen, Alkaline water, Male infertility

INTRODUCTION
Male infertility is a condition resulted from faulty lifestyle, influenced profoundly by environment, including lifestyle and food intake. Ayurveda considers Ahara (diet), Nidra (sleep) and Bramhacharya (sexual activity) as Trayopastambha (Tripod of life). Sex is a
basic instinct, but sexual behaviour is a learned ability. Dharma, Artha, Kama and Moksha are the four Purusharthas (objectives of life) explained in Ayurveda[2]. To attain Moksha, Purushartha are basic need of every individual. The concept of Kama reveals that the recreational aspects like pleasure are equally important to its procreation aspects. Shukra is seventh among the Sapta Dhatus[3] and Garbhotpadana is considered as the principal function of Shukra[4]. One more important tripod is Ahara, which includes solid and liquid diet. Often more emphasis is laid on the solid food than liquid food. Liquids also play a major role in maintaining health. Liquid diet majorly consists of drinking water. The qualities of best water for drinking are slightly astringent, sweet, thin, slimy and does not block the channels of body[5]. Two third part of body is comprised of fluids and water forms most of the fluid part of the body. Kshaariya Jala is the water which is alkaline in nature. Body fluids play a significant role in transport mechanism, metabolic reactions, in maintaining texture of the tissue, in temperature regulation and thus maintaining homeostasis[6].

**AIM AND OBJECTIVES**

To understand the effect of Kshaariya Jala on Shukra with special reference to male infertility through literary study

**SOURCE AND METHODS**

Literary and conceptual study will be undertaken by the data compiled from Brihatrayis, other classical text, internet and correlated with knowledge of contemporary science on the subject

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**Review of literature**

Shareera is composed of Panchamahabhauta[7], Jala is one such component of the body which attributes the function that maintains the Jaliya Amsa (fluid components). Major source of water is the one which falls down as rain from the Akasha. The rain water gets contaminated with environmental heat and pollution, acquires the properties such as unctuousness, acidic, alkaline etc. before settling down in the ground[8]. The quality of water depends on where it is found. Water when falls on the earth attains Guna based on the type of soil, in white soil it is astringent, in pale soil it is bitter, in brown soil it is alkaline, in Usara it is saline, in black soil it is sweet and in hilly areas it is pungent. These are the six properties of water positioned on the earth[9]. The qualities of best water for drinking are slightly astringent, sweet, thin, slimy and does not block the channels of body.

Shukra is seventh among the Sapta Dhatus. Synonyms of Shukra are Beeja, Veerya, Retas, Pourush etc. Shukra comes out during Stri and Purusha Samyoga, because of sexual act (Chesta), passionate attachment (Sankalpa) and physical pressure (Pidana). It is explained by giving simile as water comes out of a wet cloth when it is squeezed[10]. The characters of Shudda Shukra are Sphatikabham, Dravam, Snigdham, Madhuram, Madhugandam, Bahala, Guru and Picchila[11]. Shukravaha Srotas is the main location of Shukra Dhathu, Shepha (penis) and Vrushana (testis) are principle organ of Shukra Dhatu[12]. Shukra Dhatu is formed as the Snehamsha of Majja Dhatu. Vayu and Akasha Mahabautha creates Sousirya in the Asthi and Shukra oozes out from the inner Majja through the finest pores of the Asthi just like that as the Udaka leaks out from a new earthen pot[13]. Garbhotpadana is considered as the principal...
function of *Shukra* along with this it also possess other functions they are Courageousness, Physical development, Attraction towards opposite sex, Strength, Pleasure of coitus\[14\].

Infertility is a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse\[15\]. Male infertility refers to the inability to cause pregnancy in a fertile female after having unprotected sexual intercourse for a period of 1 year. Most of the causes are related to deficiencies in the semen. Semen quality is used as a surrogate measure of male fertility. Infertility is one of the major health problem and male infertility accounts for approximately one-fifth of all infertility cases. It occurs to an estimated population of 15% of couples and approximately 30% infertilities are due to a male factor in general. Causes of infertility in men can be explained by deficiencies in ejaculate (Azoospermia), sperm motility (asthenospermia) and sperm morphology (teratospermia).

The word *Kshaara* is derived from the root word *Kshara*, means to melt away or corrosive. *Kshaara* is defined as one that does the *Ksharana*\[16\]. *Gunas* of *Kshaara* are *Ushna*, *Tikshna*, *Laghu* and *Soshana*\[17\]. It is explained as *Na-Atyupayogi Dravyas*\[18\], *Shrestha Pumsatwapaghata Dravya*\[19\], *Shukraghna*\[20\]. *Kshaariyajala* is the water which is alkaline in nature.

Two third part of body is comprised of fluids. Water forms most of the fluid part of the body, varying from 45 -75% of total body weight\[21\]. In water there are alkaline minerals like calcium, sodium, magnesium and potassium etc\[22\]. These minerals carry out important role of controlling physiological functions of the human body by distributing alkaline minerals to the blood vessels and tissue. Alkalinity is a measure of the capacity of the water to resist a change in pH that would tend to make the water more acidic. pH of any fluid is the measure of its hydrogen ion concentration relative to that of given standard solution. It’s measured on a scale from 0 to 14. More the acidic, a solution will be lower pH. More the alkaline, higher will be number. A pH of around 7 is considered neutral, alkaline water has pH above 7.0. The pH is of major importance in determining the Corrosive effect\[23\]. Permissible limit of pH for drinking water is pH 6.5 to 8.5\[24\]. Every function of the body is maintained by the efficient flow of water. Apart from the distribution of water, it also transports the elements like hormones, chemical messengers and nutrients first to the vital organs in turn every organ produces a substance to be made available to the rest of the body. Water is very essential on daily bases and minimum requirement of water is the amount that equals to the amount excreted by the body, thus prevents adverse effects such as dehydration.

**DISCUSSION**

Several factors can interfere with spermatogenezis and reduce sperm quality and production. Water pollution is one among them. Alkaline water has been widely advertised and believed to boost the metabolism, reduce acid level in blood stream, and hence help to absorb nutrients more quickly and maintain natural alkalinity in the cells thereby balance the physiological state and promote health. Considering these positive benefits people are more attracted towards the alkaline diet where they knowingly or unknowingly consuming water having pH more than 8.5. Commercially available water is having pH ranges till 12 or even more, in the form of packed drinking water and water from purifier...
at home. Unfortunately, contemporary life style, fast food diet etc., causes acidity. To compensate this, people have started consuming alkaline water having more pH than permissible limits for longer duration. Male infertility rate is also increasing day by day, so it may assume that alkaline water is one of the contributing factors for causing male infertility.

In Ayurveda classics, Kshaara is explained as Na-Atyupayogi Dravyas. Prolonged usage of Kshaara is not advisable, as it causes adverse effects on the body. Kshaara is Shrestha Pumsatvapaghataka dravya as it possesses the spermicidal effect (Shukraghna). By the morbid affliction of Shukra, there will be impotency and erectile dysfunction. In spite of this, if conceptions take place, progeny will be sick or impotent or short lived or deformed. There is more likelihood that the conception will not take place, if conceived also it will be miscarried or aborted.

The probable action of Kshaara over Shukra can be explained under the following headings

Effect of Tikshna and Ushna Guna of Kshaara on Shukra
Tikshana and Ushna Guna absorbs Jaliya Amsa in the Shukra, hence Sowmya, Snigdha, Drava, Bahula Guna of Shukra may be affected. In contemporary understanding volume, pH, viscosity of semen is affected.

Effect of Laghu Guna of Kshaara on Shukra
Laghu Guna composed of Akasha and Vayu mahabhutas, there by Gunas like Laghuta and Rukhata of Shukra may increase. When this Guna increases it may affect the Guru, Bahula, Drava Gunas. In contemporary science it can be understood as affecting the seminal parameters such as viscosity, volume and pH.

**Effect of Soshana Guna of Kshaara on Shukra**
Soshana is long term consequence of Kshaara intake, it is explained that Kshaara increases Kledata first, later it does the Soshana due to its inherent qualities. It affects almost all Gunas of Shukra. In contemporary view it can be interpreted as affecting the volume, odour, pH, liquefaction and morphology of Semen. Thereby, all these properties of Kshaara does Dushana of Shukra both qualitatively and quantitatively.

**CONCLUSION**
Ahara, includes solid and liquid diet. Often more emphasis is laid on the solid food than liquid food. Liquids also play a major role in maintaining health. Liquid diet majorly consists of drinking water. Jala is considered as the prime factor for existence and survival of every creature. The qualities of best water for drinking are slightly astringent, sweet, thin, slimy and does not block the channels of body and attributes the function to maintain the Jaliya Amsa. Gunakarma of Jala depends on the quality of soil and place where it is found. KshaariyaJala is the water which is alkaline in nature (pH>7). Kshaariya Drvayas possesses the properties Tikshna, Ushna, Laghu and Soshana which are antagonist to Shukra which is Sowmya in nature and having the principal function of Garbhotpadana. Hence Kshaariya Jala is Pumsatvopaghataka (infertility) and Shukraghna (spermicidal effect). Due to consumption of alkaline water (Kshaariya Jala) beyond permissible limit for prolonged duration it may act as a contributory factor in causing male infertility and hence is not advisable.
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