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Trinapanchamoola Kwath in U.T.I During Pregnancy

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ABSTRACT

Urinary tract infections are the most frequent bacterial infection in women, mainly by *E.coli* (80-90%)¹ and *Staphylococcus saprophyticus* (5-10%)^{1,2}. Women are more prone to UTI than men because, in female, the urethra is much shorter and closer to anus. The main cause of UTI during pregnancy are (i) higher levels of the hormone progesterone decrease the muscle tone of the ureters, (ii) uterus enlargement which ultimately compresses the ureters, (iii) bladder also loses tone during pregnancy. These changes takes longer time for passing urine through urinary tract, giving chance to bacterial infection and multiplication and becomes easier for the bacteria to causes upward infection. During pregnancy urine becomes less acidic and more likely to contain glucose, both of which boost the potential for bacterial growth. Pain and discomfort in groin, burning urination, frequent and uncontrolled urges and fever are the main symptoms of UTI. If not treated UTI may cause acute Pyelonephritis in third trimester, preterm labour³ and low birth weight.

Antibiotics are the drug of choice in UTI, which may cause teratogenic effect to foetus. So pregnant women should refrain such drugs especially in first trimester. In Ayurveda, Trinapanchamoola (roots of *Desmostachya bipinnata*, *Saccharum spontaneum*, *Saccharum munja*, *Imperata cylindrica*, *Saccharum officinarum*) decoction is described for treatment of urinary disorder and to subside their symptoms⁴. The chemical ingredients present in drugs are increase urinary flow, changes pH that are not suitable for growing harmful bacterial flora and reduces inflammation of passage. Trinapanchamoola kwath alleviate the symptoms of UTI.

Keywords : Bacteria, Decoction, Trinapanchamoola , UTI etc.

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INTRODUCTION

Urinary tract system encompasses urethra, bladder, ureters, and kidneys. An infection occurs when bacteria gets into this system and multiplies. The infection most often occurs in the urethra and bladder. It can also travel from the bladder into the ureters and kidneys. Most UTIs are bladder infections and are not serious if they are treated right away. If left untreated, a bladder infection may travel to the kidneys and cause a variety of complications (acute pyelonephritis in third trimester), and in pregnant women it can cause preterm labour³, PROM, low birth weight baby, and sepsis.

Up to 10 percent of expectant women will get a urinary tract infection (UTI) at some point during their pregnancies¹. If left untreated, about 25 percent of asymptomatic UTIs develop into kidney infections, which can be potentially life-threatening for mother and foetus.

DISCUSSION

The causative organism E.coli and Staphylococcus saprophyticus are naturally present on the skin, in the lower bowel, and in the stool, but urine does not normally contain bacteria. When bacteria from one of these sources enter the urinary tract system, they multiply and cause pain and irritation.

Some of the ways bacteria enter the urinary tract include:¹

1. Partial blockage of a urinary passage eg. from the pressure of an enlarged uterus
2. Sexual intercourse
3. Catheters
4. Stool that gets wiped into the vagina after a bowel movement.

Pregnancy is the time when women are more prone to UTI:⁵ In pregnant women, higher levels of the hormone progesterone decrease the muscle tone of the ureters, causing them to dilate and slowing the flow of urine. Enlarge uterus compress the ureters, making it that much more difficult for urine to flow through them as quickly and as freely as

usual. This stagnant urine is a likely source of infection.

Bladder also loses tone during pregnancy. It becomes more difficult to completely empty and bladder becomes more prone to reflux, a condition where some urine flows back up the ureters toward the kidneys.

The upshot of these changes is that it takes longer for urine to pass through urinary tract, giving bacteria more time to multiply and take hold before being flushed out, and it also becomes easier for the bacteria to travel up to kidneys. During pregnancy urine becomes less acidic and more likely to contain glucose, both of which boost the potential for bacterial growth.

Predisposing factors: Previous H/O UTI, diabetes, renal stone, multigravida, vulvo-vaginitis.

Symptoms of UTI^{5,6}

1. Feeling an urgent need to urinate or frequent urination
2. Discomfort, pain and burning sensation during urination
3. Cramps in the lower back or lower abdomen
4. Urine that looks cloudy or foul smelling
5. Low grade fever.

Investigations:¹

1. CBC
2. Urine – urine dipstick test, Culture
3. USG

Prevention:

1. Drink plenty of water,
2. Use hot water bottle of ease pain,
3. Avoid coffee, alcohol, smoking and spicy food,
4. Don't ignore the urge,
5. After a bowel movement, wipe from front to back to prevent bacteria in the stool from getting near the urethra,
6. Clean the genital area with water and mild soap after urination,

7. Avoid feminine hygiene products (sprays or powders) and strong soaps that can irritate urethra and genitals, making them a better breeding ground for bacteria. And don't use douches during pregnancy,
8. Wear cotton underwear and avoid tight clothing,

Trinapanchamoola is indicated in UTI in a dose of 20-30 ml 12Hrly.

DRUG REVIEW

Trinapanchamoola contains five drugs:

1. Kusha - *Desmostachya bipinnata*,
2. Darbha - *Imperata cylindrica*,
3. Kash - *Saccharum spontaneum*,
4. Shar - *Saccharum munja*,
5. Ikakshu - *Saccharum officinarum*.

<p>Kusha^{7,8} Bot. name - <i>Desmostachya bipinnata</i> Fam. – Gramineae</p>	
Gana	Mutravirechaniya, Stanyajanan
Guna	Laghu, Snigdha
Rasa	Madhura, Kashaya
Virya	Sheeta
Vipaka	Madhura
Doshakarma	Tridoshaghna
Part used	Root
Chemical constituents	Cylindrin, Arundroine, Feninole isoarborinole
Function	Mutral (diuretics)
Indication	Mutrakrichha (UTI), Bastishoola (pain in bladder), Ashmari (renal stone)

- The decoction of the root of *Desmostachya bipinnata* is given in a dose of 40-50 ml to treat burning micturation, retention of urine in renal calculi and to cleanse the urinary bladder.
- **Di – uretic action**⁹: The hydro – alcoholic extract of *D. bipinnata* whole plant was prepared by using Sox – hlet extractor and subjected to analysis by standard preliminary phytochemical tests. Evaluation of diuretic activity was carried out using standard methods. The hydro – alcoholic extract showed significant diuretic activity and was found to be the most potent in increasing the urinary output at 500 mg/kg when the effect

was compared with that of the standard frusemide ($P < 0.01$). Moreover, this extract was found to be most effective in increasing urinary electrolyte concentration (Na^+ , K^+ , and Cl^-).

Darbha (bot. name - *Imperata Cylindrica*)^{7,8}

In Ayurveda Darbha is described along with Kusha with similar Guna (Rasa, guna, virya, vipaka), but the plant have their specific functions.

The roots are antibacterial, diuretic, febrifuge, sialagogue, styptic and tonic.

The root has antibacterial action against *Staphylococcus aureus*, *Bacillus dysenteriae*¹⁰.

A decoction of root is used as an anthelmintic The root bark is febrifuge, restorative and and also to treat digestive disorders such as tonic¹². indigestion, diarrhoea and dysentery¹¹.

Kash^{7,8} Bot. name - Saccharum spontaneum Fam. – Gramineae	
Gana	Mutravirechaniya, Stanyajanan
Guna	Laghu, Snigdha
Rasa	Madhura, Kashaya
Virya	Sheeta
Vipaka	Madhura
Doshakarma	Vata-pitta Shamaka
Part used	Root
Chemical constituents	Starch and polyphenolic compounds
Indication	Mutrakrichha (UTI), Ashmari (renal stone)

- The decoction of root of Kasha is given in a dose of 50-60ml mixed with sugar candy to treat conditions of burning micturition, burning sensation of body and excessive thirst.
- The root of S. spontaneum is boiled in cow milk and given in a dose of 50-60ml to lactating women to improve the quantity of breast milk.
- Decoction of root is given in a dose of 50ml mixed with Gokshura powder in renal calculi.
- In menorrhagia and blood mixed diarrhoea, the decoction is given in dose of 50ml.

Shara^{7,8} Bot. name - Saccharum munja Fam. – Gramineae	
Gana	Trinapanchamoola
Guna	Laghu, Snigdha
Rasa	Madhura, Tikta
Virya	Sheeta
Vipaka	Madhura
Doshakarma	Tridosahar
Parts used	Root

Chemical constituents	Cellulose, lignin, Pentosoms
Function	Mutral (diuretics)
Indication	Mutrakrichha (UTI)

- Cold infusion prepared from the root of shara is given in a dose of 40 – 50 ml to treat burning sensation of the body, thirst and burning urination during summer season.
- Decoction of the root of Saccharum munja is given in a dose of 50 – 80 ml to treat piles, burning sensation of the eyes due to exposure of sunlight, during fever etc.
- Root of shara is boiled in milk and given in a dose of 50 ml to improve the breast milk in lactating women and to improve the sperm count in males.
- In condition of leucorrhoea, the decoction of the root of shara is boiled in rice gruel water and given as part of treatment.
- The drug Shara is in group of Trinapanchamoola / moothravirachaneeya and the roots of Shara are given internally in moothrakricha, moothrasmari, pitholvanasmari etc
- It is also used in leucorrhoea (dradhura), sthanyakshya, sukra dhourbala, daha, rakta pttā, arrsas, visarpa, rakta vikara, thrishna, raktha dhushti ganya vikara, and rakta sodhana
- It is a useful rasayana and vageekarana. It is used in kasa, pittagakasa, and akshiroga. Besides trinapanchamoolaformulations (yoga kalpana) the roots are employed as ingredient of some other compounds such as Brahma-rasayana, brahmi kundika, sukumara khratha, and enrdo daka rasayana and thrana panchamoola khrutha

<p>Ikakshu^{7,8} Bot. name – Saccharum officinarum Fam. – Gramineae)</p>	
Gana	Trinapanchamoola
Guna	Guru, Snigdha
Rasa	Madhura
Virya	Sheeta
Vipaka	Madhura
Doshakarma	Vata-Pitta shamak, Kaphavardhaka
Part used	Stem, root
Chemical ingredients	Phytosterols, terpenoids, flavonoids, glycosides, phenolic acid
Function	Mutral (diuretics)
Indication	Mutrakrichha (UTI), Vrikka roga (Pyelonephritis)

- It acts as a diuretic and helps in detoxifying kidneys¹³.
- Sugar cane is used to treat constipation, coughs, and external skin problems¹³.
- Both the roots and stems are used to treat skin and urinary tract infections, as well as for bronchitis, cardiac disease, loss of milk production, cough, anaemia, and constipation¹³.
- It is also advocated for jaundice and low blood pressure.
- Regular use of sugarcane juice keeps the urinary flow clear and fast, which will further help the kidneys to perform their function properly. Sometimes it is used with lime juice and ginger juice for better results. It is also used as aphrodisiac, laxative, cooling, demulcent, antiseptic, and tonic.¹⁴
- As like Ayurveda, modern pharmacological studies indicated that sugarcane has various bioactivities like anti-inflammatory, analgesic, antihyperglycemic, diuretic, and hepatoprotective effects. Although apigenin, tricetin, and luteolin glycosides like orientin, vitexin, schaftoside, and swertisin were reported as the main constituents in sugarcane juice, various policosanols and steroids were also reported in different parts of *S. officinarum*.

Preparation of Trinapanchamoola decoction⁴

It is a method to draw the active ingredient of root of all above described five drugs in water. All five drug root are taken in course form, equally and added to 16 parts of water, boiled and reduced to 1/4th part, then filter it and use as per indication.

Dose: 20-30 ml 12Hrly with plenty of water.

Contraindication: Oligohydramnios, IUGR.

Precaution: should not take for long time, overdosing may cause gastritis, pregnant and

lactating women should take under supervision of obstetrician.

CONCLUSION

Urinary tract infection is more common during pregnancy due to the growing foetus to press ureter and hormones that can encourage bacterial growth. As early as six weeks of gestation, almost all pregnant women experience ureteral dilation. The symptoms of UTI trouble the pregnant women, and may be harmful for both mother and growing foetus. The miscarriage and premature labour may be the risk. Use of antibiotics may cause teratogenic effect, at a situation Trinapanchamoola under supervision of obstetricians are advocated for best.

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