Discussion

Urinary tract diseases and its treatment is an important part of medicine both āyurvēdika and modern. Urinary tract problems are tackled by modern medicine by administering of antibiotics for infective conditions, anti-protozoal drugs for protozoic infestations, for protozoa and flagellets, malignancy by administration of anti-cancer drugs, diuretics and recently by dialysis and kidney transplants.

According to āyurvēdika principles, the aim of the treatment is to re-establish the sāmyāvasthā i.e the balance of dōṣas, dhātū and malas. āyurvēdika treatment is designed to bring about a total samprāptī-bhaṅga. The treatment also aims at strengthening the dōṣa, dhātūs and mala. āyurvēda does not much believe in the treatment of invading pathogenic organisms like bacteria, bacilli, viruses and protozoons etc. āyurvēdika treatment aims at non-recurrence of the disease condition by employing a suitable drug system.

In the present study it is clinically seen very clearly the administration of gōkṣūra kvātha (aqueous decoction) enriched with yava kṣāra brings about a striking relief in all the symptoms seen in the patients chosen here as parameters. The parameters chosen are from the āyurvēdika saṃhitā. This is because āyurvēdika diagnosis has been considered as the basis for this study.

Mūtrakṛchra is an acute problem. Especially in draught areas, where seven to nine months every year, water has to be supplied by tankers. Scarcity of water coupled with Sun's heat and vāta prakōpaka
ahāra like chilies, millets, dry food items like stale 'bhākarī', Home made liquor, pungent and spicy diet, fermented food stuffs, help increase the incidence of pittaja mūtra kṛčhra. In mahārāṣṭr, vidarbha, marāṭhavāḍā cities like sōlāpūra, nāndēda, parabhaṁī, even sāṭārā, sāṅgalī, are the most vulnerable areas and cities for the draught every year. It is in these areas, natural factors are responsible for mūtrakṛčhra where as in urban areas, hetus like perverted sexual activities, high alcohol containing beverages (rum, whisky, gin, brandy and beer), adhyāśana of spicy foods at odd times and keeping at late nights, riding on automotive two wheeler vehicles are the most important aetiological factors for pittaja mūtra kṛčhra.

Whatever the nature of aetiological factors, as far as the āyurvedīka approach is concerned treatment of pittaja mūtra kṛčhra remains the same.

It is our experience that antibiotics become refractory as the causative pathogens soon acquire resistance to them. To overcome these difficulties many different higher antibiotics are mixed to increase their effectiveness. This increases the risk of toxicity, allergy, anaphylactic reactions and secondary diseases like anaemias, agranulocytosis, bone marrow depression, loss of hair, diarrhoea, toxicity to vital organs like kidneys, liver, heart, skin, CNS etc. āyurvedīka drug treatment for the pittaja mūtra kṛčhra in the present study did not show such problems. The āyurvedīka treatment was well tolerated and no side effects or toxic effects were reported during and after the drug treatment period. There is reason to believe āyurvedīka drug treatment did not cause resistance and they were effective on all the occasions.
The two groups such as control and the drug treated in the present work are comparable with minimal variants. This is evident from the table and the graphs pertaining to general information. Each group contains sixty patients chosen on random basis.

The assessment of effect of गोक्षुरा क्वाठ with यावक्षारा was assessed on ten parameters taken from the सांहिता. The assessment was conducted for nine days, day 1 as examination day and after examination, same day treatment was given and day 9 was observed as a follow up day or 'after treatment' day. The observations and the readings were taken on day-to-day basis. It is observed that patients responded for all the symptoms at the end of 24 hours in drug treated group. At the end of the trial majority of the लक्षणा were substantially reduced denoting the 'सम्प्राप्ति-भांगा'. On the other hand in the control group, symptoms did not abate. Some of the symptoms in the control group were on the rise.

Because, often symptoms chosen are inter-related and also inter-dependent the modification in their severity is almost similar. This shows that the drug combination गोक्षुरा क्वाठ with यावक्षारा brings about a simultaneous effect on खावांगुण्या produced by various aetiological factors and spread all over the मुत्रवाहा स्त्रोतसा.

**Process of Samprāpti Bhaṅga**

गोक्षुरा plant is a small herb having spreading characteristics all along the ground and is available all the year round throughout India. It has the following properties -मधुर, विषय, बलय, पुष्टिकारक, शिता विरया. Because of these properties, which are mostly pittaghna, गोक्षुरा क्वाठ is able to bring about reduction in symptoms like सदाहा मुत्रा प्रवृत्ति, उष्णा
mūtra pravṛttī, sarakta mūtra pravṛttī, saśūla and mūhrumūhū mūtra pravṛttī etc. ten symptoms.

The whole plant is useful but popularly only the seeds are used. In the present work I have also obtained for the seeds. The fruits are erroneously called as seeds. Actually the tiny seeds are inside the fruits. This selection was because of ease of identification, ease of the cleaning from the pollutants, than the rest of the plant parts.

Yava according to āyurveda is kašāya, rukṣa balakāraka, vrṣya, śīta vírya, guru, mṛdu, varṇya, non secretory, svarya, digestive, vṛañjārāpaka, diuretic, picchila, mēdhya, stabilizer of the excretory products, lēkhaṇa, kaphaghna, Anti-vātarakta, beneficial in diabetic conditions (pramēha) trṣṇāhara, vātaghna and cures conditions like pīnasa śvāsa, kāsa, useful in urustambha, diseases of throat and skin. This long list of properties of fresh yava is complementary to gōkṣūra, which is the main drug, but in the present study, kṣāra was used instead of the fresh yava.

Kṣāra is obtained after burning dried yava to white ash from which transparent, crystalline kṣāra is obtained by evaporation of the clear supernatant layer of water. All kṣāras are tīkṣṇa, uṣṇa, vidāhi, lēkhaṇa, and have ability to remove obstruction kṣāra attracts āpa dhātū and enhances urine production. Thus, the properties of both gōkṣūra and yavakṣāra together counteract pitta enabling the reduction of avarōḍha, increase the urinary output, rendering the urine in such a way that while voiding the urine does not cause irritation or pain. In other wards, the combination of the drugs under trial leads to normal urination.

Gōkṣūra particularly acts on major or minor stones (āśmarī) and
dissolves them. Effect of gōkṣūra on heart appears to be stimulant within physiological limits which indirectly increases the urinary output. As mentioned earlier, pittaghna properties bring about stambhana karma so that sarakta mūtratā vanishes. The secretory and hygroscopic activity of yava kṣāra along with the madhūra and vṛṣya properties of gōkṣūra culminate into secretory activity in the mūtramārga. It helps in covering the internal lining of mucus membrane with picchila kapha. It acts as a barrier for the hot and acidic mūtra in pittaja mūtrakṛcchra. This helps in dāha śamana as well as reduction of difficulty in micturition.

Because of the absence of the side effects, it is concluded that the drug combination under study does not have a spill over action on the vital organs. In other words, as the dōṣa dūṣya sammurcchanaḥ happens in mūtravaha strōtasa as shown in the diagram, the drug combination reverses the samprāptī in the same way, but in the opposite direction. In the present study, symptoms are reduced one by one. It shows that the actions of samprāptī bhaṅga takes place in the entire mūtravaha strōtasa. The drug action starts within 24 hours. It is conspicuous from the clinical point of view where it can only be said that the site of action of the drug combination is the entire mūtravaha strōtasa.

The researcher is aware that the present study is not sufficient to explain the mode of action on modern lines, which was not the aim of this study any way. But it is sufficient to point out that the drug combinations acts not only on the mūtravaha strōtasa but also on the agni responsible for sāra kiṭṭa vibhajana at pakvāsaya level and thereafter at vṛkka (both the kidneys). It is clinically established in the present study that the drug
combination in mūtra kṛćchra is specific, its target organ being mūtravaha strōtasa and at no other place. The present study brings out the fact that the drug combination is safe and effective at the given dose, for the given drug and for the given duration of the treatment. The drug treatment selected in this study is very economical and easily available round the year. The manufacture of gōkṣūra and yava kṣāra does not involve sophisticated drug manufacturing machinery. It also does not require skilled workers. Therefore, it is a very valuable combination, especially in the under-educated and under-privileged Indian society.

The clinical trial shows that the percentage of improvements in all lakṣaṇa together is 77.08% in drug treated group as compared to 7.04% in the control group.

This clinical trial has been proved to be very effective. All the clinical symptoms seen in the patients show a highly significant result (P= 0.001).

This proves that the present āyurvēdika drug trial appears to be broad spectrum, effective, cost-effective, can be given to all the age groups. It is the humble opinion of the researcher that this drug combination should be treated as a first line of treatment in all cases of pīttaja mūtra kṛćchra.