**Ureteric Colic Management : A KAP Survey, to assess whether Indian Urologists are *Evidence-based or biased ?***

**Running title:** Ureteric Colic Management

**Type of Article:** Original Article

**Abstract:**

**Background :**

Ureteric-colic is an extremely painful and commonly encountered condition,with a high recurrence rate. Hence, diagnosis and management of such patients is of utmost importance. European association of urology(EAU)and American urological association(AUA) guidelines are well established,with regards to ureteric-colic management. However,are Indian urologists actually practicing this “Evidence based management”or is it “experience based”

To assess this, we conducted this KAP(knowledge, attitude and practices) survey to evaluate the inter-institute/inter-urologist variability in the actuarial management of ureteric calculus disease.

**Methods:**

An 18 point web-based questionnaire was sent to 100 major institutes across India. Repeated reminders were sent (texts,whatsapp messages,emails and phone calls) and 30 institutional replies were obtained of the 100 contacted. The KAP were evaluated based on the replies and compared with the EAU and AUA guidelines.

**Results:**

73.3% urologists saw 1-5 patients of ureteric colic daily.63.33% used an ultrasonography while 36.6% preferred a non-contrastCT scan for diagnosing ureteric colic.

Medical expulsive therapy(MET) was offered for 5-6mm calculi in the mid-distal ureter with tamsulosin as the molecule of choice. 17 of 30 urologists advised MET for a month.

56.6% routinely put a DJ stent after stone treatment,with 88% preferring to remove the stent within4 weeks,after an X Ray. 63.3% urologists reported symptomatic stone recurrence 1-3 years after the primary surgery.

**Conclusion:**

There doesn’t appear to be unanimity in the knowledge versus practical applicability of Ureteric calculi management guidelines, among the Indian urological fraternity.

Whether our practice is evidence based, or biased- upon personal preferences *&* experiences still remains a matter of debate and setting up specific “Indian guidelines” is the ***“need of the hour”***

**Keywords:**

Ureteric Colic

KAP Survey

Indian urologists

**Introduction:**

Ureteric colic is an extremely painful condition and only a person, who has suffered from an attack of pain, can actually know the level of discomfort associated[1]. Additionally, the norm “once a stone former, always a stone former” still holds true. Hence, the diagnosis as well as management of such patients is of utmost importance, for all urologists.

European association of urology (EAU), as well as American urological association(AUA) guidelines are well established and validated, with regards to the management of ureteric colic. However, to assess whether Indian urologists are actually practicing this “Evidence based management”, or is it “experience based”, we decided to conduct this KAP (knowledge, attitude and practice) survey.

**Material and Methods:**

An 18 point web-based questionnaire was sent to 100 major institutes across India, between March to August 2020. Repeated reminders, in the form of text messages, whatsapp messages, emails and phone calls, were sent, in order to get maximum input. A total of 30 institutional replies were obtained out of 100 institutions contacted.

The knowledge, attitude and practice (KAP) of urologists were evaluated in accordance with their replies and compared with the standard EAU and AUA guidelines.

Statistical significance was calculated using SPSS version 11.5, with 95%C.I. and a *p* value of < 0.05 was considered as significant.

The questions were as follows:

1. How many patients with ureteric colic do you see in a day?

2. What is the 1st investigation used for diagnosis?

3. Do you routinely use a CT scan for ureteric colic evaluation?

4. If not a CT scan, what do you routinely use for ureteric colic evaluation?

5. What would be the size of the calculus you would prefer to give MET (Medical expulsive therapy) ?

6. What would be the location of the calculus you would prefer to give MET ?

7. What is your drug of choice for MET ?

8. What is the duration of MET that you would advise your patient*?*

9. Do you routinely put in a Double-J (DJ) stent in all pts undergoing surgery for ureteric calculi *?*

10. If not routine, in what percent (%) of patients do you place a DJ stent*?*

11. Once placed, after how many weeks do you remove the DJ stent *?*

12. What is your drug of choice for the patient’s stent related issues (pain/discomfort) *?*

13. What investigation do you use prior to DJ stent removal for confirming stone clearance *?*

14. What is the follow up radiological investigation for recurrent stone formers *?*

15. At what frequency of follow up do you advise these radiological investigations ?

16. In what *%* of pts do you advise metabolic stone evaluation *?*

17. Does metabolic stone evaluation alter your treatment plan in any way?

18. How soon, after a primary surgery, have you usually seen symptomatic stone recurrence ?

**Results:**

The results of the survey were as follows:

73.3% of urologists would see 1-5 patients of ureteric colic in their daily practice.

19 out of 30 of urologists(63.33%) preferred to use an ultrasonography(USG KUB) as the first investigation for evaluation of their suspected colic patients (p < 0.05) and only 11 out of 30 (36.6%) were routinely using a non-contrast CT scan for diagnosing ureteric colic disease.

Medical expulsive therapy(MET) was preferred for calculi of sizes up to 5-6mm and for mid and distal ureteric calculi (p < 0.05) with tamsulosin as the molecule of choice (p < 0.05).

17 out of 30 (56.6%) of urologists advised MET for about a month (p < 0.05)..

Only 56.6% (17/30) practitioners routinely put in a DJ stent after ureteroscopic stone treatment, with 88% preferring to remove the stent at or within 4 weeks.

There was a wide variation in the drug of choice for stent-related issues **(Figure 1).**

An X-Ray was the investigation preferred prior to stent removal by 21 out of 30 (70%) urologists (p < 0.05), with follow ups being mainly ultrasound based (73.3%) (p < 0.05).

Follow up radiological investigations were advised at 6 months or 1 year after primary treatment.

19 of the 30 urologists (63.3%) advised metabolic stone evaluation in only 10% of their patients, with 43.3% of urologists (13/30) saying that this evaluation made only a 10% difference in their management protocols.

63.3% of urologists(19/30) reported seeing symptomatic stone recurrence between 1 to 3 years after their primary surgery.

The following table below **(Table 1)** enlists the major guidelines and whether they are routinely followed or not.

|  |  |  |
| --- | --- | --- |
| **S No.** | **EAU */* AUA guidelines** | **Followed (Yes/No)** |
| 1. | NCCT for stone diagnosis | No |
| 2. | MET given to patients based on calculus size/location | No |
| 3. | No need for routine DJ stenting after uncomplicated URS | No |
| 4. | Alpha blocker for stent related issues | Yes |
| 5. | Duration of MET (4-6 weeks) | Yes |
| 6. | Need for metabolic stone evaluation | No |
| 7. | NCCT based follow up | No |

**Table 1:** EAU/AUA guidelines and their application by Indian urologists in their practice.

**Discussion:**

Ureteric colic is a commonly encountered and extremely painful condition. It is postulated that kidney stones will afflict about 10% of people in their lifetime, and more than half of those with kidney stones will experience a recurrence [1,2]. Considering that India is the second largest country in the world, in terms of population, this extrapolates to a vast number of patients suffering with ureteric colic disease. Herein lay the importance of management as per accepted international guidelines (EAU and AUA).

As per our study, a statistically significant number of urologists used an ultrasound (USG-KUB) for confirmation of their primary clinical diagnosis of ureteric colic. However, both the EAU as well as the AUA guidelines mandate the use of a non contrast CT scan (NCCT) for confirming stone diagnosis in patients with flank pain(Grade A recommendation; LOE 1a) [3,4]. The AUA guidelines enunciate NCCT as the most sensitive and specific investigation for confirming ureteric colic. They also recommend the use of NCCT for confirming stone clearance prior to DJ stent removal as well as in follow ups[3,4]. In our study, around 36.6% of urologists routinely used an NCCT. The low number of urologists using NCCT could be mainly attributed to “cost constraints” or “local ease of availability” in developing countries as ours or in some cases, probably the worry of “radiation exposure”.

MET was preferred for calculi of the size up to 5-6mm and located in the mid or distal ureter, in our study. Contrary to this notion, the EAU guidelines state in patients with newly diagnosed uncomplicated ureteric stones upto 10mm, where active removal is not indicated, MET can be given (Grade A recommendation; LOE 1a)[5]. However, EAU does caution that the choice between active removal and MET must take into account all individual circumstances and that the patient should be reasonably comfortable, pain free and well counseled about this approach[5]. The AUA suggests the use of MET for uncomplicated ureteral stones less than or equal to 10mm, irrespective of their location[6,7]. Additionally, they also emphasise that the interval to stone passage is highly variable and dependent on stone size, location and side and nearly 50% of calculi greater than 5mm may need active intervention during this period of enforced MET[6,7]. These recommendations make the role of MET questionable, especially in larger calculi (>5mm) as well as location based and MET may need to be individualized and left to the discretion of the treating physician.

Tamsulosin (alpha-blocker) was the molecule of choice for MET, which conforms to the EAU guidelines(Grade A recommendation; LOE 1a)[8,9,10]. The duration of MET was for nearly a month, which is also in sync with the EAU and AUA guidelines[8,9,10].

Routine D J stenting was done by 56.6% urologists in our study, with most removing the stent around 4 weeks after initial intervention. The EAU guidelines recommend that a stent need not be routinely inserted in an uncomplicated URS (Grade A recommendation; LOE 1a)[11,12,13]. AUA recommendations are that DJ stenting may be omitted in patients without suspected ureteric injury or stricture, those with no anatomic impediments to stone fragment clearance and a normal contralateral kidney (Grade A recommendation)[14]. The point to ponder upon is whether urologists feel more secure with DJ stents in situ and so whether these 56.6% were routinely using them irrespective of the need or not.

The drug of choice for stent related issues/discomfort led to, what we would like to enunciate, as a “***Pizza-effect***” (due to the wide inter-urologist variability) with tamsulosin and tolterodine being most commonly preferred among institutes in our study (Figure 1). EAU recommends the use of an alpha-blocker (Grade A recommendation)[15] and AUA recommends using an alpha-blocker and/or anti-muscarinics (Grade B recommendation) [16].

Metabolic stone evaluation is done by a minority of urologists with a minimal or negligible change in their management thereafter. EAU recommends stone analysis in first time stone formers using X Ray-diffraction or Infra-red spectroscopy (Grade A recommendation; LOE 2)[17] and repetition of stone analysis in patients presenting with recurrent stones despite drug therapy, those with early recurrence after documented complete stone clearance or those with late recurrences after a long stone free period, as the stone composition may change (Grade B recommendation; LOE 2) [17].

Symptomatic stone recurrences were seen within 1-3 years of primary treatment, which is in sync with literature.

Thus, in a nutshell, some guidelines are followed “to the hilt” while others are “waived off” attributing them to our personal experiences or preferences. This is not to say that the patients are harmed or not managed as per the “best clinical practice”, rather, a few of these EAU and AUA guidelines may need a re-thinking / re-understanding with regards to their practical applicability as well, particularly in the Indian scenario.

The limitation of our study would lie in the low institutional response rate and subsequently less numbers for highly significant statistical analysis.

Nevertheless, it would be safe to say that the future of Indian Urology may lie in setting up of individualised guidelines by the Urology society of India (USI) taking into account our socio-economic, practical and demographic assets.

**Conclusion:**

There is ample evidence, to support guideline based management of patients with ureteric colic, however, there does not appear to be unanimity in the actuarial knowledge versus practical applicability of guidelines towards this among the Indian urological fraternity.

Whether our practice is evidence based, or biased- upon personal preferences *&* experiences still remains a matter of debate and setting up of specific “Indian guidelines” by the USI is the ***“need of the hour”.***

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**Figure Legends:**

**Figure 1:** The “**Pizza- effect”** showing multiple preferred drugs for stent related issues.