

Pace et al 8, in their series of 1593 ureteral stones treated, reported stone free rates of 68% , 76% and 77 % after the 1st, 2<sup>nd</sup> and 3<sup>rd</sup> treatment respectively. Upper and mid ureteric stone free rates were significantly higher than distal ureter treatment respectively Success rate were also higher for smaller stones (10 mm or less = 74 % versus 11 to 20 mm = 43%). They also showed that ureteral pre-stenting appears to decrease the stone free rate. The AUA ureteral stones clinical guidelines panel found stone-free rates for stones < 10 mm were 85 % and 87 % in the distal and Proximal Ureter respectively. For Stones > 10 mm, the stone free rate was 76 %.

## URETEROSCOPY

Advances in ureteroscopic technology with the introduction of small caliber semi-rigid and flexible ureteroscopes combined with the introduction of Holmium YAG laser have improved the stone free rates following URS while decreasing the complications. The Ho-YAG laser is less penetrative than other laser modalities (0.5-1.0 mm) and acts to destabilize stones, creating small stone fragments (<2 mm) and fine dust. It is now considered the state of the art, and supercedes all other lithotrities for ureteric calculi.

In many series, stone free rates after URS were over 90 %, often approaching 100 %. Time to stone free status is also shorter than of ESWL- Bierkens et al reported comparable stone free rates, but the time taken was a mean of 42 days for ESWL and 2 days for URS respectively.

Parker et al 10 (2004) found that in proximal ureteric stones, the efficiency quotient for stones less than 1 cm for URS and ESWL was 0.79 and 0.51, respectively. For stones 1 cm or greater, URS had an efficiency quotient of 0.72 and ESWL of 0.46. The URS group required fewer days to be stone free (8 versus 25.5 day). URS was also found to be more cost effective, with significantly lower charges for URS (9378 US dollars versus 15,583 US dollars).

For distal ureteric stones, strohmaier et al has similarly found a significant difference in the efficacy of ESWL monotherapy vs URS. In many studies the cost of ESWL monotherapy and URS are similar. From a procedural standpoint, both options have similar duration (less than 1 hr) and potentially similar associated morbidities (both are outpatient procedures). With the lower efficiency of ESWL, the cost of followup is likely to be higher because further imaging and clinic visits may be required to ascertain the stone free status of the patient. This taken together with the retreatment required for stones not cleared by ESWL monotherapy, and we can see that for most centres, URS while being invasive, may be the more cost effective option.

While URS, is an invasive procedure and the Ho-YAG laser can cause thermal damage to the urothelium, its safety has been shown. Sofer et al reported laser related complications of less than 1 % with stone free rates of 97-100%. The incidence of ureteral trauma and perforation after ureteroscopy was as high as 15% and 15-30 % respectively, but is likely to be less with the advent of smaller gauge ureteroscopes and ureteral access sheaths, and greater experience

today.

## ALTERNATIVES

Percutaneous antegrade ureteroscopic access is a viable treatment option for upper ureteral stones, in cases where ureteroscopic management is not possible. This approach comes with a high stone free rate, but may be associated with significant risks and increased fluoroscopy.

Another alternative is laparoscopic ureterolithotomy. Indications include stones that cannot be assessed ureteroscopically, calculi that cannot be fragmented with minimally invasive modalities or who need simultaneous treatment of other urinary tract conditions; large (>2 cm) impacted stones is also a relative indication.

In the modern age, there is almost no place for open ureterolithotomy in property equipped endourological centres.

When considering the choice of intervention for ureteric calculi, the following should be taken into account: stone burden, stone site, interval to stone free status, invasiveness, cost effectiveness, and ultimately, the patient's preference.

In recent years, the outcomes for endoscopic management of ureteric stones in all ureteric sites is increasingly better and is now equal if not better than ESWL and may be more cost effective.

Where endourological methods fail, laparoscopic ureterolithotomy can replace the open approach in most cases.

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## LITERATURE REVIEW

### Prevalence of Risk Factors for Coronary Artery Disease in the Community in Eastern Nepal – A Pilot Study

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Coronary artery disease is a major cause of morbidity and mortality in Nepal, however, there are very few published reports of prevalence of various risk factors for coronary artery disease in the community from Nepal. We evaluated 140 adult subjects by simple randomization from all wards in the community in Dharan, a small city located in the foothills in eastern Nepal. After exclusion of subjects with insufficient data, 119 subjects were included for the final analysis. Age ranged from 35 to 86 (mean 54.1 ± 10.5) years and there were 63 males and 56 females. Various parameters which were studied included: history of diabetes mellitus, hypertension, coronary artery disease, smoking, hereditary history, family history, measurement of blood pressure, anthropometric parameters such as body mass index and waist hip ratio and biochemical parameters such as random blood sugar and serum cholesterol. The prevalence of various risk factors for coronary artery disease was found to be: hypertension – 42 (35.3%), diabetes mellitus – 19 (15.9%), history of current smoking – 46 (38.7%), hypercholesterolemia – 15 (12.6%), sedentary life style 56 (47.1%), body mass index > 25 kg/m<sup>2</sup> – 40 (33.6%) and central obesity 50 (42.1%). Approximately one third of the subjects had more than one risk factor. **Conclusions:** The study highlights prevalence of various risk factors for coronary artery disease in the community. Since majority of the risk factors are modifiable, timely intervention can help in reducing morbidity and mortality due to this disease.

abdominal radiograph, which had a sensitivity of only 46% and specificity of 82%. Portis and colleagues<sup>34</sup> recently reported that high-magnification rotational fluoroscopy combined with aggressive flexible nephroscopy can identify residual fragments, which can then be removed at the same time. As a result of the previous studies, the authors recommend meticulous, thorough flexible endoscopy before concluding a percutaneous procedure; this is combined with fluoroscopic images that are compared with the initial fluoroscopic scout image taken at the outset of the procedure. Because the authors employ a dual endoscopic approach both antegrade nephroscopic and retrograde ureteroscopic/collecting system inaccessible through the percutaneous tract can be accessed ureteroscopically. If the patient appears to be stone free both endoscopically and ureteroscopically, then a tubeless technique is used. On postoperative day 1, all patients have a noncontrast CT to further assess for any residual fragments and plan further treatment if necessary. If the followup CT scan shows no or only a few small microliths (3 mm), then the stent is pulled in a week in the office. If the follow-up CT on postoperative day 1 shows any fragments larger than 3 mm, then the next step is outpatient flexible ureteroscopy and holmium: YAG laser lithotripsy. Such outpatient procedures are very much facilitated by the indwelling stent, which dilates the ureter so that placement of an access sheath is easier, thereby facilitating the procedure.

## FUTURE DIRECTIONS

The age of imaging is rapidly giving way to the age of robotics in surgery. The day is fast approaching when all percutaneous access and conceivably all ureteroscopic access will be gained via a robotic interface, thus limiting the technical expertise required to obtain accurate puncture and controlled destruction of renal and ureteric calculi. A console capable of operating a variety of endoscopic and lithotripsy equipment within the patient will likely soon arrive, so that the stone surgeon, like the prostate cancer surgeon, will be able to sit comfortably while remotely performing even the most complex percutaneous procedures.

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## LITERATURE REVIEW

### Different clinical outcomes for cardiovascular events and mortality in chronic kidney disease according to underlying renal disease: the Gouryo study

Masaaki Nakayama, Toshinobu Sato, et al. *Clinical and Experimental Nephrology*, Volume 14, Number 4, 333-339

Chronic kidney disease (CKD) can result from a wide variety of diseases, but whether clinical outcomes differ in the same CKD stages according to the underlying renal disease remains unclear. Clarification of this issue is important for stratifying risk of cardiovascular disease (CVD) and death in patients before dialysis. The study comprised 2,692 patients recruited from 11 outpatient nephrology clinics, classified by underlying disease of primary renal disease (PRD) ( $n = 1,306$ ), hypertensive nephropathy (HN) ( $n = 458$ ), diabetic nephropathy (DN) ( $n = 283$ ), or other nephropathies (ON) ( $n = 645$ ). Risks of events such as ischemic heart disease, congestive heart failure, stroke, and all-cause mortality within 12 months were examined by logistic regression analysis in each group. During the 12-months' observation from recruitment, 200 cases were lost to follow-up, and 113 cases were introduced to chronic dialysis therapy. A total of 69 CVD events occurred (stroke in 27 cases), and 24 patients died. In total, increased odds ratios (OR) for the events by CKD stage (cf. CKD1 + 2: unadjusted) were CKD3, 1.29 [95% confidence interval (CI), 0.70-2.17]; CKD4, 2.73 (1.55-4.83); and CKD5, 4.66 (2.63-8.23). Regarding events in respective groups, no significant differences were seen by CKD stage except for the group with HN, but significant differences were seen by underlying diseases (cf. PRD: adjusted for confounding factors, including estimated glomerular filtration rate): HN, 2.57 (1.09-6.04); DN, 12.21 (3.90-38.20); and ON, 4.14 (1.93-8.89). **Conclusion:** Risk of CVD and mortality due to CKD needs to be stratified according to the underlying renal diseases.