



Nephrostomy tube versus double J ureteral stent in patients with malignant ureteric obstruction. A systematic review and meta-analysis of comparative studies

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Purpose: We aimed to perform a systematic review to assess perioperative outcomes, complications, and survival in studies comparing ureteral stent and percutaneous nephrostomy in malignant ureteral obstruction.

Materials and Methods: This review was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses framework. Meta-analyses were performed on procedural data; outcomes; complications (device-related, accidental dislodgement, febrile episodes, unplanned device replacement), dislodgment, and overall survival. Continuous variables were pooled using the inverse variance of the mean difference (MD) with a fixed effect, and 95% confidence interval (CI). The incidences of complications were pooled using the Cochran-Mantel-Haenszel method with the random effect model and reported as Odds Ratio (OR), and 95% CI. Statistical significance was set two-tail p-value <0.05

Results: Ten studies were included. Procedure time (MD -10.26 minutes 95%CI -12.40-8.02, p<0.00001), hospital stay (MD -1.30 days 95%CI -1.69 - -0.92, p<0.0001), number of accidental tube dislodgments (OR 0.25 95% CI 0.13 – 0.48, p<0.0001) were significantly lower in the stent group. No difference was found in mean fluoroscopy time, decrease in creatinine level post procedure, overall number of complications, interval time between the change of tubes, number of febrile episodes after diversion, unplanned device substitution, and overall survival.

Conclusion: Our meta-analysis favors stents as the preferred choice as these are easier to maintain and ureteral stent placement should be recommended whenever feasible. If the malignant obstruction precludes a stent placement, then PCN is a safe alternative

COMMENTARY

In this Journal Club edition, we will review the article published in the International Brazilian Journal of Urology in November 2022 by doctor Vineet Gauhar et al. A systematic review and meta-analysis of ten studies was done, comparing two techniques for resolution of malignant ureteral obstruction: double J (JJ) implantation and nephrostomy tube (NFT) placement. The research had 596 articles at first that after detailing and funneling resulted in nine retrospective studies and one non-randomized prospective study. Children and animals were excluded from the study.

The problematic was raised due the lack of specific guidelines for the resolution of malignant ureteral obstruction, considering survival time, complication rates, interference of quality of life, hospital costs and number of unscheduled hospitalizations after the procedure.

Regarding the procedure, average fluoroscopy time, device exchange time and surgical procedure time were analyzed. The procedure surgical time presented significant differences, showing preference for the JJ endoscopic implant for being faster, while the other variables didn't show statistically significant differences.

About the analyzed results there weren't statistical difference in overall survival or change of creatinine levels of those patients, however, the hospital permanence was significantly higher in the nephrostomy implant group.

In relation to complications there was no statistical difference in the number of febrile episodes, general complications (eg. bleeding) or unplanned device changes, but the number of accidental device displacements was significantly higher in the nephrostomy group.

Malignant ureteral obstruction is usually more severe and difficult to be endoscopically accessed when bladder or prostate is the neoplastic origin, because both usually cause extrinsic compression but also intrinsic infiltration, making visualization and catheterization of the ureteral ostium difficult, comparing to other neoplasms like colon and breast. Along with that, the technique decision must be based on the surgeon's experience and equipment availability. Another study cited in the systematic review showed that the costs for nephrostomy implantation are 3.3x higher than the ones for double J endoscopic implants.

Analyzing the parameters together, the double J implant had better procedural results, similar efficacy, and fewer handling problems than the percutaneous nephrostomy implant. The fact of less accidental displacement is an important point, avoiding repeated and unnecessary treatments which can be complex in fragile patients.

In patients initially treated with nephrostomy who have a longer life expectancy, replacement for a double J implant should be attempted to improve quality of life. The arrival of new materials for stents must be considered (eg metallic ones), increasing the intervals of device exchange and decreasing the number of procedures.

The main messages of the study indicate that the double J is less invasive and has greater appeal to patients, ensuring faster hospital discharges, longer exchange intervals and lower risk of displacement, however, when the placing is not possible, the patients should be informed with security that nephrostomy is not an inferior choice as a drainage procedure.

The study limitations include none specific assessment of the patient's quality of life, the different existing material of double J nowadays and the small number of patients included in the studies, which are mostly retrospective. The only prospective study cannot be randomized, since the choice of procedure must always be performed individually for each patient.

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