

Nicholas Myers

CAT Block 7 R1

Reference: Hollingsworth, J., Canales, B., Rogers, M., Sukumar, S., Yan, P., Kuntz, G., & Dahm, P. (2016, December 1). Alpha blockers for treatment of ureteric stones: Systematic review and meta-analysis. *BMJ*, 355(6112). Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5131734/>.

Clinical Question: To determine the safety and efficacy of alpha blockers in the use of ureteral stones

Design type: System review and meta-analysis

Introduction: Alpha blockers have been used routinely as part of medical expulsion therapy. However many of the studies looking at the routine use of alpha blockers for ureteral stone passage have been small studies. A recent large study of 1100 patients showed at four weeks out no difference in stone passage while using alpha blockers versus placebo. However that study did not look at the rate of passage based on size of stone, time to expulsion or other subgroup analysis. This large meta-analysis tried to determine use of alpha blockers and the rate of passage passed on size and stone location as well as patient centered outcomes such as pain, hospital admissions, and time to clearance.

Methods: All RCTs involving the use of alpha blockers compared to placebo for ureteral stones were eligible. The primary outcome assessed was the proportion of patients who ultimately passed their stone. Secondary outcomes included time to passage, number of pain episodes, and number of patients that required surgical intervention, required hospital admission, and experienced an adverse event. They utilized Cochrane collaboration's tool for assessing risk of bias.

Results: 55 RCTs were included. Results showed alpha blockers increased the rate of ureteral stone passage (risk ratio of 1.49 95% confidence interval of 1.39-1.61). They showed no benefit to treatment with alpha blocker on patients with smaller ureteral stones (1.19, 1.00-1.48). They did however show improved passage of larger stones (1.57, 1.17-2.27). The effect was independent to stone location (1.48, 1.05-2.10) for upper or middle stones but showed improved passage of lower stones (1.49, 1.38-1.63). These patients had shorter times to stone passage (mean difference -3.79 days, -4.45 to -3.14), fewer episodes of pain, lower risk of surgical intervention (0.44, 0.37-0.52) and lower risk of hospital admission (0.37, 0.22-0.64).

Discussion: Alpha blockers are efficacious, particularly for larger stones. Use of alpha blockers lead to quicker passage independent of stone location and has less long term outcomes such as surgical intervention or hospital admission. The results in this paper advocate for a continued role of alpha blockers in the treatment of patients with ureteral stones.

---