

## Definition of the kidney calyces' orientation during preoperative planning of percutaneous lithotripsy with the "Rubik's Cube" technique using mobile application: Pilot study

European Urology Open Science 2020;21(Suppl 2):S80

Guliev B., Komyakov B., [Talyshinskii A.](#)

North-Western State Medical University named after I.I.Mechnikov, Dept. of Urology, Saint Petersburg, Russia

**Introduction & Objectives:** To test the "Rubik's Cube" technique for the measuring of calyces' deviation via mobile application (app), displaying an interior view of the pelvicalyceal system (PCS).

**Materials & Methods:** Since January 2019 to January 2020 Eighty patients with indications for PCNL through the upper calyces group were enrolled. All patients underwent computed tomography (CT)-urography as a visualization tool. All patients were non-randomly equally distributed into two groups, depending on how specialist preoperatively defined puncture site: using only 3D-reconstruction of CT-data (Group 1) and using 3D-reconstruction of CT-data plus "InsKid" app (Group 2). The planning time, duration of renal cavity puncture and number of attempts were compared between groups. Complications associated with PCNL were ordered according to the Clavien-Dindo system and success rate compared between groups.

**Results:** Regardless of the non-random allocation, there was no significant differences between groups in the context of patient demographics. The duration of renal cavity puncture ( $17.6 \pm 5.1$  and  $7.8 \pm 3.1$ ,  $p=0.003$ ) and the total number of attempts ( $3.2 \pm 1.2$  and  $1.4 \pm 0.6$ ,  $p=0.02$ ) were less in Group 2. The complication rate and success rate were better in Group 2.

**Conclusions:** The proposed Rubik's Cube technique allows for the easy determination of minor calyceal spatial orientation, which may facilitate preoperative PCNL planning.