

P044 Is Clear-Petra (the new closed circuit mini-perc system) sustainable for the National Health System? A report from a tertiary academic center in Italy

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Introduction & Objectives: According to the European Association of Urology guidelines percutaneous nephrolithotomy (PCNL) is the standard for stones > 2 cm. Standard PCNL was designed to be an open circuit with a continuous inflow inside the collecting system and an outflow through the access sheath. The Clear Petra® (CP) system (16 Ch) has been created as a semi-closed circuit with a continuous inflow and a suction-controlled outflow. This tool facilitates the surgeon during fragments retrieval and may help controlling intrarenal pressures. The aim of our study was to analyze the costs of CP in order to define if this approach is sustainable for the Italian National Health System, comparing the costs with diagnosis-related group (DRG) reimbursement.

Materials & Methods: We included in the study 93 consecutive adult patients (from January 2018 to April 2019) submitted to PCNL with CP in our tertiary academic referral center, all treated by a single expert surgeon. All procedures were performed with a 12 ch Storz nephroscope in combination with Holmium:YAG reusable laser fibers.

Results: The reimbursement for PCNL in Italy is, respectively, €4710 for standard procedures (80/93, 86%) and €6290 for complicated procedures (13/93, 14%). The mean cost for procedure was €3281.59 ± 642.3 and mean DRG reimbursement was €4930.86 ± 550.8. Detailed costs are reported in Table 1. Total income for the department €467960 and total cost was €318319,15. Two patients (2.1%) had bleeding complications needing angioembolization but none was transfused. Median stone volume was 1.82 cm³ (IQR 0,88-3,06).

TABLE 1: Detailed costs in Euro (mean ± SD)

Item	Number of procedures (%)	Cost in Euro
Laser fiber (550 µm, 365 µm or 220 µm)	93 (100)	90 ± 11.2
Clear-Petra nephrostomic sheath	93 (100)	256,2 ± 0
Basic equipment (service guidewire, drapes, catheter, irrigation, syringes etc.)	93 (100)	329,18 ± 0
Second guidewire	87 (93.5)	22.19 ± 6.3
Baskets	31 (33.3)	59.59 ± 78.9
Nephrostomy	87 (93.5)	69.08 ± 16.5
Operating room costs weighted on operative time	93 (100)	1147.70 ± 396.79
Ancillary post-operative radiological costs (Pyelography, CT scans, etc.)	39 (41.93)	55 ± 213
Including extra costs for angioembolizations in two patients (CT scan, angiography, coils etc.)		Patient 1: 1207.2 Patient 2: 1706.1
Hospitalization costs	93 (100)	1274.19 ± 503.66
Antibiotics (prophylaxis and/or therapy)	93 (100)	4.3 ± 10.8

Conclusions: The Clear Petra® seems to be a cost effective tool. The overall net revenue for our department was €149640,85 over a 15 month period. Within the study limits, this system appears to be sustainable for the Italian National Health System. The main study limitation is that it was not possible to estimate the mean nephroscope cost for procedure: this device had already been used in several procedures before CP introduction and it is still in use.