

PP-010

Does body mass index (BMI) predict outcome in supine percutaneous nephrolithotomy (sPCNL)?

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Objective: High body mass index (BMI) is a recognised adverse indicator for operative and post-operative complications in patients undergoing surgery. The purpose of the current study was to evaluate the outcome and complications in patients undergoing supine percutaneous nephrolithotomy (sPCNL) stratified by their BMI, as per the WHO categories into non-obese (BMI <30 kg/m²) and obese (BMI ≥ 30 kg/m²).

Method: We performed sub-group analysis based on two BMI categories on the 102 patients that underwent sPCNL at our institution between 2009 and 2012. We interrogated our prospective database for any differences in the patient characteristics, intra- or post-operative outcomes and final stone free rates. The unequal variance *t*-test was used to compare the mean of two groups.

Results: There were 68 patients with BMI <30 kg/m² and 34 with BMI ≥ 30 kg/m². Apart from the BMI and stone size, the groups were compared with regard to their baseline characteristics, stone-free and complication rates, and length of hospital stay. The demographic and surgical outcome results are summarised in table 1. Complications noted in the BMI <30 group were: pyrexia – 1; renal colic – 1; haematuria – 1; haemorrhage / angiography - 1 worsening of renal function – 1; pulmonary embolism – 1. No major complications occurred in the BMI ≥ 30 group.

Conclusion: s-PCNL can be safely and effectively performed in obese patients with no increase in complications. The stone clearance rate is comparable in both non-obese and obese patients.

Table 1. Comparison between two BMI groups

	BMI < 30 kg/m² (n = 68) Mean (95% CI)	BMI ≥ 30 kg/m² (n = 34) Mean (95% CI)	P value
BMI (kg/m²)	26 (25.4 – 26.7)	35 (33.6 – 37.2)	<0.0001*
Age (years)	53 (49.2 – 56.8)	57 (52.3 – 61.7)	0.18
Stone size (mm)	21 (18.7 – 22.4)	26 (22.9 – 29.2)	0.0035*
Pre-operative Hb (g/L)	13.2 (12.8 – 13.6)	13.8 (13.3 – 14.3)	0.06
Post-operative Hb (g/L)	13.7 (10.9 – 14.2)	12.5 (11.9 – 13.1)	0.4
Pre-operative serum creatinine (micrograms/L)	94.7 (83.1 – 106.3)	100.1 (81.1 – 119.1)	0.6
Post-operative serum creatinine (micrograms/L)	105.5 (88.3 – 122.6)	98.11 (81.5 – 114.7)	0.5
Operative time (min)	83.2 (74.1 – 92.2)	83.8 (69.4 – 98.3)	0.9
Length of hospital stay (days)	3.3 (2.8 – 3.8)	3 (2.6 – 3.4)	0.3
Stone free rate (%)	82%	79.6%	-

BMI – body mass index; 95% CI – 95% confidence interval; Hb – haemoglobin; *statistically significant