WHICH PROSTATE IS ENUCLEATED MORE EFFICIENTLY DURING HOLMIUM LASER ENucleATION OF THE PROSTATE (HOLEP)?

Hypothesis / aims of study
Holmium laser enucleation of the prostate (HoLEP) is known to have a steep learning curve and, as a result, its clinical usage has limitations. The purpose of this study was to find out parameters to predict high enucleation time-energy-efficacy (ETEE, enucleated weight/enucleation time/consumed energy) in the learning curve of the HoLEP procedure.

Study design, materials and methods
One hundred of the consecutive patients who underwent HoLEP from April 2012 to April 2014 by a single surgeon (TBK) were enrolled. Perioperative clinical variables, including enucleation time, consumed energy, enucleation ratio (ER, enucleated weight/transitional zone volume), enucleation time-efficacy (ETE, enucleated weight/enucleation time), enucleation energy-efficacy (EEE, enucleated weight/consumed energy), enucleation ratio efficacy (ERE, enucleation ratio/enucleation time), and enucleation time-energy-efficacy (ETEE, enucleated weight/enucleation time/consumed energy) were analyzed.

The Student’s t-test was used to compare the preoperative variables of the two study groups divided by enucleation time-energy-efficacy (more efficient group (n = 42): ETEE ≥ 0.010 vs less efficient group (n = 38): ETEE < 0.010). To identify the independent predictive factors influencing enucleation time-energy-efficacy (ETEE, enucleated weight/enucleation time/consumed energy), univariate and multivariate analyses were performed using linear regression models.

Results
Mean age and prostate volume were 68.8 years (range 56-80) and 61.3 mL (range 25.1-184.4), respectively. Mean enucleation time, consumed energy, and enucleation ratio (ER) were 41.3 ± 19.2 (S.D.) min, 66.2 ± 36.0 kJ, and 0.753 ± 0.238 g/mL, respectively. In terms of efficiency, enucleation time-efficacy (ETE), and enucleation energy-efficacy (EEE) were 0.616 ± 0.366 g/min and 0.397 ± 0.217 g/kJ, respectively. Mean enucleation ratio efficacy (ERE) and enucleation time-energy-efficacy (ETEE) were 0.021 ± 0.009 g/mL/min, and 0.011 ± 0.007 g/min/kJ, respectively.

When the patients were divided into two groups according to enucleation time-energy-efficacy (more efficient group (n = 42): ETEE ≥ 0.010 vs less efficient group (n = 38): ETEE < 0.010), there were no differences between the two groups in Age, prostate volume, transitional zone volume. However, TZV/TPV (0.532 ± 0.138 vs 0.469 ± 0.142, p = 0.047) was different between the two groups. Univariate and multivariate analyses using linear regression models showed that TZV/TPV was the independent preoperative factor to predict enucleation time-energy-efficacy (ETEE).

Interpretation of results
The present study showed that the prostate with TZV/TPV ≥ 0.5 might be enucleated more efficiently.

Concluding message
We propose TZV/TPV as a independent preoperative parameter to predict enucleation efficiency in the learning curve of the HoLEP procedure.

Disclosures
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