

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): $ETEE \geq 0.010$ 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): $ETEE \geq 0.010$ 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 $TZV/TPV \geq 0.5$ 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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