



Safety and efficacy of bipolar vs. monopolar transurethral resection of bladder tumor-A randomized controlled trial

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Rationale of the Study

- Conflicting results have been reported for Bipolar and Monopolar TURBT
 - Earlier studies showed better outcome with bipolar TURBT
 - Later studies have failed to prove superiority
- We wanted to study the safety and efficacy of these modalities in our population.

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Material and Method

- Single center, single-blinded, parallel arm, randomized, controlled trial done at TUTH over a period of one year.
- The allocation ratio was 1:1
- All patients undergoing TURBT for suspected bladder tumors under spinal anesthesia included
- Consent withdrawal, bladder tumor other than in the lateral wall, unfit for spinal anesthesia and need of general anesthesia or obturator nerve block excluded

Objective

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- **Primary objective:** To compare the incidence of obturator jerk in monopolar and bipolar TURBT.
- **Secondary objective :** To study and compare the
 - bladder perforation, resection time, decrease in hemoglobin, decrease in sodium
 - rates of recoagulation and transfusion, resection syndrome, hospital stay
 - Severe cautery artifact in pathological specimen

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Basic demographic variable

	Monopolar TURBT	Bipolar TURBT	p value
Age (yrs)	60.02+/-2.15	61.76+/-1.71	0.53
Sex (M:F)	30/6	30/4	0.55
Tumor size (<3cm/ >3cm)	21/15	17/17	0.48

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Results

Enrollment

Assessed for eligibility (n=118)

Randomized (n=82)

Excluded (n=36)
No tumor in lateral wall (n=30)
Unfit for SA (n=6)

Allocation

Monopolar Group (n=41)
Received allocated intervention (n=36)
Protocol violation (n=5)

Bipolar Group (n=41)
Received allocated intervention (n=34)
Protocol violation (n=7)

Follow up

Lost to follow up (n=0)

Lost to follow up (n=0)

Analysis

Analyzed (n=36)

Analyzed (n=34)

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Discussion

Study	Obturator jerk (%)		Bladder perforation (%)		Resection time (min)		Hb drop		Severe Cautery Artifact (%)	
	Mono	Bi	Mono	Bi	Mono	Bi	Mono	Bi	Mono	Bi
Xishuang S et al (2010)	15	0	7	0	18	17	N/A	N/A	N/A	N/A
Geavlete et al (2012),	18	3	7.2	1.1	N/A	N/A	0.9	0.2	N/A	N/A
Vivek et al (2013)	51	58	17.4	17.6	49	42	1.06	1.03	48	24
Kutan Ozer et al (2015)	8	35	8	23	N/A	N/A	N/A	N/A	N/A	N/A
Our study (2018)	47	26	8	3	47	33	0.98	0.74	14	8

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	Monopolar TURBT	Bipolar TURBT	P Value
Obturator Jerk	17	9	0.073
Bladder Perforation	3	1	0.331
Resection Time	46.83 +/- 3.24 min	33.06 +/- 3.91 min	0.008
Hemoglobin drop	0.98 +/- 0.79 gm/dl	0.49 +/- 0.34 gm/dl	0.016
Sodium drop	0.53 +/- 0.16 mmol/l	0.68 +/- 0.7 mmol/l	0.93
Transfusion requirement	2	0	0.163
Hospital stay	3.25 +/- 1.22 days	2.70 +/- 1.05	0.52
Detrusor muscle identified	19	20	0.611
Severe artifact	5	3	0.506

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Conclusion

- Bipolar TURBT is a safe and efficient alternative for monopolar TURBT.
- Bipolar TURBT is associated with decreased resection time, and hemoglobin changes.
- No differences between two modalities for obturator jerk, bladder perforation, and transfusion and severe cautery artifact.