ASSESSING BLOOD LOSS IN ROBOTIC VERSUS ABDOMINAL MYOMECTOMY: THE IMPACT OF TRANEXAMIC ACID, VASOPRESSIN, AND MISOPROSTOL

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Background

- Uterine fibroids are the most common symptomatic neoplasm in women.
- Treatment options include expectant, medical and surgical management.
- Myomectomy is performed commonly for women with symptomatic uterine fibroids who desire to retain future fertility.
- ACOG recommends minimally invasive myomectomy as the preferred route over abdominal myomectomy.
- Pharmacologic adjuncts — including vasopressin, tranexamic acid (TXA), and misoprostol — are used to reduce intraoperative blood loss.

Objective

- To evaluate the effectiveness of combining vasopressin, tranexamic acid, and misoprostol (3-Medication Combination) in reducing estimated blood loss (EBL) during robotic and abdominal myomectomies compared to other medication combinations.

Methods

- Study Design: Multi-site retrospective chart review
- Sample: 171 patients who underwent myomectomy
- Mean age: 36.9 years
- Demographics: 48.3% Black, 24.4% Hispanic, 17.4% White, 9.9% Other
- Stratification:
  - By procedure type: Robotic (n = 80) vs. Abdominal (n = 91)
  - By medication regimen: 3-Medication Combination (Vasopressin + TXA + Misoprostol) vs. Other Combinations (Vasopressin only, Vasopressin + Misoprostol, or Vasopressin + TXA)
- Statistical Analysis: Independent t-tests and Chi-Square tests of independence on demographics, comorbidities, hemoglobin levels, EBL, and fibroid characteristics (number, type, size)

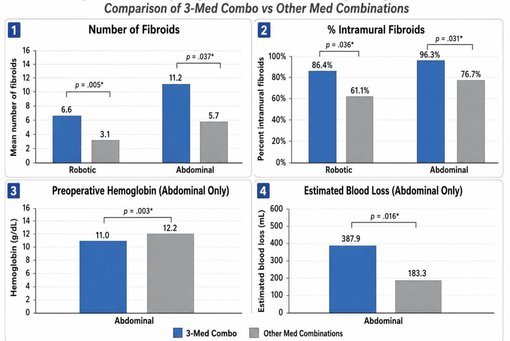
Results

	Robotic Myomectomy			Abdominal Myomectomy		
	3 Med Combo N = 60	Other Med Combinations N = 20	p-value	3 Med Combo N = 28	Other Med Combinations N = 63	p-value
Age	36.7 (4.7)	37.7 (5.1)	.418	38.0 (4.9)	36.1 (5.2)	.108
Race/Ethnicity						
White	15.0% (9)	15.0% (3)	.074	14.3% (4)	22.2% (14)	.175
Black	33.3% (20)	65.0% (13)		67.9% (19)	47.6% (30)	
Hispanic	38.3% (23)	15.0% (3)		7.1% (2)	22.2% (14)	
Other/ Not Specified	13.3% (8)	5.0% (1)		10.7% (3)	7.9% (5)	
BMI	29.6 (6.5)	29.8 (7.5)	.924	29.9 (6.2)	28.6 (6.8)	.372
Comorbidities						
DM	0.0% (0)	10.0% (2)	.060	7.1% (2)	0.0% (0)	.092
CHTN	10.0% (6)	5.0% (1)	.673	14.3% (4)	6.3% (4)	.245
AUB	85.0% (51)	85.0% (17)	1.000	78.6% (22)	74.6% (47)	.794
Bleeding Disorder	1.7% (1)	0.0% (0)	>.999	0.0% (0)	0.0% (0)	-
Anticoagulation	5.0% (3)	5.0% (1)	1.000	0.0% (0)	0.0% (0)	-
Number of Fibroids	6.6 (7.3)	3.1 (3.2)	**.005**	11.2 (12.5)	5.7 (7.5)	**.037**
Type of Fibroids (not mutually exclusive)						
Pedunculated	3.4% (2)	5.6% (1)	.556	0.0% (0)	8.3% (5)	.319
Subserosal	78.0% (46)	66.7% (12)	.359	55.6% (15)	46.7% (28)	.493
Submucosal	32.2% (19)	38.9% (7)	.776	29.6% (8)	15.0% (9)	.145
Intramural	86.4% (51)	61.1% (11)	**.036**	96.3% (26)	76.7% (46)	**.031**
Size of Largest Fibroid (cm)	7.9 (3.1)	6.8 (2.4)	.164	9.0 (3.7)	7.9 (3.6)	.204
Weight of Fibroids (gm)	307.1 (346.1)	211.0 (168.2)	.248	539.9 (514.8)	388.4 (483.3)	.197
Hemoglobin						
Preoperative	12.1 (1.7)	11.4 (1.5)	.115	11.0 (1.8)	12.2 (1.6)	**.003**
Postoperative	10.4 (1.9)	11.3 (0.4)	.356	9.7 (1.5)	10.4 (1.5)	.074
Estimated Blood Loss (ml)	181.3 (189.3)	170.8 (255.9)	.845	387.9 (401.4)	183.3 (210.9)	**.016**

DM: Diabetes Mellitus, CHTN: Chronic Hypertension, AUB: Abnormal Uterine Bleeding

Key Statistically Significant Variables by Surgical Route

Comparison of 3-Med Combo vs Other Med Combinations



Robotic/Hysteroscopic: 3-Med Combo n=60, Other Med Combinations n=20;
Abdominal: 3-Med Combo n=28, Other Med Combinations n=63.
Only statistically significant variables are shown. * $p < 0.05$.

References

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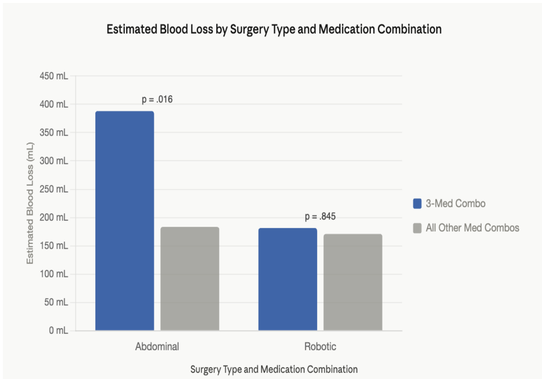
Conclusion

- In the robotic myomectomy group there was no significant difference in EBL between the two groups.
- In the abdominal myomectomy group, the 3 drug combination group had larger number of fibroids, more intramural fibroids, and a significantly higher EBL compared to the other drug combination.
- Overall the 3 drug combination had similar blood loss in robotic cases but appears to be less effective in abdominal myomectomy cases.
- We cannot say if the 3 drug combination used in abdominal myomectomies were in response to hemorrhage
- We can further suggest randomized studies for the administration of prophylactic 3 drug combination in abdominal myomectomies in the case of higher disease burden, complexity of case, and potential risks of hemorrhage.



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