Optimizing Hemostasis in Hysteroscopic Myomectomy: A Randomized Clinical Trial of Vaginal Danazol Versus Diphereline in Women With Abnormal Uterine Bleeding

Sanam Bidadi[1,2], Manijeh Sayyah Melli[2], Simin Taghavi[2], Elaheh Ouladsahebmadarek[2], Mehri Jafari-Shobeiri[2], Morteza Ghojazadeh[2], Vahideh Rahmani[2]

[1] Zucker School of Medicine at Hofstra/Northwell, North Shore University Hospital–Long Island Jewish Medical Center, NY, USA

[2] Women's Reproductive Health Research Center, Tabriz University of Medical Sciences, Iran

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Objective

To compare the effectiveness of vaginal danazol versus Diphereline in reducing intraoperative bleeding during hysteroscopic myomectomy.

Study Design

- Randomized controlled clinical trial
- University teaching hospital
- 160 women with submucosal myomas randomized
- Danazol: 200 mg vaginally twice daily for 30 days preoperatively
- Triptorelin (Diphereline): Two intramuscular injections administered 28 days apart

Outcome Measures

- Intraoperative bleeding
- Visual field clarity
- Distension media volume
- Operative time
- Surgical completion rate
- Perioperative complications

Results

- 145 patients completed the study
- No intraoperative bleeding: 78.1% (danazol) vs. 19.4% (triptorelin), $P < .001$
- Clear visual field: 98.6% vs. 29.2%, $P < .001$
- Operative time: Similar (10.9 vs. 10.6 min; $P = .79$)
- Distension media volume: Similar (2.0 L vs. 2.0 L; $P = .99$)
- Surgical completion rate: 100% in both groups
- No intraoperative complications

Conclusion

Both treatments effectively controlled intraoperative bleeding. Vaginal danazol significantly improved visualization during hysteroscopic myomectomy while maintaining comparable operative time, distension media use, and surgical success.

BACKGROUND

- **Abnormal uterine bleeding (AUB)** caused by submucosal fibroids is a
- common indication for hysteroscopic myomectomy.
- Successful hysteroscopy depends on a **clear surgical field**, which may be
- compromised by intraoperative bleeding and endometrial thickness.
- **GnRH agonists** are commonly used for preoperative endometrial preparation but require prolonged treatment and are relatively expensive.
- **Vaginal danazol** may offer a simpler, lower-cost alternative while
- improving visualization during surgery.
- **This randomized controlled trial** compared vaginal danazol with
- Diphereline for reducing intraoperative bleeding and optimizing
- hysteroscopic myomectomy.

HYPOTHESIS

❖We hypothesized that preoperative vaginal danazol would reduce intraoperative bleeding and improve visualization during hysteroscopic myomectomy compared with Diphereline.

STUDY DESIGN AND METHODS

- **Design:** Randomized controlled clinical trial conducted at a university teaching hospital over 18 months.
- **Participants:** 160 reproductive-age women with persistent mild-to-moderate abnormal uterine bleeding due to submucosal myomas (<4 cm) eligible for hysteroscopic myomectomy.
- **Exclusion Criteria:** Significant medical comorbidities, uterine anomalies, pelvic infection, gynecologic malignancy, pregnancy, or myomas >4 cm.
- **Randomization:** Computer-generated sequence (RandList 2.1) with sequentially numbered, sealed allocation envelopes; participants randomized 1:1.
- **Interventions:**
- **Danazol group:** Vaginal danazol 200 mg twice daily for 30 days preoperatively (starting on day 1 of menses).
- **Diphereline group:** Intramuscular Diphereline 3.75 mg every 28 days for 2 months preoperatively.
- **Standardization:** All procedures performed by a single surgeon under general anesthesia using the same hysteroscopic technique and 5% dextrose as the distension medium.
- **Blinding:** Outcome assessors and postoperative care providers were blinded to treatment allocation.
- **Outcomes:**
- **Primary:** Intraoperative bleeding (5-point ordinal scale).
- **Secondary:** Visual field clarity, operative time, distension medium volume, surgical success, and perioperative complications.

RESULTS

Table 1
The characteristics of the studied patients; group 1 (danazol) and group 2 (diphereline).

Variable	Group 1 ($n = 73$) Mean ± SD	Group 2 ($n = 72$) Mean ± SD	p-value*
Age	40.22 ± 5.12	39.50 ± 5.25	0.14
Gravidity	3.05 ± 1.54	4.14 ± 1.71	0.76
Parity	2.58 ± 1.33	2.72 ± 1.79	0.56
Length of disease (months)	32.04 ± 3.96	18.60 ± 2.52	0.01
Number of myomas	1.36 ± 0.59	1.25 ± 0.53	0.25

* Differences were considered statistically significant at $p < 0.05$.

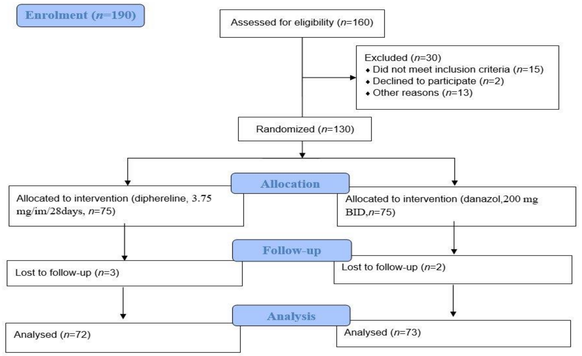
Table 2
The percentage of intraoperative bleeding and view in group 1 (danazol) and group 2 (diphereline).

Variable	Group 1 % (*N*)	Group 2 % (*N*)	p-value*
No bleeding	78.1 (57)	19.4 (14)	<0.001
Mild bleeding	21.9 (16)	31.9 (23)	
Moderate bleeding	0.0	45.8 (33)	
Severe bleeding	0.0	2.8 (2)	
Light view	98.6 (72)	29.2 (21)	<0.001
Dark view	1.4 (1)	70.8 (51)	

* Differences were considered statistically significant at $p < 0.05$, N = number.

RESULTS

Fig. 1.CONSORT flow diagram of studied group.



RESULTS

- **Study Population**
- 145 patients completed the study
  - Danazol: $n = 73$
  - Diphereline: $n = 72$
  - **Primary Outcomes**
- **Intraoperative bleeding:** Significantly lower with danazol ($P < .001$)
- **Operative visualization:** Significantly improved with danazol ($P < .001$)
- **Secondary Outcomes**
- Hemoglobin decrease: **0.3 vs. 0.9 g/dL** ($P < .001$)
- Hematocrit decrease: **1.3% vs. 2.5%** ($P = .01$)
- Distension media: **2.0 ± 1.2 L vs. 2.0 ± 1.4 L** ($P = .99$)
- Operative time: **10.9 ± 5.9 min vs. 10.6 ± 6.4 min** ($P = .79$)
- **Safety**
- No anesthesia-related complications
- Nausea: **1 patient (1.4%)** in the danazol group
- Surgical completion: **100%** in both groups

DISCUSSION

- Successful hysteroscopic surgery requires a clear and stable operative field, optimized by adequate endometrial preparation.
- Preoperative hormonal suppression improves visualization and may reduce bleeding, operative time, and fluid requirements.
- Although both GnRH agonists and danazol are established options, GnRH agonists are associated with higher cost and longer treatment protocols.
- In this study, vaginal danazol demonstrated superior intraoperative visualization and reduced bleeding compared with triptorelin, while maintaining comparable operative time, fluid use, and surgical success.
- These findings support prior evidence that local vaginal danazol administration provides effective endometrial suppression with potentially fewer systemic effects.
- The absence of anesthesia-related complications in both groups supports the safety of preoperative hormonal preparation before hysteroscopic surgery.

CONCLUSION

- Vaginal danazol appears to be a **cost-effective and clinically advantageous alternative** to GnRH agonists for preoperative preparation in hysteroscopic myomectomy, improving surgical visualization without increasing complications.

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