



The Impact of Gender-Affirming Hormone Therapy on Seizure Occurrence in Transgender and Gender-Diverse Individuals



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BACKGROUND

- **Epilepsy** disproportionately affects transgender and gender-diverse (**TGD**) individuals.
- Effect of feminizing (**FHT**) and masculinizing (**MHT**) gender-affirming hormone therapy (**GAHT**) on seizure activity is *poorly understood*.
 - Estrogen may *lower* the seizure threshold.
 - Testosterone may have *anticonvulsant* effects.
- GAHT interaction with anti-seizure meds (ASMs) complicates treatment.

RESEARCH QUESTION

How does **GAHT** influence **seizure occurrence** in **TGD** individuals with seizure history or confirmed epilepsy?

METHODS

- Retrospective cohort study of TGD individuals (2002–2024) with seizures and on GAHT.
 - Included: confirmed seizures, documented GAHT, adequate follow-up.
 - Excluded: poor ASM adherence, simultaneous FHT+MHT, provoked or functional seizures only.
- *Primary outcome*: Seizure occurrence before vs. after GAHT (McNemar’s test).
- *Secondary outcome*: Seizure occurrence after FHT vs. MHT (Chi-square).

Table 1. McNemar test comparing seizure occurrence before and after GAHT.

GAHT, <i>n</i> =34 <i>n</i> (%)	Seizures <i>after</i> GAHT	No seizures <i>after</i> GAHT	P-value
Seizures <i>before</i> GAHT	10 (29.4)	18 (53.0)	0.025
No seizures <i>before</i> GAHT	6 (17.6)	0 (0.0)	

Table 2. Chi-square analysis comparing the occurrence of seizures after FHT vs. MHT in patients with a history of seizures prior to GAHT (*n*=28).

Type of GAHT, <i>n</i> =28	Feminizing hormone therapy (<i>n</i> =10)	Masculinizing hormone therapy (<i>n</i> =18)	P-value
Seizures after GAHT	3 (30.0)	7 (38.9)	0.7
No seizures after GAHT	7 (70.0)	11 (61.1)	

Table 3. Chi-square analysis comparing the occurrence of seizures after FHT vs. MHT in patients with confirmed epilepsy prior to GAHT (*n*=15).

Type of GAHT, <i>n</i> =15	Feminizing hormone therapy (<i>n</i> =4)	Masculinizing hormone therapy (<i>n</i> =11)	P-value
Seizures after GAHT	2 (50.0)	6 (54.5)	1.0
No Seizures after GAHT	2 (50.0)	5 (45.5)	

RESULTS

- 34 patients included: *n*=13 on FHT; *n*=21 on MHT
- Seizures before GAHT: 82.4% | after GAHT: 47.1%
- Among the 28 patients with **seizures before GAHT**:
 - **18 (53.0%)** no longer had seizures after GAHT
 - **10 (29.4%)** continued to have seizures
 - **6 (17.6%)** patients developed seizures after GAHT
 - Reduction in seizure occurrence was statistically significant (**p=0.025**)
- No significant difference in post-GAHT seizure occurrence between FHT (30%) and MHT (38.9%) (*p*=0.7)
- Among 15 patients with **confirmed epilepsy**: No significant difference in post-GAHT seizure occurrence between FHT (50%) and MHT (54.5%) (**p=1.0**)
- MHT associated with a **trend toward reduced seizures** (**p=0.06**); FHT: no significant change (**p=0.34**)
- Patients with stable anti-seizure medication regimens had improved seizure control (**p=0.015**)

CONCLUSIONS

- GAHT was not associated with increased seizure occurrence.
- FHT and MHT were not linked to new seizure risk in patients with known epilepsy.
- Small sample size limits definitive conclusions, but initial findings support risk counseling and individualized perioperative planning for plastic surgeons.