



Tic reduction following Dehydration in Gilles de la Tourette Syndrome (TS)

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Disclosures

- FDA disclosures
 - None
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Introduction

- Gilles de la Tourette Syndrome (TS) related tics are largely challenging to eliminate.
- Heat has, in some cases, reduced compulsive symptoms in TS.
- However, prior reports have produced opposing results.

Objective

- To investigate the effect of dehydration on TS

Aims

- To measure the effect of heat dehydration on symptoms and signs of a man with TS

Methods

- At 24 years of age, a man suffering with Gilles de la Tourette Syndrome presented with the inability to carry glass bottles for fear that he might drop them due to tics.
- He attempted to mitigate his tics through heat exposure, barring the knowledge or approval of his medical providers.
- He believed this would contribute to remission of tics.

Methods

- The man entered a hot tub of 103-104 degrees F for an estimated period of 3-4 hours.
- After about 2 hours, following the prolonged heat exposure, his tics subsided.
- He retained symptoms of extreme dehydration including cramps in extremities, pinkish urine, and general feelings of somatic weakness.

Results

- Examinations at times 1 month and 11 months following the remission demonstrated improvements of his condition when compared to data 6 months prior to heat exposure.

Results

- 24 years
 - Yale Global Tic Severity Scale (YGTSS) 55
 - Unable to carry parcels with bottles for fear that they could be damaged if he experienced tics
 - Urine drug toxicology for tetrahydrocannabinis negative

Six months before entering a hot tub, a 24-year-old man was told to stand still for 2 minutes



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Results

- 25 years
 - Marked reduction in tics for two years after undergoing dehydration by entering a hot tub at 103° F (39.4° C) to 104° F (40.0° C) for 3 to 4 hours
 - Yale Global Tic Severity Scale (YGTSS) 13
 - Urine drug toxicology for tetrahydrocannabinis positive

One month after entering a hot tub, a 25-year-old man was told to stand still for 2 minutes



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Results

- This remission of tics was sustained over a period of 3 years.
- At 27 years of age, a tetanus immunization led to an exacerbation of his compulsive symptoms.
- This was the worst episode he had experienced to date, which continued for two weeks.
- Gradually, his tics became mild again.
- At 29 years of age, he used Δ^9 -tetrahydrocannabinol (THC) as a vaporized inhalant on daily basis.

Results

- At 36 years of age, he continues to use vaporized THC.
- He is working 70 hours a week.
- He has not received a COVID-19 vaccination but was not severely affected upon contraction of the virus.

Conclusions

- The remission continued without the use of prescribed or nonprescribed medications or substances for two years until tics returned in the worst ever exacerbation after a tetanus immunization.
- The heat exposure may have altered at least temporarily his thermostat for normal heat-loss mechanisms through dopaminergic pathways from the anterior hypothalamus to the basal ganglia and the substantia nigra.

References

Brasic J, *et al.* 2015: 38-44. 1st World Congress on Tourette Syndrome and Tic Disorders. London, UK, June 24-26, 2015.

Brašić JR, *et al.* Int J Phys Med Rehabil. 2018;6(3): 472.

Brasic JR, *et al.* Mov Disord. 2011; 26 (supplement 2): S368.

Durbin AB, *et al.* September 28, 2021. MD-Washington Regional Movement Disorders Video Meeting

Durbin AB, *et al.* XXVII IAPRD World Congress on Parkinson's Disease and Related Disorders, Prague, Czech Republic, May 1-4, 2022

Durbin AB, *et al.* International Congress of Parkinson's Disease and Movement Disorders, September 15-18, 2022, Madrid, Spain.

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