CONCLUSIONS

Striatal medium spiny neurons receive glutamatergic input from the cerebral cortex and dopaminergic input from the substantia nigra. Striatal output is mainly through GABAergic inhibition to the thalamus by either direct or indirect pathways. 1

Tics likely result from reduced inhibition of thalamo-cortical circuits that may be due to increased inhibition of the direct pathway (striatum to globus pallidus internus (GPi)) and decreased activity of the indirect pathway (connecting striatum and subthalamic nucleus). These alterations could be due to:

- Aberrant activation of striatal matrisomes 5
- Aberrant motor patterns in GPi 6

Topiramate increases GABAergic transmission, reduces glutamatergic transmission, and inhibits carbonic anhydrase.

- Effect on tics may be from normalizing firing patterns within striatum, GPi, or other basal ganglia structures comprising the direct and indirect pathways. 1

Our open-label experience suggests that topiramate is effective in the treatment of tics, with 75% of patients experiencing at least moderate benefit on a subjective scale.

- In this study, patients were treated for an average of 9 months.
- Average dose of 146mg/day (range 50-600mg).

Topiramate may represent an alternate, or DRBD-sparing therapy for tics in TS:

- May be safely used as monotherapy or as adjunctive therapy to other, more conventional agents.

The side effect profile of topiramate is less severe than those commonly associated with DRBDs (e.g., weight gain, tardive dyskinesia, dystonic reactions), and are reversible.

- Side effects reported in this group of patients are consistent with those seen in populations treated with topiramate for other disorders (e.g., migraine, epilepsy).
- Treatment with topiramate for tics did not result in weight changes in this study.

To our knowledge, this is largest reported series of patients with TS treated with topiramate for tics.

Further randomized, controlled trials of topiramate in the treatment of TS are warranted.

REFERENCES

1. Amor D. Review of the use of Topiramate for treatment of psychiatric disorders. Ann Gen Psychiatry 2003;4:


