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# Efficacy of topiramate in children and adolescents with problems in impulse control: preliminary results

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**Introduction.** Although in the pharmacological field topiramate has shown proved efficacy in impulsive behavioral disorders (IBD), this fact has not been demonstrated with the same evidence in children and adolescents. The aim of this study is to evaluate improvement of symptoms in different IBD in those ages after treatment with topiramate.

**Clinical case.** Eleven cases of IBD (DSM-IV criteria) were evaluated with the Barrat Impulsivity Scale (BIS), obtaining scores at zero, one and three months after starting treatment with topiramate.

**Results.** We found significant differences in the cognitive impulsivity subscale ( $p=0.040$ ) and total score of the BIS ( $p=0.043$ ) when BIS scale was measured after one month of treatment; after three months of treatment, the motor impulsivity subscale also showed significant differences ( $p=0.015$ ).

**Conclusions.** The significant reductions at BIS scores in child and adolescents outpatients who have IBD make us consider topiramate as an effective pharmacological option for treatment of impulsivity in several psychiatric disorders, also in childhood and adolescence. More studies are needed to confirm these results, with bigger samples and control groups.

**Key words:**  
Impulsivity. Topiramate. Children and adolescents.

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## Eficacia del topiramato en niños y adolescentes con problemas en el control de los impulsos: resultados preliminares

**Introducción.** Si bien el topiramato en el terreno farmacológico ha mostrado probada eficacia en los trastornos del control de impulsos (TCI), este hecho no ha sido constatado con la misma evidencia en niños y adolescentes. Nuestro objetivo consiste en valorar la mejoría

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sintomática de diversos TCI en dichas edades tras la introducción del topiramato.

**Caso clínico.** Once casos con TCI (criterios DSM-IV) fueron evaluados mediante la escala de impulsividad de Barrat (EIB) de forma basal y al mes y los 3 meses del inicio de tratamiento con topiramato.

**Resultados.** Encontramos diferencias significativas en la subescala de impulsividad cognitiva ( $p=0,040$ ) y en la puntuación global de la EIB ( $p=0,043$ ) entre la puntuación basal y al mes de tratamiento; a los 3 meses también la subescala de impulsividad motora mostró diferencias significativas con respecto a la basal ( $p=0,015$ ).

**Conclusiones.** Las reducciones significativas en la puntuación de la EIB en pacientes valorados en consulta de psiquiatría infantojuvenil por TCI bajo criterios consensuados hacen considerar el topiramato un fármaco eficaz en el control de la impulsividad asociada a diversos trastornos psiquiátricos también en niños y adolescentes. Son necesarios más estudios que incluyan un número mayor de casos y con grupo control para confirmar estos resultados.

**Palabras clave:**  
Impulsividad. Topiramato. Niños y adolescentes

## CLINICAL CASES

A series of eleven cases with impulse control disorders (table 1), diagnosed through a clinical interview by an experienced psychiatrist and in agreement with the DSM-IV criteria is presented. Four of the patients were women and seven men, with an average age of 17.15 years (range: 13 to 19; SD: 1.78).

The Barrat impulsivity scale was used to evaluate the impulsivity grade of the patients. The scales were applied at zero months, one month and three months of treatment (this measurement was only done in five patients).

The Barrat impulsivity scale<sup>8</sup> is one of the instruments used most to assess impulsivity<sup>9</sup>. It was adapted to Spanish by Oquendo et al.<sup>10</sup>. It is a self-applied application made up

Table 1		Distribution of diagnoses in the sample
Diagnoses	Number of patients	
Eating behavior disorder	4	
Bulimia nervosa (307.51)	2	
Anorexia nervosa (compulsive/purgative type) (307.1)	2	
Oppositional defiant disorder (313.81)	2	
Conduct disorder (312.8)	3	
Unspecified disruptive behavior disorder (312.9)	1	
Trichotillomania (312.39)	1	
Total	11	

of 30 questions, grouped into three subscales: cognitive impulsivity, motor impulsivity and non-planning impulsivity. The total score is the sum of all the items and the scores of the subscales is the sum of the items corresponding to each one of them.

Oral informed consent was requested from the patients and their parents or guardians.

Treatment with topiramate was introduced slowly, with an initiation dose of 25 mg/day, with adjusted increase, depending on each patient's tolerance of approximately 25 mg/weeks, until reaching the dose in which response was found, with a mean dose of 152.25 mg/day (SD: 58.58; range: 75-250 mg/day).

The statistical analysis was performed with the Student's *t* test for related samples, conducted with the SPSS 11.5 statistical program. The baseline scales were compared with those applied at one and three months of treatment.

The results were statistically significant ( $p < 0.05$ ) with a 95% confidence interval for the cognitive impulsivity subscale ( $p = 0.040$ ) and the total result of the Barrat scale ( $p = 0.043$ ) when the scales were analyzed at baseline and one month of treatment (fig. 1). When the comparison of the scales was analyzed at 3 months, the motor impulsivity subscale showed a statistically significant difference ( $p = 0.015$ ) (fig. 2).

### DISCUSSION AND CONCLUSIONS

Topiramate is a well-known drug in the control of impulsive behaviors in adults. However, the known experience in regards to childhood-adolescent psychiatry is very little. Some authors have already shown the control of self-injurious behaviors in patients between 10 and 20 years with Prader-Willi syndrome<sup>7,11</sup> and its improvement in patients diag-

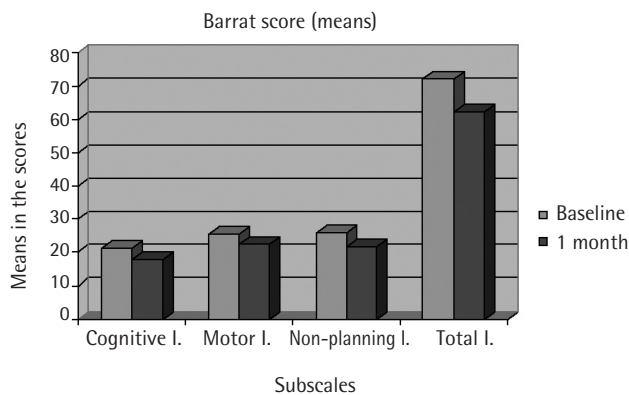


Figure 1 Scores at baseline and one month of treatment.

nosed of borderline personality disorder<sup>5,6,12</sup> or the intellectually disabled<sup>13</sup>. In lack of control behaviors associated to food, a safe and effective profile has also been shown<sup>1-4</sup>. In this setting, in randomized and placebo controlled studies, topiramate has been shown to be effective and relatively well tolerated in the short term in a sample of patients with a diagnosis of binge disorder accompanied by obesity with reduction of the frequency of the binging episodes and weight<sup>1</sup>. Series of clinical cases have ratified this point<sup>3</sup>. Furthermore, some studies also point towards improvement in other aspects beyond binge frequency control, such as depressive mood or body satisfaction<sup>14,15</sup>. In fact, topiramate has been evaluated positively in comparative studies with other stabilizers in bipolar disorder<sup>15-17</sup>. However, its use seems to be relegated to relieving the side effects, generally linked to overweight and eagerness for food, in the maintenance treatment of bipolar disorder<sup>16-20</sup>. The evidence is minimal in children and adolescents in regards to topiramate, although some preliminary data already support topiramate as an option for the management of impulsivity in at-

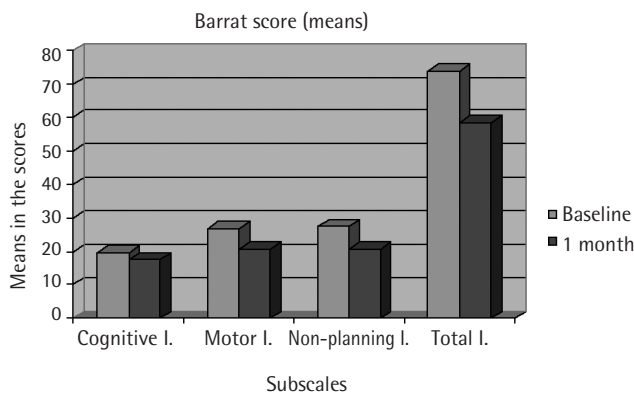


Figure 2 Scores at baseline and 3 months of treatment.

tention deficit hyperactivity disorder, paradigm of the impulsive lack of control in pediatric ages<sup>21</sup>.

Some studies have pointed to control of both self-injurious behaviors and tics in Tourette's syndrome in children and adolescents<sup>22</sup>. However, as far as we know, there are no studies on the efficacy and safety of topiramate in impulse control disorders in children and adolescents, such as oppositional disorder, trichotillomania or eating behavior disorders.

Among our findings, we find that topiramate reduces the score in the cognitive and global subscale of the Barrat impulsivity scale at one and 3 months of treatment in childhood-adolescent psychiatric disorders that are characterized by loss of impulse control, independent of the attention deficit hyperactivity disorder.

At 3 months, the scores on the scales also showed significant differences regarding baseline scores on the motor subscale. This may indicate that topiramate seems to have a profile of global improvement that is subsequently specified in some aspects, such as the motor one.

There are some limitations to be considered in the study. In the first place, the absence of a control group may modify the results. On the other hand, not all the participants have scores on the scale obtained at 3 months. Thus, the findings at this level are also limited due to the scarcity of the sample, which was already small.

In conclusion, topiramate seems to be an effective drug in the reduction of impulsivity associated to different psychiatric disorders in children and adolescents, in the same way it is in the adult ages. More studies are necessary. These must include a larger number of cases and a control group to verify these results, since topiramate could become an effective treatment option in the control of these types of disorders in early ages.

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