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OLGU SUNUMU/CASE REPORT

Successful Management of Aggression with Low-Dose Propranolol in an Adolescent Patient with Intellectual Disability: A Case Report

Zihinsel Engelliliği Olan Bir Ergende Düşük Doz Propranolol ile Agresyonun Başarılı Tedavisi: Bir Olgu Sunumu

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ABSTRACT

The risk of accompanying aggression in children with Intellectual disability is known to be higher than in healthy children. Aggression in subjects with ID can severely impact on individuals' social adaptation and education and on the quality of life of caregivers. Aggression may be verbal or physical. Various agents are used as antiaggressive drugs, including lithium, anticonvulsants and antipsychotics, although data regarding the effectiveness of these are limited. It is shown that propranonol is effective in the treatment of aggression.

This report describes the successful management with propranolol of aggressive and self-mutilative behaviors in an adolescent with severe ID.

Key words: Intellectual disability, aggression, β-blocker, propranolol, adolescent.

ÖZET

Saldırganlığın, zihinsel engelliliği (ZE) olan çocuklarda eşlik etme riskinin sağlıklı çocuklardan daha yüksek olduğu bilinmektedir. ZE olan kişilerde saldırganlık, bireylerin sosyal uyum ve eğitimi ile bakım verenin yaşam kalitesi üzerinde ciddi etkiler yapabilmektedir. Saldırganlık sözel veya fiziksel olabilmektedir. Lityum, antikonvülzanlar ve antipsikotikler gibi çeşitli antiagresif ilaçlar kullanılmaktadır, ancak bunların etkinliği ile ilgili veriler sınırlıdır. Propranololün saldırganlığın tedavisinde etkili olduğu gösterilmiştir. Bu yazıda ağır derecede zihinsel engelliği olan bir ergende saldırgan ve yıkıcı davranışların, propranolol ile başarılı bir şekilde tedavisi anlatılmıştır.

Anahtar Kelimeler: Zihinsel engellilik, saldırganlık, beta blokör, propranolol, ergen.

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INTRODUCTION

Intellectual disability (ID) is defined as limitation in adaptation to daily life and in cognitive functions beginning before the age of 18 (1). The risk of accompanying psychopathology and aggression in children with ID is known to be higher than in healthy children (2). Aggression toward the patient himself or others is the main cause of presentation for psychiatric treatment among subjects with ID. Aggression may be verbal or physical and may be directed toward the patient, other people or external objects. Various agents are used as antiaggressive drugs, including lithium, anticonvulsants and antipsychotics, although data regarding the effectiveness of these are limited (3, 4, 5). Propranolol is a non-selective β-blocker antihypertensive agent shown in the literature to be effective in the treatment of aggression (6, 7).

This report describes the successful management with propranolol of aggressive and destructive behaviors in an adolescent with severe ID.

CASE

A 16-year-old male patient with severe ID presented to our clinic, accompanied by his parents, due to 'explosions of anger, self-harming and hitting and scratching people around him' with little or no provocation over the previous 1 year. He had been started on haloperidol 10 mg/day, risperidone 3 mg/day, clonazepam 1.5 mg/day, valproic acid 800 mg/day and biperiden 2 mg/day for his existing symptoms at an external center, but had failed to benefit from treatment. At evaluation, his speech consisted of single words, he partly understood instructions, and he was able to take part in personal day-to-day activities to a very limited extent. However, significant impairment had occurred in social adaptation since the onset of the aggression, and he had been unable to attend special education for the preceding year. Numerous scratches were present on the parents' hands and arms and bites on the patient's own hands and fingers. No evidence was found of mood disorder or psychosis that might account for his aggressive state. Sialorrhea and Parkinsonism associated with neuroleptic use were present. Blood biochemistry tests, urinalysis, audiometry, thyroid function tests, brain magnetic resonance imagery, electroencephalography and abdominal ultrasound were all normal. Haloperidol and risperidone therapy was discontinued (with gradual dose reduction), aripiprazole 30 mg/day was added (with gradual dose incrementation), and biperiden was raised to 6 mg/day. Improvement in the Parkinsonism and sialorrhea developing in association with neuroleptic use and a decrease in aggression were observed. However, with the addition to treatment of aripiprazole, the state of well-being began to disappear after 7-8 weeks, and the existing symptoms returned. Clonidine 450 µg/day was added (with gradual dose incrementation and the daily dosage being divided into three) to treat the patient's recurring aggression. The patient's aggression recurred and worsened following a period of well-being lasting 10-11 weeks, and clonidine therapy was tapered and stopped. Naltrexone 100 mg/day was added to treatment (with gradual incrementation and the dose divided into two). Despite being used for 1 month, however, no improvement occurred in the symptoms, and naltrexone therapy was discontinued. Propranolol 60 mg/day was added (with gradual incrementation and the dose divided into three), and significant

improvement was observed in the patient's symptoms in 3-4 weeks. The patient's aggression was seen to have resolved in the light of information from the family and clinical evaluation after 24 weeks.

DISCUSSION

Children and adolescents with ID are known to have a much higher probability of comorbid psychiatric problems compared to the healthy population in the same age group (2). Young patients in particular with ID may exhibit severe behavioral problems such as destructive and/or aggressive behavior. The level of individuals exhibiting at least one form of such behavior is reported at 10-20% (8). Aggression in subjects with ID can severely impact on individuals' social adaptation and education and on the quality of life of caregivers. Our patient was unable to continue his education during the period of aggression and his father was unable to go to work regularly. Behavioral therapy is of value in the treatment of aggression, but it may not be capable of application in very violent or non-compliant patients, and pharmacotherapy may initially be required. Propranolol is a β-adrenergic antagonist agent capable of use in various medical conditions. It has also been used in the treatment of aggression in various neuropsychiatric conditions, including schizophrenia, dementia and ID. The effect mechanism is uncertain. However, its effects are thought to be associated with central β-adrenergic blockage, effects on the sympathetic nervous system or serotonergic blockage (9, 10). It may also be involved, not only in aggressive behaviors, but also in self-harming behavior that is widely seen in individuals with ID. The dose employed has varied significantly in several studies, and no clear rules have been determined for use in children. The initial doses reported in aggressive behavior in the literature range between 60 mg and 120 mg, while maximum doses range between 120 mg and 360 mg (11, 12, 13, 14). In our case, significant improvement in aggression was determined with propranolol even at a daily dose of 60 mg, and no marked side-effects were observed. β-blockers are generally well tolerated.

Benefits of β-blockers have also been shown in self-harming and aggressive behavior in adults with severe ID (15). Case reports have shown a decrease in refractory aggression with propranolol in the adult autistic population (16). Research into the use of β-blockers in children is quite limited. The benefits of β-blockers have been shown in outbursts of anger associated with organic brain function disorder and aggressive and self-harming behaviors seen in patients with ID (17, 18, 19).

In agreement with the literature, in our case propranolol was observed to be beneficial in both dramatically reducing aggressive behavior toward the patient himself and other people and in calming an adolescent. Problems concerning resumption of education that was interrupted due to aggression and concerning the father's inability to go to work regularly improved with propranolol therapy.

In conclusion, this case report was intended to increase awareness on the part of clinicians that low-dose propranolol may be effective in adolescents with ID and aggression refractory to multidrug therapy. Further systematic, placebo-controlled studies are needed on this subject.

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