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# Drug treatment of conduct disorder in young people

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**Abstract**

Although conduct disorder (CD) is the most common psychiatric disorder in youth from the community and encompasses one third to one half of all referrals to child and adolescent clinics, there is no licensed drug, to date, for treatment of CD, neither in Europe nor in the US. The aims of this paper are to review research data available on the use of medication for CD in young people and to identify future directions for research. We review 17 controlled studies and six open trials. Investigated compounds mainly belong to three classes of psychotropic drugs: mood stabilizers, neuroleptics and stimulants (six, five and six controlled studies, respectively). Lithium is the most documented treatment (3/4 positive studies). Conventional neuroleptics have been most commonly prescribed (3/3 positive studies), atypical neuroleptics appear promising (2/2 positive studies). Methylphenidate improves some CD symptoms, even in the absence of ADHD (6/6 positive studies). Sparse research has been conducted on response to antidepressants. The evidence for an effective role of pharmacotherapy in CD is still limited. Treatment should be multimodal and individualized to each patient's specific condition.


*Keywords:* Conduct disorder; Aggressiveness; Drug treatment; Child; Adolescent

## 1. Introduction

Conduct disorder (CD) is the most common psychiatric disorder in youth from the community (Kazdin, 1985), and one of the most frequent bases for clinical referral to child and adolescent treatment services, encompassing one third to one half of all referrals (Kadzin, 2000). Individual differences in aggressiveness are almost as stable as individual differences in intelligence (Olweus, 1979), and numerous studies have shown that childhood aggression and juvenile delinquency predict persistent violence later on in life (Pulkkinen, 1987; Reiss and Farrington, 1991).

CD is characterized by a variety of repetitive and chronic antisocial behaviors, such as aggressiveness, cruelty, stealing, weapons use, lying, truancy, fire-setting . . . It is classified as one of the attention-deficit and disruptive behaviour disorders in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (APA, 1994), along with attention-deficit/hyperactivity disorder (ADHD) and oppositional defiant disorder (ODD). To receive a diagnosis of CD, a child or youth must have three symptoms present during a 12-month period, out of four characteristic patterns: aggression to people or animals, destruction of property, deceitfulness or theft, and serious violation of rules. Aggression is not mandatory for a diagnosis of CD. The DSM-IV draws a distinction between child and adolescent onset CD (before and after 10 years of age), and specifies the severity (mild, moderate, or severe). Diagnostic criteria in the 10th International Classification of Diseases (ICD-10) (World Health Organisation, 1992) are similar to those of DSM-IV, but the approach is more flexible because ODD is one diagnostic subtype specified under the concept of CD, and minimum duration for symptoms is limited to 6 months. In addition, ICD-10

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proposes to specify whether the disorder is expressed within the family only, and whether the relationships with peers remain satisfactory.

The reported rate of CD in youth from the community ranges from 1.5 to 3.4% (Blanz et al., 1990; Ferguson et al., 1994). CD is four times more frequent in boys than in girls, with an earlier median age of onset (mean age of onset: 7 years in boys, and 13 years in girls) (Campbell et al., 1992). Estimated prevalence varies across studies, because of methodological differences regarding diagnostic criteria, populations studied, and informants chosen. Low socio-economic background, disrupted family structure, and familial sociopathy are identified risk factors associated with increased prevalence of CD in longitudinal studies (Kruesi and Lelio, 1996).

A central issue in the diagnosis and treatment of CD pertains to comorbidity (Angold et al., 1999). Firstly, the disruptive behaviour disorders (CD, ODD, ADHD) often go together (Verhulst and Kott, 1995). Some authors argue that the categories of CD and ODD overlap considerably and, thus, are not separate entities (Rey et al., 1988; Soltys et al., 1992; Schachar and Wachsmuth, 1990). For Hinshaw et al. (1993), 84 to 96% of subjects with CD concurrently meet diagnostic criteria for ODD. In contrast, other studies suggest differentiation between ODD and CD, when investigating age of onset, need for treatment, developmental profile, and gender distribution (Kruesi and Lelio, 1996). The greatest attention in research has focused on the co-occurrence of CD and ADHD. In studies of community and clinic samples, a large percentage of youth with one disorder (45% to 70%) also meets criteria for the other disorder (e.g., Ferguson et al., 1991; Offord et al., 1991). Secondly, anxiety disorders and depression have also been reported as frequent comorbid disorders in CD, with a combined rate of 30 to 50% (Zoccolillo et al., 1992). For several authors, of whom we belong, CD seems to be a heterogenous disorder, with overlapping symptoms with other diagnoses. Therefore, the distinction between pure CD and CD plus comorbid disorder is sometimes difficult. The criteria that define CD are signs, not symptoms, and, thus, tell little about the underlying causes (Yeager and Lewis, 2000). Is the child aggressive because he or she is being victimized, neglected or abused? Because he or she is depressed, psychotic, manic or paranoid? Does cognitive dysfunction contribute to violence? Is there an academic dysfunction related to child's low self-esteem? In clinical practice, those questions are essential to help the clinician recognize possible underlying psychopathology and/or cognitive dysfunction. It is necessary to look beyond the misbehaviors to identify and address environmental stressors and/or potentially treatable neuropsychiatric conditions, which may contribute to the aggressive behavior.

It is generally admitted that no single treatment is effective against severe CD, and that pharmacotherapy is not a first line treatment (Campbell et al., 1992; Kazdin, 2000). Multimodal interventions must target each domain assessed as dysfunctional, and must be suited to the age and social context of the patient. Because of the identified risk factors, treatment always includes behavioural and psychosocial interventions. Many different approaches have been applied to conduct-disordered youth, and much of what is practised in clinical settings is based on general relationship counseling, family therapy, group treatment, psychodynamically oriented treatment, and educational support when indicated. To date, three psychosocial treatments have been adequately evaluated (Kazdin, 2000): (i) parent-management training, which is directed at altering parent–child interactions in the home, particularly those interactions related to child rearing practices and coercitive interchanges; (ii) cognitive problem-solving skills training, which focuses on cognitive processes associated with social behavior; (iii) multisystemic therapy, which focuses on the individual, family, and extrafamilial systems, as a way to reduce symptoms and to promote social behavior.

How pharmacotherapy should be used, or whether it is indicated or not in CD, are still questions of debate. For some authors (Waddel et al., 1999), medication only works when a comorbid condition, such as ADHD, is present. For others, medication is likely to be considered when (i) other treatments have failed, (ii) the main symptom is overt aggression, or (iii) there are comorbid diagnoses that seem likely to respond to medication. For Campbell et al. (1992), pharmacotherapy is appropriate only for aggressive and destructive behaviors accompanied by explosiveness, but the definition of aggression is poorly and inconsistently operationalized (Kruesi and Lelio, 1996), and it is not the most frequent symptom in CD.

The aims for this paper are (i) to review research data available on the use of medication for CD in young people, (ii) to discuss the most robust results from this review in view of clinical practice, and (iii) to identify future directions for research in the field.

## 2. Methods

We conducted a literature search on the Medline data bank from 1970 to 2002, and contacted the authors who had recently published on the subject. We selected controlled studies, or open trials conducted on at least eight subjects, whose inclusion criteria included average or subaverage IQ, and a diagnosis of CD for all (or part of) subjects in the study population. We did not retain studies on aggressiveness or conduct problems associated with other diagnoses, such as pervasive developmental disorder. In total, the current report reviews 17 controlled studies and six open trials. Only placebo-controlled studies are displayed in the tables.