

Clinical Practice Guidelines for the management of conduct disorder

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INTRODUCTION

Conduct disorder (CD) and associated antisocial behavior is one of the most common mental and behavioral problems in children and young people. In the United States, CDs associated behaviors are primary presenting complaints in children and adolescent. CD are characterized by a repetitive and persistent pattern of dissocial, aggressive, or defiant conduct (ICD-10). Associated behaviors are outside the socially accepted norms that results into persistent and significant violations of age appropriate social expectations. CD is classified along with the diagnosis of oppositional defiant disorder (ODD) in the spectrum of disruptive behavior disorders. ODD can be seen as precursor to the development of CD. Behaviors include stealing and lying, excessive physical and verbal aggression, rule breaking and violence. Persistence of these behaviors into adulthood leads to antisocial personality disorder (ASPD). As these behaviors are present in some children during the course of development, it is essential for the clinician to differentiate between normalcy and pathological behavior. Remote antisocial or illicit acts are not enough to support a diagnosis of CD. CD must be differentiated from other term like delinquency. CD is a mental and behavioral disorder while delinquency is a legal term. It is comorbid with many other psychiatric conditions, including attention deficit hyperactive disorder (ADHD), depression, substance use disorders, etc. CD in early life has been found to be strongly associated with significant decline in educational performance. They are more likely to remain socially isolated with increase in substance misuse during adolescence. There is increase involvement in criminal acts resulting in frequent contact with the criminal justice system.

This adverse effect continues even in adult life with resulting poorer educational and occupational outcomes. There are limited data available about the prevalence of CD across the world. Using the diagnostic and statistical manual of mental disorders-III (DSM-III) and DSM-III-R diagnostic guidelines, the prevalence of CD in the United States was found to be 6%–16% in males and from 2% to 9% in females. With a clinical interview as a method of detection, the prevalence of CD in the general population is found to be between 1.5% and 4%. Boys are likely to have these conditions two times more than girls. Those with early-onset exhibit lower IQ compared to children with later age of onset. They have more attention deficits and impulsivity problems. It is comorbid with many other psychiatric conditions including ADHD, depression, substance use disorders, etc., Children with CD also find difficulty in interacting and integrating with peer group and are more likely to had adverse family circumstances. Increased risk factors include poor prenatal care and poor infant nutrition, poverty, physical abuse, and more crime in the neighborhood society. Families of children and adolescent with CD are more likely to exhibit parents with low income, substance abuse, depression, somatization, and ASPD. CD in early life has been found to be strongly associated with significant decline in educational performance. They are more likely to remain socially isolated with increase in substance misuse during adolescence. There is increase involvement into criminal acts resulting into frequent contact with the criminal justice system. This adverse effect continues even in adult life with resulting poorer educational and occupational outcomes.

Large numbers of etiological factors for CD have been highlighted in various studies. With the increase in risk factors possibility of developing CD increases. Genetic liability

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along with various environmental factors acts together for the manifestation of behavioral symptoms of CD. Magnetic resonance imaging has been used to compare structural brain differences between children with CD and normal controls and have documented smaller brain structures and lower brain activity in children with CD. Abnormalities are primarily detected in the bilateral amygdala, right striatum, bilateral insula and left medial/superior frontal gyrus as well as the left precuneus in individuals having ODD/CD. Higher plasma levels of serotonin in blood are positively associated with aggressive behavior in children. Impulsiveness and aggression along with violent behavior have been found to be associated with alteration in the activity of certain brain structures. Areas mainly associated and affected are limbic structures and the anterior cingulate and orbitofrontal areas of the prefrontal cortex. Parental psychopathology along with harsh parenting is associated with CD in their children. The presence of antisocial behavior in children has been found to be associated with parental reinforcement, their responsiveness to the child and punishment given by them. Frequent marital conflicts between parents and interparental violence predict adolescent antisocial behavior. Children with CD have been found disproportionately coming from low-income family and with unemployed parents. Inadequate housing, poverty, and crowding exerts negative influence on the development of the child. Exposure to and prevalence of substance use in the community have also been found significantly associated with the development of CD. Availability of drugs and increased crime in the neighborhood increases the risk of children developing CD. Peer relation also significantly affects the development and maintenance of these behaviors.

ASSESSMENT

Clinical features of CD develop gradually over a period of time. This evolves to stage where consistent enduring pattern develops which involves violation of basic rights of others. Behavior develops in continuum where ODD forms least severe clinical presentation to ASPD as most severe. As these behaviors are present in some children during development, it is essential for the clinician to differentiate between normalcy and pathological behavior. Remote antisocial or illicit acts are not enough to support a diagnosis of CD. CD must be differentiated from other term like delinquency. CD is a mental and behavioral disorder while delinquency is a legal term.

Symptoms develop earlier in boys than girls. The usual age of presentation is 10–12 years in boys, whereas it is 14–16 in case of girls. Individual having CD shows behavioral manifestations in the following four categories as per DSM-5: Aggression to people and animals, destruction of property, deceitfulness or theft and serious violations of rules. Aggression to people and animals includes behaviors such as threatening, frequent physical fights, using weapon

that can cause damage to others or showing physical cruelty to people or animals. Setting fire or deliberately destroying others property are included in the destruction of property. Deceitfulness or theft involves stealing or breaking into others house, building. Individual often shows disobedient to parental prohibitions or truancy from school. All this should begin before the age 13 years. DSM-5 requires the persistent presence of three behaviors over period of 12 months with atleast one of them present in the last 6 months. The disturbance in behaviour causes significant impairment in social, academic or occupational functioning. When at least 1 symptom appear before the age 10 then it is specified as childhood-onset while no symptoms before 10 years for CD are classified as adolescent-onset type CD. DSM-5 has introduced a new specifier– “with limited prosocial emotion.” Individual must show at least two of the following interpersonal and emotional pattern: (1) Lack of empathy, (2) Lack of guilt or remorse, (3) Unconcerned about performance, (4) Shallow of deficient affect. Depending on the severity of behaviors CD is classified into mild, moderate, or severe type. As per ICD-10 for diagnosis of CD child's developmental level should be taken into consideration. For example, the presence of temper tantrum would not classify for CD. Behavioral manifestation should be present for at least 6 months before making a diagnosis of CD. It has classified CD into three types based on setting in which behaviors are manifested: CD confined to the family, unsocialized CD and socialized CD. In CD confined to family, outside the family environment the conduct symptoms are negligible. Hence, there are no significant disturbances in child's social relationships outside the family context. Main differentiating feature between unsocialized and socialized CD is based on integration into a peer group. Children who meet these criteria exhibit aggressive behavior in different forms such as physical aggression, and bullying. In severe cases, it leads to the destruction of property, physical violence. There is frequent use of substance and involvement in promiscuous sexual activity. They have difficulty in having a relationship with family and peers. They have less concern for others feeling and also have low self-esteem. They frequently blame others for their behavior. Severe punishment for such behavior invariably increases their aggression rather than improvement. In the evaluation complete psychiatric assessment along with appropriate history taking should be carried out. Assessment should be carried out in different settings. Additional information may need to be collected from teachers and other family members. Family history reveals frequent fights in parents, disharmony, frequent use of the substance, high rates of psychiatric disorder and harsh parenting.

CD is frequently comorbid with various psychiatric disorders [Table 1]. Early identification of commodities helps in making comprehensive management plan from be-gaining. The frequent association of few psychiatric

disorders with CD raises question about common underlying psychopathology. The presence of co-morbidity negatively affects clinical picture and outcome. ADHD is the most common childhood-onset psychiatric disorder frequently occurring with CD. When ADHD comorbidity with ODD and CD are combined, the rates of comorbidity increases to 50%–60%. The presence of ADHD increases risk of CD over the course of time and associated with poor outcomes. The association between ADHD and CD is more frequent in boys and it has a prognostic significance. ODD is frequently associated with CD but still debatable whether it is different diagnosis or antecedent of the CD. When child or adolescent fulfill diagnostic criteria for CD then ODD is excluded from diagnosis. Co-morbid association of both increases risk of substance use that presence of either disorder. Substance use disorder has frequent association with CD. Children with CD often indulge into binge alcohol drinking, regular use of tobacco or abuse of illicit psychoactive substances. There is high prevalence of substance abuse and dependence in children with CD. Prevalence of depression and CD increases during puberty. CD has an earlier age of onset as compared to depression. Some of the behavior in depression in childhood can present as aggressive behavior but are also associated with vegetative signs. Boys are affected more with comorbidity in the adolescent period. The presence of both the condition increases the risk of suicide in children.

Behavioral disturbances or aggressive behavior can be present in various childhoods' psychiatric disorders such as mood disorder and ADHD. Thus, it becomes essential to differentiate between those having other psychiatric disorder and CD. A clinician should obtain comprehensive history in relation to the onset and progression of symptoms to determine whether this behavior is transient or persistent. Very distant events of antisocial behavior and aggressiveness do not qualify for a diagnosis of CD. ADHD is commonly associated with CD. It is one of the most common among externalizing disorder which has been found overlapping with CD. Primary symptoms of ADHD can be misinterpreted as antisocial which is present in CD. Careful history in both setting will usually reveal ADHD. Symptoms of ADHD also come before the symptoms of CD. ODD is conceptualized as a milder form of CD where rights are not violated. They are at risk of developing CD. The main differentiating feature is in CD there is violation of basic rights of others. Depression in children and adolescent often presents with irritability and oppositional symptoms similar to CD but

it is also often characterized by persistent mood changes along with alteration in biological function such as sleep and appetite. The depressed child usually presents with a change in mood rather than disruptive behavior which is presenting complain in CD. The clinician should also rule out disruptive mood dysregulation disorder, intermittent explosive disorder, bipolar disorder. Another differential diagnosis for CD is adjustment reaction. Adjustment reaction is diagnosed when the onset of symptoms occurs soon after exposure to recognizable stressful life events such as trauma or abuse. Symptoms subside within 6 months after termination of stress whereas CD has persistent behavioral manifestations. ASPD has many common features with CD. Many children with CD are likely to develop ASPD over the course of time. It is diagnosed above 18 years of age as per the DSM-5 with the requirement of CD before the age of 15. There is no age criterion as per ICD-10, but it is not mentioned in the childhood disorder section. A specific learning disorder is also common comorbidity with CD. Symptoms of this disorder precede the diagnosis of CD. Confounding factors that need attention are developmental delay and language deficits. It also predisposes individual to CD. Various differential diagnoses of CDs are described in Table 2.

MANAGEMENT

Although CD is frequently the presenting symptoms in the child and adolescent mental health setting, its presentation is quite heterogeneous making the process of assessment difficult. First, we need to know the source of referral to the mental health setting whether it is self/parents/school/law enforcement agencies. The treating doctor must build a good rapport with the parents as well as with the child. During the process of assessment direct interviews with the child and parents is done. If the child and/or parents want to speak separately with the therapist, that opportunity should also be given so that they can speak to the therapist frankly. And also it is quite informative to see the child and parents together, sometimes the entire family together to notice their interaction and to assess how they discuss the problem together and present the same to the therapist. The arrangements of how these interviews are to be conducted vary from case to case and the given clinical setting. If required other informants, for example, school teacher's/counselor's report or if referred from other department then discussion with the primary treating team or for the children with the juvenile justice system or child welfare for children living in institutions, information from agency records and/or institutional caretakers is necessary. The multidisciplinary assessment would be desirable which include nursing, education, social work, physical and occupational therapy, and clinical psychology and pediatrics. Multiple interviews can be required, and there can be inconsistencies and contradictions during interviews which is acceptable. The

Table 1: Comorbidities with conduct disorder

ADHD	Frequently occurring with CD Association stronger in boys in relation to prognosis
ODD	Co-morbid association increases risk of substance use
Substance use disorder	Associated with poor prognosis
Mood disorder	High prevalence in children with CD
ADHD – Attention deficit hyperactive disorder; ODD – Oppositional Defiant Disorder; CD – Conduct disorder	

assessment must include a detailed physical examination. In the mental status examination, the disturbances of mood, suicidality, impulsivity and comorbidities must be looked into.

The assessment process involves the following aspects:

- i. The CD symptoms, which can be a part of other disorders, especially in children and adolescent age group, for example, depression and adjustment disorders
- ii. The syndromal diagnosis of CD, which should be differentiated from ODD as described in previous section
- iii. The CD symptoms are overt/covert in nature and the age of onset, for example, childhood/adolescent onset
- iv. Presence of delinquent behavior
- v. Reactive or proactive aggression or relational aggression
- vi. The nature and severity of current and past offenses/problem behaviors [Table 3].

Presence of callous-unemotional traits, comorbid ADHD, aggressive and nonaggressive antisocial behavior, and age of onset need special attention because callous-unemotional traits are associated with a more severe and persistent form of CD. Similar association has also been found when it is associated with comorbid ADHD and childhood-onset CD. When it is an early childhood-onset CD, it progresses to aggressive, antisocial behavior which is a stable behavioral dimension. When it is adolescent-onset CD, it is associated with nonaggressive antisocial behavior which is associated with impulsivity and has more moderate levels of stability. Aggressive/rule breaking may be stronger predictors of future outcomes than are the age of onset subtypes.

As a part of the assessment process, a structured diagnostic schedule can be applied. Following are the schedule currently available for assessment (1) Diagnostic interview schedule for children by age (DISC-IV). (2) Diagnostic interview for children and adolescents (DICA). (3) The schedule for affective disorders and schizophrenia for School-age Children (K-SADS). (4) Child and adolescent psychiatric assessment (CAPA). DISC-IV and DICA are structured interview and do not require trained professionals to be administered while K-SADS and CAPA should be administered by trained professionals.

Although in the routine clinical process, scales/instruments are not applied, for teaching and research purpose it is frequently applied. They are overt aggression scale, the aberrant behavior checklist, the Iowa aggression scale and a conduct subscale of the quay revised behavior problem checklist. Global scales such as the clinical global impression (CGI)-severity and CGI-improvement scales can be used by the investigator to monitor the response to a treatment process.

The Achenbach's child behavior checklist had an Indian adapted version and known as childhood psychopathology

Table 2: Differential diagnosis

Disorder	Differentiating feature
ADHD	Early age of onset than CD Careful history in both setting will usually reveal ADHD
ODD	Milder form of CD, rights are not violated
ASPD	Diagnosed above 18 years of age
Adjustment reaction	Symptoms subside after termination of stress
Mood disorder	Presence of persistent low mood and other core features

ASPD – Antisocial personality disorder; ADHD – Attention deficit hyperactive disorder; ODD – Oppositional Defiant Disorder; CD – Conduct disorder

Table 3: Assessment of current and past offenses/ problem behaviors

Recent offences	Past offences	Past problematic behaviors
Seriousness	Juvenile record	Violence
Nature and quality	Number of previous arrests	Self-harm
Victim characteristics	Convictions for violence	Fire-setting
Motive	Cautions	Cruelty to animals and children
Role in offence	Self-reported offending	
Attitude to offence		
Victim empathy		

measurement schedule (CPMS). It is a semi-structured interview schedule having 75 symptoms and has a designated section on CD symptoms, and it gives a dimensional score. It is standardized on Indian children with good reliability (0.88–0.98) and validity. With a cut-off score of > 10, CPMS has 82% sensitivity and 87% specificity.

TREATMENT

General principle

The cost of using public services in persons with CD was ten times that of those without CD. As there is a scarcity of parameters involved in cost-benefit analysis while calculating the expenditure of intervention in delinquency, there is a bias toward a lower estimation of economic benefits. There is a significant amount of research has been done on the intervention of CD. As there are numerous risk factors involved, to be effective treatment must be multi-modal, involve a family-based and social systems-based approach, address multiple areas, and continue over a longer period. Treatment should start with psychoeducating the patient and his parents/caretakers about the disorder and its potential complications and long-term consequences and outcome. Various psychosocial crises must be dealt with appropriate psychological intervention. The age of onset CD and its intervention is important. The most aggressive youth who are likely to show antisocial behavior in adulthood usually have childhood onset of for these behaviors. Various interventions are available that are effective in treating early emerging conduct problems, but their effectiveness decreases in older children and adolescents. Because of the heterogeneity in presentation, the interventions need to be

individualized. Knowledge of the different developmental processes that may be playing a role in the children with CD could help in selecting the most appropriate modality of intervention for an individual child. Children with ODD/CD need special attention because if untreated the outcome over the lifespan is usually adverse for them. Although there has been much advancement in understanding the risk factors for developing the CD and what interventions are effective, in many countries, there are few services available for them. They may be excluded from mental health services unless they have co-morbid conditions, for example, ADHD.

Nonpharmacological management

Nonpharmacological management has been the mainstay of treatment in managing the CDs. The preventive programs as discussed in the later section should form the most important of the intervention strategies while talking about this issue. In preschool children such programs, for example, Head Start has been tried. They provide parent education about normal development; provide children with stimulation and crisis management to the parents. In the clinical setting, the interventions are targeted toward the temperament of the child, the interpersonal relations in the family, and increasing the parental efficiency in addressing the child's behavioral issues. In the school-aged children, the primary target of intervention is the child, family, and the school. Both parenting skills training and training for the child to improve peer relationships, social competence, academic performance, and compliance with demands from parents/teachers are effective for CD. As in adolescent period the relative importance of peers is increased than that of the family, the interventions should also be targeted toward the peer group. The multi-systemic therapy is imparted in the family environment to the adolescents with conduct problems. It combines intensive case management in the home setting with family interventions, and this has been found to be cost effective. Psychoeducational intervention to inculcate social skills, address conflict resolution and anger control skills to target adolescents and parents are found to be helpful.

There are various specific treatment approaches which are found to be beneficial in treating the CD.

Contingency management programs

This treatment modality has primarily based on the hypothesis that children and adolescents with CD belong to families in which they have not been experienced a contingent environment— an ill development of social skills which has an important contribution in their scarce capability to adapt the behavior as per the situation. Moreover, some children with CD have a temperamental susceptibility which makes them prone to a noncontingent environment. For example, they focus more on the anticipated positive results of their behavior to so much so

that that they ignore the possible negative consequences. The contingency management programs involve. (1) Setting behavioral goals that slowly shape a child's behavior in specific areas of interest. (2) To monitor systematically whether the child is achieving these goals, (3) Positive reinforcement in taking steps in the direction of reaching these goals, and (4) Penalty for undesired behavior.

Cognitive behavioral skill training

Studies have found that the children and adolescents with CD show deficits in social information processing mechanism. Hence, this cognitive behavioral skill training has been intended to address the social cognition deficit and to improve the problem-solving skill in the social context in children and adolescents with CD. Most of these programs teach the skills to decrease impulsivity and angry responding. This is mainly consists of problem-solving steps, for example, how to recognize problems, how to consider alternative responses, and how to select the adaptive one to deal more effectively with the problems in hand. In this approach, the therapist plays an active role, modeling the skills being taught, role-playing social situation with the child, prompting the use of skills being taught, and delivering feedback and praise for developing the skills. Contingency management program can also be used in this modality. This skill should be practiced in multiple settings for possible generalization and should involve people involve in the natural environment, i.e., parents and teachers.

In a recent study, 91 boys aged 6–12 years with a diagnosis of ODD/CD and peer-related aggression were randomized to receive individually delivered social competence training (treatment program for children with aggressive behaviour, THAV) or to an active control involving group play that included techniques to activate resources and the opportunity to train prosocial interactions in groups (PLAY). Outcome measures were rated by parents, teachers, or clinicians. Moderate treatment effects for THAV compared to PLAY were found in parent ratings and/or clinician ratings on aggressive behavior, comorbid symptoms, psychosocial impairment, quality of life, parental stress, and negative expressed emotions. In teacher ratings, significant effects were found for ADHD symptoms and prosocial behavior only. THAV is a specifically effective intervention for boys aged 6–12 years with ODD/CD and peer-related aggressive behavior as rated by parents and clinicians.

Parent management training

The major objective of parent management training (PMT) is to teach parents the skill of developing and implementing a systematic contingency management plan in home setting. This aims to improve the interaction between parent and child at home and to change the antecedents to behavior to increase the possibility that the child will show prosocial behavior. It also helps parents to improve their capability to keep an eye

on their children and teaches them more efficient discipline strategies. Deficiencies in the above-mentioned areas of parenting strategy have been constantly associated with child CD. A randomized study on PMT has shown decrease in the child conduct problem reported by mother. The effect sizes were largest among mothers who were present for >50% of the group sessions. There was no significant effect of the intervention on conduct problems and social competence in kindergarten or school as reported by teachers. Internet-based PMT also showed a greater reduction in conduct problems compared to the waitlist children. It has also been found that during 18 months period after the intervention, child conduct problems continued to decrease whereas parenting skills declined somewhat from post-treatment of internet-based PMT. A Cochrane review of thirteen trials on 1078 participants (646 in the intervention group; 432 in the control group) found that parent training produced a statistically significant reduction in child conduct problems, whether assessed by parents or independently assessed. It also found that there was a significant improvement in the mental health of the parents. There was an improvement in positive parenting skills and a reduction in negative or harsh parenting practices which are found to be statistically significant. This observation was based on both parent reports and independent assessments. The intervention was found to be cost-effective. When the costs of program delivery was compared with the long-term health, social, educational, and legal costs associated with childhood conduct problems they were found to be modest. The researcher concluded that behavioral and cognitive-behavioral group-based parenting interventions are effective. They are cost effective for short-term to improve child conduct problems, parental mental health and parenting skills. However, the long-term assessment of outcomes is still needs to be done. Meta-analytical studies of PMT and cognitive-behavioral Therapy for the child have revealed a positive effect of these interventions on a child with CD. However, majority of the studies included in this meta-analysis were carried out in research conditions and are not representative of the treatment effectiveness in everyday clinical practice. In Germany, "START NOW" group-based behavioral skills training program have been developed to target the specific needs of girls with CD in residential care. It aims at enhancing emotional regulation capacities in females with CD or ODD to appropriately deal with day to day life demands. It is intended to enhance psychosocial adjustment and well-being as well as reduce oppositional and aggressive behavior. The primary aim is to decrease the number of CD/ODD symptoms as assessed by a standardized, semi-structured psychiatric interview between baseline and the end of the intervention, in addition to that between baseline and 3 months follow-up point. Secondary objectives include pre- and post-change in CD/ODD-related outcome measures, most notably emotional regulation aspects on a behavioral and neurobiological level. However, this study is underway.

Table 4 enumerates some nonpharmacological measures for conduct disorders.

Table 4: Nonpharmacological management strategy for conduct disorder

Investigator	Findings
Goertz-Dorten <i>et al.</i> , 2018	Individualized social competence training has been found to be superior than an active control (group play) in reducing aggressive behavior
Kersten <i>et al.</i> , 2016	Group-based behavioral skills training program (START NOW) has been tried in female adolescents with ODD/CD
Bjorknes and Manger 2013	PMT has been found beneficial than the waitlist control in reducing conduct problems
Enebrink <i>et al.</i> , 2012	Internet based PMT is found to cause greater reduction in conduct problems than that of waitlist children
Furlong <i>et al.</i> , 2012 (Cochrane review)	Behavioral and cognitive-behavioral group-based parenting programs are found to be effective in improving child conduct problems and is also cost-effective
van de Wiel <i>et al.</i> , 2002 (meta-analysis)	PMT and cognitive-behavioral therapy for the child have a positive outcome in CD

PMT – Parent Management Training; ODD – Oppositional Defiant Disorder; CD – Conduct disorder

Table 5: Pharmacological management of conduct disorder

Investigator	Findings
Findling <i>et al.</i> , 2000	Risperidone is superior to placebo in reducing aggression in CD
Loy <i>et al.</i> , 2017 (Cochrane review)	This Cochrane review found that risperidone reduces aggression and conduct problems in disruptive behavior disorders, in short term
Pringsheim <i>et al.</i> , 2015 (systematic review and meta-analysis)	This systematic review and meta-analysis found that psychostimulants have a moderate-to-large effect on symptom regulation and atomoxetine has a small effect on aggression in ADHD co-morbid with CD
Connor <i>et al.</i> , 1999 (meta-analysis)	Clonidine has a moderate effect size on symptoms of ADHD in ADHD co-morbid with CD

ADHD – Attention deficit hyperactive disorder; CD – Conduct disorder

Psychopharmacological treatment

Only treatment with medication is not sufficient. Pharmacological agents are adjuncts in treatment for acute crisis intervention and short-term management. The role of pharmacotherapy is mainly for the treatment of the comorbid conditions, for example, ADHD or the symptomatic management of aggression and impulsivity [Table 5].

A 10 weeks, randomized, double-blind, placebo-controlled study with two parallel arms with a sample size of 10 in each group was done to examine the role of risperidone in CD. Depending on the weight of the patient, medications could be increased from dose of 0.25 mg or 0.50 mg each morning at the weekly interval during the initial 6 weeks. The primary outcome was measured using aggression against people and/or property scale. Risperidone was found superior in reducing aggression as compared to placebo. It was also found to be well tolerated in this study. A retrospective study on 60 consecutive patients who were treated with lithium for CD found that 48.3% were responders. However, >50% (of the 48.3% who were responders) of them were also receiving

concomitant atypical antipsychotic therapy. The reviews suggest that the use of typical antipsychotics is associated with extrapyramidal side-effects. Limited research is available on quetiapine, olanzapine and aripiprazole. Trials of lithium yield contradictory results. Few trials with valproate have shown that it is effective for CD. Although there is evidence to show that the stimulants are efficacious, substance abuse is a potential risk in this case. A recent Cochrane review has following findings. Short-term use of risperidone was found to reduce aggression and conduct problems in disruptive behavior disorders. Most common side effects reported were weight gain and extrapyramidal symptoms. There is no evidence for the use of quetiapine, ziprasidone or any other atypical antipsychotic for CDs. There is low or very low-quality evidence to support the use of haloperidol, thioridazine, quetiapine, and lithium in aggressive youth with CD. Evidence for the use of divalproex in such cases is of low quality. Carbamazepine also has very-low-quality evidence to support its use for the management of aggression in youth with CD. Psychostimulants have a moderate-to-large effect on symptoms regulation in ODD and CD. There is also high-quality evidence to support its use in youth with ADHD, with and without ODD or CD and for emotional dysregulation. Similarly, clonidine has a small effect on oppositional behavior and conduct problems in youth with ADHD, with and without ODD or CD and evidence is very low quality. For oppositional behavior in youth with ADHD, with and without ODD or CD, there is high-quality evidence that atomoxetine has a small effect. There are few case reports indicating that selective serotonin reuptake inhibitors were effective in reducing aggression in male youth with various aggressive disorders. To treat aggression in youth beta-blockers have been found to be effective.

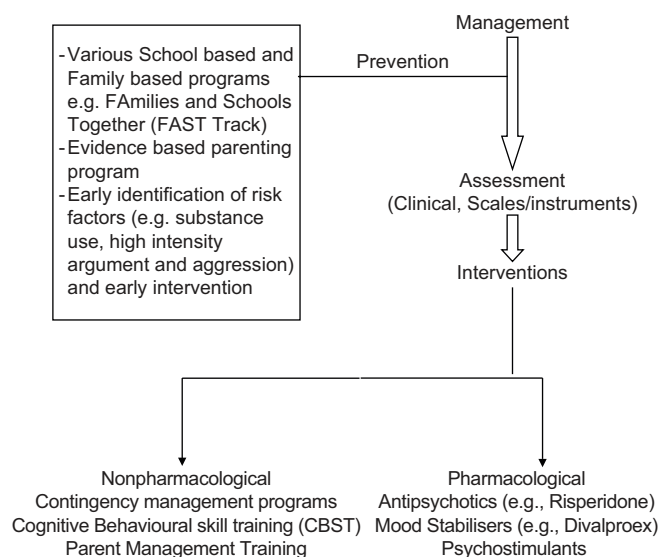


Figure 1: Algorithm for assessment and management of Conduct disorder

A meta-analytic study that includes 11 studies on the role of clonidine in ADHD and co-morbid conditions found a moderate effect size on symptoms of ADHD in children and adolescents with ADHD and ADHD comorbid with CD.

PREVENTION

Prevention is an important component in the intervention of CD. Integration of various modalities of intervention can have added beneficial effects. There is increased effectiveness in addressing multiple risk factors in intervention.

The conduct problems prevention research group develops a model for the management of CD through the approach of preventive intervention. The name of the program was FAST Track (Families and schools together) Program. The FAST Track program integrates various interventional modules to encourage psychosocial competence of the child in various settings, for example, the family and school environment. This preventive approach can reduce conduct problems, poor social relationships and drop out from school. In this 10 years intervention program included behavior-management training for the parents and training of child for improving social and cognitive skills. For this tutoring, home visiting, mentoring, and a universal classroom program were included. It was found that there was a significant interaction between intervention and initial risk level at each age but most strongly after Grade 9. The intervention group had a significant positive effect in lowering the diagnoses for CD, and any externalizing disorder, and lowering antisocial behavior scores, but only among those at highest risk initially.

Various risk factors for developing CD in future are early adolescent substance use, high-intensity argument/defiant behavior, both low- and high-intensity aggression to people/animals, high-intensity deceitfulness/stealing, high-intensity peer problems, high-intensity destruction of property, and inappropriate sexual behavior should be identified and subsequently targeted for timely intervention. Evidence-based parenting programs decrease the possibility of CD persisting into adult ASPD and have been found to be cost effective. Various school-based programs are also helpful in preventing the CD.

The algorithm to the management approach of conduct disorder is outlined in Figure 1.

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Nil.

Conflicts of interest

There are no conflicts of interest.