Articles

Depressive disorders in childhood

Trastornos depresivos en la infancia

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Abstract: Depression is one of the main psychiatric disorders that prevails during childhood and adolescence. The causes are multifactorial, of which the following stand out: traumatic events, the social development environment, genetics and brain chemistry accompanied by some anatomical and functional alterations. The consequences can be serious in the long term and can even contribute to the problem if it is not identified and referred promptly or lead to suicide, once the diagnosis has not been effective. The treatment for depression is complex and includes drugs and cognitive-behavioral therapy. This article aims to help first contact physicians to diagnose in a timely manner to act in situations that may endanger the patient with this condition, and therefore refer to specialists.

Keywords: Depressive disorder, adolescence, childhood, psychiatric disorder, prevalence..

Resumen: La depresión es uno de los principales trastornos psiquiátricos que prevalece durante la infancia y la adolescencia. Las causas son multifactoriales, de las cuales resaltan: eventos traumáticos, el entorno social de desarrollo, genética y química cerebral acompañada de algunas alteraciones anatómicas y funcionales. Las consecuencias pueden ser graves a largo plazo e incluso se puede contribuir al problema si no se identifica y se refiere oportunamente o conducir al suicidio, toda vez que el diagnóstico no haya sido eficaz. El tratamiento de la depresión es complejo e incluye fármacos y terapia cognitivo - conductual. Este artículo tiene como objetivo ayudar a los médicos de primer contacto a diagnosticar de manera oportuna para actuar en situaciones que puedan poner en peligro al paciente con esta condición, y por tanto realizar la referencia a especialistas.

Palabras clave: Trastorno depresivo, adolescencia, infancia, trastorno psiquiátrico, prevalencia.

INTRODUCTION

Mental health is a field that continues to be studied throughout the history of health in the world, and the interest in it has grown in the last three decades. Depressive disorders are pathologies that are included in this medical branch.[1] Childhood and adolescence are the first stages of life that define certain traits of all human beings.[2]

About half of the first depressive episodes occur during adolescence,[3] early life stressors have been shown to delay brain maturation and lead to poor self-control in early adolescence.[4] It is believed that some of the psychiatric diseases of childhood and / or adolescence are preventable, on the other hand, it is known that the chemistry and genetics of the brain will also determine its development.[5]

According to the World Health Organization, mental disorders are the main cause of living with disabilities, in the world and depression is the most important disorder with 40.5% in relation to other mental disorders, between 13 - 18 years of age the rate increases, but only 1% receive treatment.6 This article aims to help first-contact physicians to diagnose patients with depression in a timely manner so that they can be adequately referred, which is why we did an extensive search on PubMed and Google Scholar and a detailed reading of various articles on childhood depression, combining the most relevant data found.

DEFINITION

Psychiatry is the medical specialty that studies mental illnesses, their types, causes, courses, and treatments, while pedopsychiatry is synonymous with child psychiatry and deals with mental disorders in children.[1]

The Convention on the Rights of the Child defines a child or infant as any person under 18 years of age, and childhood is the period of life between 0 and 12 years of age, and adolescence between 12 and 18 years of age, who build their identities based on their social, cultural and economic location, in the community and in intra and intergenerational relationships.[7] Mental health is the state of emotional, cognitive and behavioral balance that allows the individual to function responsibly in their family, social and work environment, as well as to enjoy well-being and quality of life.[1] Mental disorder: it is the emotional, cognitive alteration and / or behavior in which basic psychological processes such as emotion, motivation, consciousness, behavior, perception, learning and language are affected, making it difficult for the person to adapt to the cultural and social environment in which they live in, generating some form of subjective discomfort.[1,6]

Depression is characterized by the persistent presence of sadness or depressed mood and the loss of interest in pleasant activities and even the inability to carry out daily activities, for a period of at least two weeks "almost every day".[6]

CLASSIFICATION

The DSM-5 manual (Diagnostic and Statistical Manual of Mental Disorders) classifies depressive disorders as follows:8

- Major depressive disorder (often called depression)
- Persistent depressive disorder (dysthymia)
- Other specified or unspecified depressive disorder
- Premenstrual Dysphoric Disorder (PMDD)
- Depressive disorder due to another illness
- Substance/drug-induced depressive disorder

ICD-11 contains a section where it classifies mental, behavioral or neurodevelopmental disorders, within which are mood disorders, and in turn contains depressive disorders which are:9

1. *Single episode depressive disorder*
    - Mild, single episode depressive disorder
    - Moderate single episode depressive disorder without psychotic symptoms

- Moderate single episode depressive disorder with psychotic symptoms
- Severe, single episode depressive disorder without psychotic symptoms
- Severe, single episode depressive disorder with psychotic symptoms
- Single episode depressive disorder, unspecified severity
- Single episode depressive disorder, currently in partial remission
- Single episode depressive disorder, currently in complete remission
- Other specified single episode depressive disorder
- Single episode depressive disorder, unspecified.

2. *Recurrent depressive disorder.*

- Recurrent depressive disorder, current mild episode
- Recurrent depressive disorder, current moderate episode, without psychotic symptoms
- Recurrent depressive disorder, current moderate episode, with psychotic symptoms
- Recurrent depressive disorder, current severe episode, without psychotic symptoms
- Recurrent depressive disorder, current severe episode, with psychotic symptoms
- Recurrent depressive disorder, current episode, unspecified severity
- Recurrent depressive disorder, currently in partial remission
- Recurrent depressive disorder, currently in complete remission
- Other specified recurrent depressive disorder
- Recurrent depressive disorder, unspecified

3. *Dysthymic disorder*
4. *Mixed depression and anxiety disorder*
5. *Premenstrual dysphoric disorder*
6. *Other specified depressive disorders*
7. *Unspecified depressive disorders*

EPIDEMIOLOGY

The prevalence of depression varies according to the sample studied, diagnostic criteria, sources of information, ethnicity and culture,10 and according to the WHO it is the main mental disorder worldwide.[6]

A study carried out in the United States in 1994 revealed that the prevalence of depression ranges between 0.4% and 2.5% in children and between 0.4% and 8.3% in adolescents.[11]

In 1995, there was a suicide rate of 0.5 for women and 0.9 for men between 5 - 14 years old, who suffered from a psychiatric disorder.[12]

Among the comorbidities associated with depression, we find post-traumatic stress syndrome (EPS), anxiety and stress, the prevalence of EPS has been recorded in a highly variable way and ranges between 21 - 94%.[13]

On the other hand, adolescent-onset depression is more likely to be associated with alcohol dependence and abuse than when depression begins in adulthood.[14]

A quarter of adolescent's present subtle depressive symptoms that alter their daily life, increase the risk of substance use and suicide rates, as well as a deterioration in school performance.[15,16]

Surveys conducted in Ethiopia revealed a prevalence of childhood depression of 1%[17] and up to 2% in Western countries.[18]

Two studies conducted in Mexico by "Benjet C."19,20 revealed that there is an incidence of 4.8 - 13% for major depressive disorder in adolescents between 12 and 17 years old, the prevalence by gender is 15.1% for women and 9% for men.[19,20] Of the population born and residing in Mexico until adulthood, 3.3% suffer

from depression, and in the Mexican population that was born or lives in the United States before adulthood, the rate increases to 6.9%.[21]

Another epidemiological study showed that from 1990 to 2000 the suicide rates in children and adolescents between 5 - 14 years of age in Mexico increased from 0.2% to 0.5%22 and that 11.3% of them had had suicidal ideas and up to 3.1% had had a try.[23]

Regarding age, a prevalence of 0.03 - 1.9% is estimated for school-age children[24,25] and 0.7 - 7% for adolescents.[26] According to data from INEGI in 2017 in Mexico, 14.5% of children between 7 - 14 years old had felt depression while among adolescents between 15 - 29 years old it was registered in 25.8%, 27 and in 2020 there were 7,896 deaths by suicide at the national level, of which 1160 correspond to children and adolescents between 10 - 19 years of age.[27]

When inquiring about depression according to gender, we found that women are almost twice as likely to suffer from depression, the prevalence corresponds to 1.8% for men and 2.4% for women, the gaps are smaller at younger ages, girls do have a higher incidence depression, but the gap increases from adolescence, where much more prevalence is observed in women, however, they have a lower degree of remission or chronicity.[21, 28]

Over the past 3 decades, the incidence of depression has steadily increased and the age of onset has decreased.[29]

Children or adolescents with depression who present symptoms of anxiety represent between 28 - 56%, so it is not yet clear whether anxiety and depression have a similar or even the same etiology.[30-32]

CLINICAL SYMPTOMS

The patient may appear tired, preoccupied with himself, bored, inattentive and with little interest in his surroundings,[33] there may also be muscle tension, continuous movement of the hand, repeated crying, use phrases that express sadness or misery, these symptoms may be isolated or present several of them at the same time.[34]

Physically there is tachycardia, dry tongue / mouth, clammy and / or cold palms, clammy body extremities, paleness, pupillary dilation, tremors, and fluctuations in blood pressure with wide pulse pressure.[35]

In children, the language to express their emotions is not always broad and trained, so the symptoms are more behavioral than verbal and the vegetative symptoms are recognizable.[36] Depressive symptoms tend to be more severe in youth with comorbid anxiety compared to non-anxious youth.[37]Depression in childhood and adolescence is characterized by persistent and generalized central sadness, anhedonia, boredom, and irritability, which become functionally disruptive and relatively insensitive to good experiences and interaction with other people.[38]

Major depression is characterized by a sad or irritable mood or anhedonia (which is the inability to feel pleasure) along with at least five other symptoms, such as social withdrawal, worthlessness, guilt, suicidal thoughts or behavior, increased or decreased sleep, decreased motivation or concentration and increased or decreased appetite.[27,39]

In adolescence, depressive disorders significantly increase the risk of suicide and the incidence of suicide attempts.[40]Although young children also tend to have suicidal ideation, they rarely act on it.[29]

Depression in children is manifested by auditory command or persecutory hallucinations, rather than delusions as seen in adolescents and adults, and is attributed to a lack of cognitive maturation in children,[41] some children report somatic complaints such as headaches, or stomachaches, anxiety about separation from parents, agitation, fatigue, insomnia, the difficulty to concentrate is the same for infants and adolescents.[29]

PHYSIPATHOLOGY

A multifactorial model is acknowledged to explain the depression pathogenesis, it includes genetic, neurobiological, psychosocial, sociocultural, somatic, and familial factors.[42]

Is assumed 20% risk illness for child whose parents are already ill; if both parents are depressed, the risk increases 50%.[43] There is evidence that stressful life events and genetic diathesis, such as a shorter allelic form serotonin transporter, may interact and cause early-onset depression.[44]

Agents that stimulate the serotonergic system cause the release of prolactin and cortisol.[38]

Some autopsy research and computed tomography studies have shown a reduction in the number of serotonin receptors in the midbrain and amygdala in depressed patients, as well as a reduction in presynaptic and postsynaptic subtypes (also located in the midbrain) of 5HT receptor in patients with depression.[45,46] Concentrations of corticotropin-releasing factor and thyrotropin-releasing hormone in the cerebrospinal fluid of untreated depressed patients are higher compared to healthy patients, whereas somatostatin concentration is lower in cerebrospinal fluid of patients with major depressive disorder and bipolar disorder.[38]

The hypothalamic-pituitary-adrenal axis (HPA) is the main neuroendocrine stress response system, and shows dysfunctional responses to hormone challenges and stress factors, stress-induced abnormalities of HPA could have from longer duration, depending on the length and type of stress, either psychological or physical.[47]

One of the most important factors is the age of the individual, during exposure to the stressor, this means that when stress is caused in the early stages of human development, which is a time of high neural plasticity, dysfunction can develop long- term of the HPS axis and carry it into adulthood,47 also during adolescence there is a high release of hormones, especially in women, so that age becomes a determining factor for the condition.[38]

It is known that several neurotransmitter systems are involved in depression, but that no neurotransmitter system is the only one responsible, it has been possible to observe alteration in the size or volume of some brain structures such as; decreased nucleus of the hippocampus and caudate nucleus, and increased pituitary volume.[48]

There is a theory that speaks of dopamine and anhedonia deficiency and in turn it is one of the main symptoms of depression, therefore, it is believed that there is a close relationship between dopamine deficiency and depression, and studies with drugs have also been carried out that enhance dopamine neurotransmission with which a better response to depression has been observed.[49]

DIAGNOSTIC

Depression screening relies on use of depression symptom assessments, or small questions sets about depression, to identify patients who may be currently depressed, but who have not sought treatment and whose depression has not yet been clinically recognized.[50]

The President's New Freedom Commission on Mental Health in 2003 called for screening in primary health care, schools, and their environments.[51]

In Mexico, the Miguel Hidalgo Model was launched, within which it stands out to provide mental health care in health centers, to have greater coverage, which has been put into practice in the State of Hidalgo since 2002.[52]

For the initial diagnostic evolution there are some tests that can be used:

- Children's Depression Inventory (CDI) for children and adolescents from 7 to 17 years old.
- Children's Depression Scale (CDS) from 8 to 14 years old.
- Patient Health Questionnaire-Adolescent version (PHQ-A) aged 13-18 years specifically for use in primary care.
- Child Behavior Checklist (CBCL) for 4 to 18 years.53 According to DSM-5, a depressive disorder will be considered when there is one or more major depressive episodes and the absence of mania and hypomania.

The criteria for major depression are:

- Five or more of the nine symptoms (Table 1) are present for a period of at least 2 weeks. One of these symptoms must be depressed mood or anhedonia (loss of interest or pleasure). The frequency required is over a period of 2 weeks, it varies a little depending on the symptom, but the majority should be present "almost every day".

TABLE 1
Symptoms8

1	Depressed state of mind for most of the day.
2	Decreased interest or pleasure in all or almost all activities for most of the day.
3	Significant weight gain or loss (> 5%), or decreased or increased hunger
4	Insomnia or hypersomnia
5	Agitation or psychomotor retardation observed by others (not self-reported)
6	Fatigue or energy loss
7	Feelings of worthlessness or excessive or inappropriate guilt.
8	Decreased ability to think or concentrate, or indecisiveness.
9	Recurrent suicidal or death thoughts, attempt or ideation to commit suicide.

Depression symptoms

- The symptoms cause distress or significant impairment.
- The episode is not attributable to a substance or disease.
- The episode is not explained by any other psychotic disorder such as: schizophrenia, schizoaffective disorder, schizophreniform disorder, delusional disorder or other psychotic disorder.
- There is no history of having had a non-substance-induced manic or hypomanic episode.[54]

PREVENTION

Given the prevalence of depressive and anxiety disorders in children and adolescents, and their effect at the psychosocial level, programs have been developed for their prevention, which are based on cognitive-behavioral therapy that addresses dysfunctional emotions, maladaptive behaviors and cognitive processes.[55] Almost all prevention studies focus on reducing depressive symptoms rather than preventing diagnosed depressive episodes.[56]

Prevention strategies increase awareness and reduce stigmatization among children by identifying emotional problems, in addition to depression, these programs also reduce anxiety symptoms.[57,58]

First contact doctors must identify patients with depression problems, refer them promptly, offer comfort and listen to the patient if there is a risk of damaging their integrity, until they can be treated by the specialist, for a better understanding we created Figure 1 showed below.

Selective preventive interventions are for those groups at risk of developing the disorder, and biological, psychological or social risk indicators are used for their identification to properly select candidates.[59]

TREATMENT

There are more than 150 studies on treatment for depression, including behavioral therapy, interpersonal therapy, psychotherapy, psychodynamics, and more.[48]

Cognitive-behavioral therapy has been shown to effectively treat various psychological disorders in childhood, such as depression, obsessive compulsive disorder, anxiety, school and social phobia, etc.[60]

The severity of depression appears to be the main predictor for determining the efficacy of psychotherapy.[61,62] According to the available evidence of SSRI (Selective Serotonin Reuptake Inhibitor) in pediatric depression, it is one of the main drugs that have shown true effects over placebo.63-66

Pharmacological treatment combined with psychotherapy is the treatment with the most scientific evidence.[67]

In the last 20 years, research on childhood and adolescent depression has progressed widely, and more evaluation instruments have been validated, the most studied and extensive therapy is cognitive-behavioral therapy,[68] and it has also proven to be the most effective therapy, since it teaches children to identify undesirable or maladaptive behaviors, which are determined by negative thoughts, that is, the objective is to modify behavior by identifying and analyzing maladaptive thoughts and emotions and thus impact on behavior.[60]

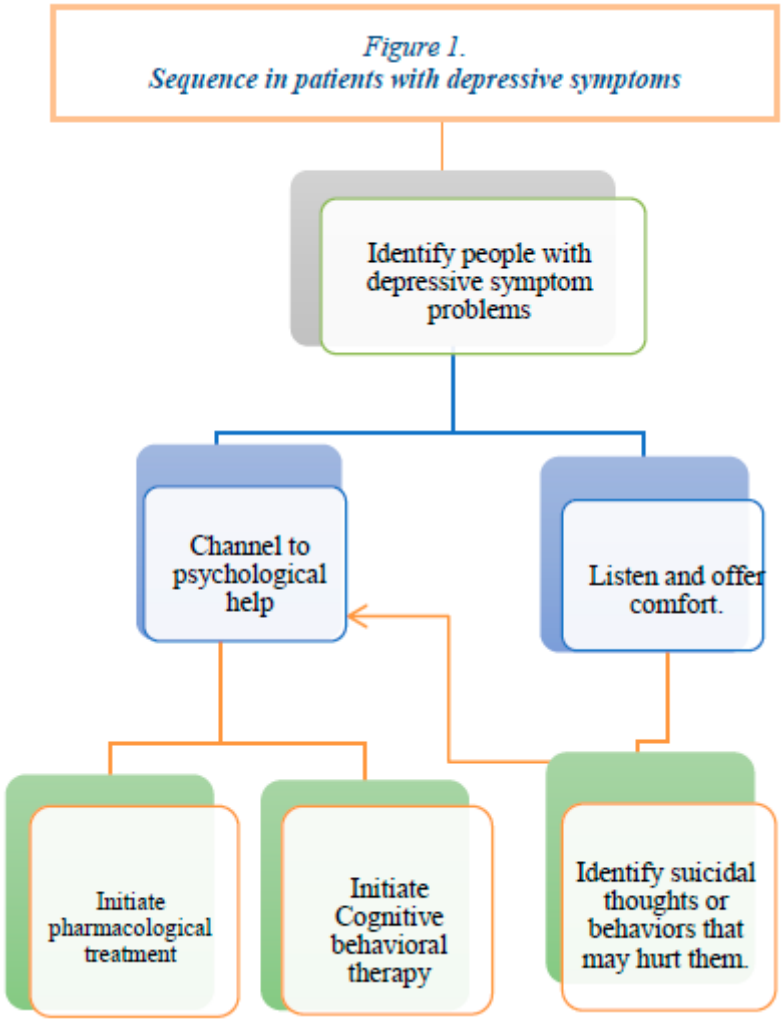

FIGURE 1
Sequence in patients with depressive symptoms

For either of the two treatments, there is an acute phase, a continuation phase and a maintenance phase, and the most commonly used drug is fluoxetine, which has been shown to reduce the symptoms of depression during the acute phase, as well as prevent relapses, while reducing suicide attempts.[67] Escitalopram is known to be effective in adolescents, but not in children[69] and paroxetine was found to be ineffective as a treatment in children and adolescents,[70] on the other hand, the FDA has only approved fluoxetine in children and adolescents and escitalopram for those over 12 years of age.[71]

The acute phase involves the stabilization of dangerous behaviors, and initial evaluation, child maltreatment and other continuous stressors could cause the persistence of depression, its objective is to remit symptoms for at least 2 weeks up to <2 months without symptoms, the continuation phase is> 2 months without depressive symptoms, the maintenance phase will help prevent recurrences in young people with chronic, recurrent or severe depressive disorder.[72]

CONCLUSION

Depression in childhood is a pathology that can have repercussions in adult life, and the damage it causes can lead to death, so it must be treated as an important health problem, like any other disease, to improve quality life of children and adolescents who suffer from it.

FORECAST

Treatment-resistant depression was defined as the lack of response to at least one adequate prior trial (both in dose and duration) of a major class of antidepressants; preventive efforts made in the early stages of childhood development effectively prevent the psychological morbidity and promote good mental health in school-going children.[73,74]

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