



Newborn alcohol withdrawal: physical and behavioral characteristics

Abstinencia de alcohol del recién nacido: características físicas y de comportamiento

Abstinência alcóolica do recém-nascido: características físicas e comportamentais

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Abstract

The aim of this study was to point out the repercussions of alcohol consumption, by pregnant women, on the newborn. For this, a bibliographic review research was carried out in the SciELO, LILACS and Pubmed online databases. The keywords were "neonatal abstinence syndrome", "newborn", "ethanol", "nursing", "neonatal abstinence syndrome", "newborns", "drug withdrawal", "neonatal nursing". Full articles in Portuguese and English were included. Studies have shown that pregnant women expose the fetus to physical and social problems. After birth, there is a drop in the circulating levels of alcohol in the newborn's body, which can lead to the Neonatal Withdrawal Syndrome causing inadequate suction, hypertonia, tremors, seizures, intense crying, irritability, sleep disturbance and the possibility of sudden death, in addition to facial dysmorphism that includes short palpebral fissures, thin upper lip, smooth philtrum, maxillary hypoplasia and short nose. It is concluded that the diagnosis of the Neonatal Withdrawal Syndrome is difficult to recognize immediately due to the similarity of the characteristics to other diseases, which leads to conduct errors in the treatment. This scenario strengthens the practice of nurses highlighting the importance of specific academic training, technical and social-emotional skills to work with the subject.

Descriptors: Neonatal Withdrawal Syndrome; Newborn; Ethanol; Neonatal Nursing; Alcohol-Induced Disorders.

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Resumén

El objetivo de este estudio fue señalar las repercusiones del consumo de alcohol, por parte de la gestante, en el recién nacido. Para ello, se realizó una investigación de revisión bibliográfica en las bases de datos online SciELO, LILACS y Pubmed. Las palabras clave fueron: "síndrome de abstinencia neonatal", "recién nacido", "etanol", "lactancia", "síndrome de abstinencia neonatal", "recién nacidos", "abstinencia de fármacos", "enfermería neonatal". Se incluyeron artículos completos en portugués e inglés. Los estudios han demostrado que las mujeres embarazadas exponen al feto a problemas físicos y sociales. Después del nacimiento, hay una caída en los niveles circulantes de alcohol en el cuerpo del recién nacido, lo que puede llevar a la síndrome de abstinencia neonatal causando succión inadecuada, hipertoniá, temblores, convulsiones, llanto intenso, irritabilidad, alteraciones del sueño y la posibilidad de muerte súbita, además de dismorfia facial que incluye fisuras palpebrales cortas, labio superior delgado, surco nasolabial liso, hipoplasia maxilar y nariz corta. Se concluye que el diagnóstico del Síndrome de Abstinencia Neonatal es de difícil reconocimiento inmediato debido a la similitud de las características con otras enfermedades, lo que lleva a errores de conducta en el tratamiento. Este escenario fortalece la práctica del enfermero resaltando la importancia de la formación académica específica, las habilidades técnicas y socioemocionales para trabajar con el tema.

Descriptor: Síndrome de Abstinencia Neonatal; Recién Nacido; Etanol; Enfermería Neonatal; Trastornos Inducidos por el Alcohol.

Resumo

O objetivo desse estudo foi apontar quais as repercussões do consumo de álcool, pela gestante, no recém-nascido. Para isso, realizou-se uma pesquisa de revisão bibliográfica nas bases de dados online SciELO, LILACS e Pubmed. As palavras chaves foram: "síndrome da abstinência neonatal", "recém-nascido", "etanol", "enfermagem", "neonatal abstinence syndrome", "newborns", "drug withdrawal", "neonatal nursing". Foram incluídos artigos completos nos idiomas português e inglês. Os estudos mostraram que a gestante expõe o feto a problemas físicos e sociais. Após o nascimento, há uma quebra de níveis circulantes do álcool no organismo do recém-nascido que pode levá-lo à Síndrome da Abstinência Neonatal causando sucção inadequada, hipertonia, tremores, crise convulsiva, choro intenso, irritabilidade, distúrbio do sono e possibilidade de morte súbita, além da dismorfia facial que inclui fissuras palpebrais curta, lábio superior fino, filtro liso, hipoplasia na maxila e nariz curto. Conclui-se que o diagnóstico da Síndrome da Abstinência Neonatal é de difícil reconhecimento imediato devido a semelhança das características à outras doenças, o que acarreta erros de conduta no tratamento. Esse cenário fortalece a prática do enfermeiro destacando a importância da formação acadêmica específica, competências técnicas e socioemocionais para trabalhar com a temática.

Descritores: Síndrome da Abstinência Neonatal; Recém-Nascido; Etanol; Enfermagem Neonatal; Transtornos induzidos por Álcool.

Introduction

Alcohol consumption has been a worrying situation for public health. Mortality and functional limitations caused by abuse entail high costs for the health system. Concepts involving mental and behavioral disorders include acute intoxication, harmful use for health and addiction syndrome¹.

According to the data collected, women have stood out among the profile of alcohol consumers, with an increasingly early occurrence. It should also be noted that metabolization occurs slower than in men, which makes them susceptible to losses related to their consumption, even when they ingest lower levels for shorter periods¹.

For the general population, moderate alcohol consumption, with one dose per day for women and two drinks per day for men, does not pose health problems. However, for pregnant women, safe exposure levels are not established, and even moderate consumption can cause harm to the fetus. Despite the potential risks, there are few studies that assess the prevalence of alcohol consumption during pregnancy².

The worsening of alcohol consumption by the pregnant woman, in addition to the harm itself, also exposes the fetus, causing complications in pregnancy, postpartum, as well as in the child's growth and development, reflecting in physical and social problems³.

Alcohol ingested by the mother during pregnancy crosses the placental barrier, exposing the fetus to this substance present in the maternal blood⁴.

Acetaldehyde is the main metabolic of ethanol, is cytotoxic, mutagenic, and blood-dependent teratogenic. It is responsible for fetal and newborn alcohol abstinence (NB)⁵.

Alcohol is currently considered the most common fetal teratogenic agent, causing mental retardation and non-hereditary congenital anomalies related to Fetal Abstinence Syndrome (FAS)⁶.

The FAS refers to a set of characteristics and developmental delays in the fetuses of mothers who consume alcohol during pregnancy. These features include pre- and postnatal growth retardation, facial features such as short palpebral fissures, smooth philtrum and thin lip and central nervous system dysfunction, and this dysfunction can



develop severe mental retardation, hyperactivity and behavioral problems⁷.

According to study³, there are 91 cataloged anomalies related to fetal abstinence syndrome. In the research carried out by these authors, they found numerous behavioral problems that expose children to vulnerability and social repercussions.

After birth, there is a drop in the circulating levels of alcohol in the child's body, which can lead to the Neonatal Withdrawal Syndrome (NAS). The anatomical and physiological repercussions can be present from the fetal to the neonatal period, manifesting in the first hours of life until the 14th day of birth. Changes such as inadequate suction, hypertonia, tremors, seizures, intense crying, irritability, and the possibility of sudden death are related to stress and withdrawal⁸.

Newborns (NB) of alcohol-consuming mothers may have malformations of organs and systems, and early diagnosis is essential to adopt actions in health care⁶.

The nurse must be prepared to face the above-mentioned theme so that the diagnosis is not denied or underestimated, which makes it difficult to implement prevention and treatment strategies, in addition to producing a negative social impact on the binomial⁹.

Acetaldehyde is the main metabolic of ethanol, cytotoxic, mutagenic, and blood-borne teratogenic that cause addictions. It is responsible for fetal and NB alcohol abstinence. This diagnosis is difficult and based on confirmation of intrauterine alcohol exposure, followed by the assessment of clinical signs such as dysmorphic and behavioral impairment and cognitive testing. Biological variability ends up hampering the diagnosis⁵.

Considered a psychotropic drug, alcohol acts on the central nervous system causing a stimulant effect, causing euphoria and a depressant effect. These effects lead to a lack of motor coordination and sleep, symptoms that vary according to the intensity of consumption and the user's personal characteristics. Its exacerbated consumption can lead to dependence, known as alcoholism, which can be of biological, psychological or socio-cultural origin¹⁰.

After the reduction or abrupt stop of the chronic consumption of alcohol, abstinence develops, which starts six to eight hours after the last consumption, and the person presents signs and symptoms such as tremor in the hands, gastrointestinal and sleep disorders, in addition to mild restlessness, which may progress to severe abstinence with a disorientation of time and space¹⁰.

Excessive consumption of alcoholic beverages among pregnant women is a tragic problem, as it can worsen the development of the fetus or newborn; leading to fetal or neonatal alcohol syndrome to be considered one of the diseases with the greatest neuropsychiatric impairment in babies of women who drank alcohol in excess during pregnancy¹¹.

In pregnant women, alcohol crosses the placenta, via maternal blood, goes to the amniotic fluid and to the fetus. In about an hour, the levels of ethanol in fetal blood and amniotic fluid are equivalent to those in the pregnant woman's blood. Acetaldehyde, in turn, crosses the placenta,

but the level of this substance is variable. The human placenta has limited metabolic capacity to metabolize alcohol and the fetal liver also does not have an effective system to metabolize it, so that the reduction in alcohol levels occurs primarily through its re-entry into the maternal circulation¹¹.

Prenatal exposure to alcohol can trigger Fetal Alcohol Spectrum Disorders (FASD), Partial Fetal Alcohol Syndrome, and Alcohol-related Neurodevelopmental Disorders (ARND), the most severe being Fetal Alcohol Syndrome (FAS). However, there are cases in which the NB does not show sequelae, making it impossible to define the diagnosis and the safe amount of alcohol consumption during pregnancy¹².

In 1967, physician Philip Lemoine described a pattern of anomalies observed in the children of alcoholic women and, in 1973, it came to be called "Alcoholic Syndrome". Malformations, distinct characteristics and delay in growth and weight were observed. The study states that the newborns had ocular manifestations such as strabismus, microphthalmia, myopia and hyperopia. For physical characteristics, he pointed out facial anomalies such as short palpebral fissures, thin upper lip, poorly developed mandible and ear wall anomalies and compromised weight and height adjusted for age. For behavioral characteristics, he pointed to hyperactivity. It is noteworthy that the characteristics can be even more aggravating in premature NB⁵.

In this same study, the author also states that children's behavioral problems can be avoided if there is professional assistance that contributes to their well-being⁵.

Early recognition of the physical and behavioral changes presented by the RN enables the adoption of actions to provide immediate care and treatment to the newborn's health.

As the diagnosis of Neonatal Withdrawal Syndrome (NAS) is difficult to recognize immediately, due to the similarity of the characteristics to other diseases, this study favors the understanding of the theme by clarifying doubts that may arise during the care of newborns with signs and symptoms of abstinence, contributing to the effectiveness of the intervention carried out by health professionals aiming to contain disorders of cognitive and behavioral impairment.

A survey published in the International Nursing Review, in 2018, points out that in the United States of America (USA), the diagnosis of Neonatal Withdrawal Syndrome (ANS) is made through a detailed analysis of the detailed physical assessment of the newborn. Maternal history is a non-judgmental item, as the woman may be reluctant to communicate information that may have legal and ethical consequences¹³.

The Fetal Withdrawal Syndrome (FAS) can be confused with other neonatal syndromes and delay the diagnosis, which leads to management errors in the treatment. Furthermore, there are cases of newborns who were exposed to alcohol during pregnancy and had no facial changes⁴.

In Brazil, the diagnosis is not accurate and is often neglected, with a late confirmation rate, with the



observation of the newborn's neural development, which takes place between the ages of 2 and 11 years, when dimorphisms become evident. The treatment of Fetal Withdrawal Syndrome (FAS) is supportive without specific therapy⁴.

To this end, it strengthens the clinical practice of nurses in this scenario, alleviating the difficulties arising from the lack of specific knowledge, in addition to the late establishment of appropriate therapy for the newborn (NB). Thus, the importance of specific academic training, technical, clinical and social-emotional skills to work with this theme is highlighted.

Thus, the objective was to point out the repercussions of alcohol consumption, by the pregnant woman, on the newborn, as well as to identify the difficulties faced by nurses in the early diagnosis of alcohol abstinence in newborns.

Discussion

Alcohol is a rapidly absorbed substance, which can pass from plasma to breast milk in between 30 and 60 minutes. In high doses it can cause lethargy, drowsiness, and withdrawal syndrome¹⁴.

A study¹⁵ carried out pointed out that the action of alcohol, in addition to causing disinhibition of behavior, euphoric action, motor incoordination, impairment of sensory functions, increased sleepiness, impaired reasoning ability, nausea, vomiting, abstinence crisis, in newborns, can lead to gastritis, alcoholic hepatitis, pancreatitis, neuritis, malfunctioning metabolism and fetal alcohol syndrome (FAS).

Even though pregnant women do not report alcohol consumption, the effects on newborns are the main indicators of the practice. The author also states that to make the diagnosis of Fetal Withdrawal Syndrome (FAS) it is necessary to meet four criteria: pre- or postnatal growth deficiency, craniofacial dysmorphia, central nervous system impairment and prenatal exposure to alcohol¹⁵.

The repercussions on the newborns of women who consume alcohol revealed alterations such as inadequate suction, hypertonia, tremors, convulsions, and the possibility of sudden death. The harmful effects caused cannot be reduced once installed, and after birth there is a break in the circulating levels of the drug in the child's body, which may lead to withdrawal syndrome. This clinical sign can persist for about three to seven days. The neonatal abstinence syndrome (NAS), on the other hand, can be present from the fetal to the neonatal period, manifesting itself from the first hours to the 14th day of life⁸.

It turns out that all newborns of mothers who used opioid substances during pregnancy are monitored for at least five days, which will determine the treatment. Signs and symptoms include extreme irritability, excessive high-pitched crying, sleep disturbance, tremors, and seizures. Abnormalities in heart rate and breathing, temperature instability, spotting, sweating, and yawning were also observed¹³.

Alcohol in the newborn's body causes damage such as disorders of the Fetal Alcohol Syndrome (FASD) spectrum,

which describes a variety of deficiencies and diagnoses, and among the possible are Fetal Alcohol Syndrome (FAS) and Neural Development Disorder (DDN) associated with alcohol, which in the fetus cause facial malformations such as vertical depression above the upper lip, absent or indistinct; thin upper lip; hypotelorism or approaching the eyes; mental retardation; respiratory compromise; neurobehavioral observed through posture, reflexes and movements. Postpartum behavior includes intense crying, sleep pattern changes, irritation alternating with long periods of deep sleep, skin, autonomic visual and physiological signs related to stress and withdrawal⁸.

The clinical aspects of withdrawal can be confused with other diagnoses due to the similarity of signs and symptoms with other diseases, which needs further investigation. These reactions range from hypertonia, tremors, restlessness, high-pitched crying, sleep disturbance, seizures, tachypnea, apnea, diarrhea, vomiting, regurgitation, impaired swallowing, sweating and hypothermia. It is emphasized that congenital malformations and neurological manifestations are nonspecific, with facial features being the most useful for the diagnosis of FAS^{3,16}.

Experimental clinical studies demonstrate that alcohol consumption during pregnancy can lead to malformations and delay in pre- and postnatal growth, microcephaly, facial hypoplasia, microphthalmia, in addition to behavioral damage such as extreme agitation, suction deficiency, change in the normal sleep pattern, irritability and sweating, symptoms that can persist for several days after the birth of the newborn. Facial dysmorphia includes short palpebral fissures, thin upper lip, smooth philtrum, maxillary hypoplasia, and short nose. It emphasizes that not all newborns have all the signs, but all have developmental disorders¹⁴.

A clinical instrument called "Finnegan Neonatal Abstinence Scoring Tool" was developed internationally to assist in the diagnosis of Neonatal Abstinence Syndrome. This instrument uses the scoring method and has a five-point scale for classification of signs and symptoms. The higher the score, the more severe the criterias¹³.

This instrument assesses the signs and symptoms of the newborn's organic system: gastrointestinal, metabolic, vasomotor, central nervous system and respiratory. The evaluation takes place at birth and every four hours after feeding. Another diagnostic method is laboratory analysis, which is also recommended for a newborn screening protocol. A sample of meconium or urine from the newborn is analyzed using mass spectrometry, helping to confirm the diagnosis of the substance abused by the mother¹³.

Research carried out with the objective of analyzing the association between alcohol abuse during pregnancy and low birth weight, showed a low prevalence in the relationship between alcohol and low weight. 26.3% of mothers who abused alcohol had babies with low weight, characteristics that favor FAS and consequently damage to the CNS, neurological and craniofacial anomalies, prenatal and postnatal growth deficiency, behavioral dysfunctions and emotional difficulties. She also presented that alcohol

consumption during pregnancy is related to factors that can affect childbirth such as placental abruption, uterine hypertonia, prematurity of labor and meconium amniotic fluid¹⁷.

Studies have identified, in newborns of mothers who use alcohol during pregnancy, the presence of Fetal Withdrawal Syndrome (FAS), congenital defects and neurodevelopmental disorders. The congenital malformations found in these children were: thin or absent corpus callosum, cerebral cyst, asymmetry of the cerebral ventricles, meningocele, cleft lip, anteverted nose, low implantation of the pinna, megaureter, hydronephrosis, polydactyly, congenital clubfoot, toe aplasia, cryptorchidism and hypospadias. However, the most evident feature by the authors was the anteverted nose. In behavioral changes, he pointed out: seizures, tremors, irritability, sucking and swallowing changes not related to other causes. In addition to facial features and growth restriction, other urinary and genital osteoauricular system anomalies were also found⁶.

The diagnostic criteria for alcohol teratogenicity include facial dysmorphism with variations in facial features with obvious features such as absent or indistinct nasal filter, anteverted nostrils, increased distance between the nose and lips, hemangiomas without predominance of location and strabismus, being the most common or convergent, small eyelid slits, small nose, epicanthus fold, retrognathia, microcephaly and flattened face, deficiency in growth, weight, height and head circumference adjusted for gestational age, gender and ethnicity. A study⁹ states that it is important that there are at least three facial changes, and that growth deficits and other anomalies are documented to establish criteria for professionals to aid in the diagnosis.

The auditory system can also undergo changes in the newborn with maternal exposure to alcohol, causing delay in maturation, congenital sensorineural hearing loss, secondary and central conduction, recurrent otitis, Eustachian tube dysfunction such as variable tortuosity, stenosis, and deficiency in action of the tensor muscle¹⁴.

The diagnosis of FAS is also possible through brain images such as encephalography, polysomnography, magnetic resonance imaging, positron, and photon emission tomography, with analysis of the basal ganglia, brain, corpus callosum and hippocampus, regions most compromised by the action of ethanol in embryonic development⁹.

Difficulty in the diagnosis is identified as the assessment of early motor and cognitive development, the non-reporting of alcohol intake by the puerperal woman, technical professional lack of knowledge of physical and behavioral characteristics¹².

Factors can lead to failures in the recognition of the abstinence diagnosis, such as the number of facial features or the severity of unspecified growth retardation, lack of clinical knowledge and misconceptions between the first contact with the diagnosis and believing that it only occurs in children of lower socioeconomic class alcoholics⁹.

Immediate treatment focuses on developmental care. If the newborn presents difficulties in sucking and swallowing, enteral feeding should be administered to

prevent aspiration, implementing the assistance of the multidisciplinary team such as physiotherapy, speech therapy, and nutritionist, thus ensuring adequate nutritional support and improvement in reflexes⁹.

It is the nurse's competence to be prepared to identify and provide early assistance aimed at the signs and symptoms of abstinence. It is up to him to assign care and comfort measures to the abstinent newborn⁹.

Care in environmental support reduces the NB's irritability, since stimuli, such as sudden movements, can disrupt the sleep cycle. The temperature of the environment must also be adequate so as not to destabilize its body temperature. To reduce muscle stiffness, the newborn can be bathed in warm water. In case of seizures, these can be controlled by anticonvulsants upon medical prescription⁹.

For babies, early diagnosis reduces the risk of future disabilities. For family members, it allows clarification on the patient's problems, leading to appropriate expectations about the child, increased access to social and education services. At the level of Public Health, the diagnosis can increase the registration of incidence and prevalence, allowing studies and planning of health, social and educational services³.

Furthermore, the professional nurse has a unique role of helping and advising the mother to prevent rejection and abuse and establish affective bonds¹⁴.

Among the impairments of exposure to the teratogenic agent, the behavioral ones stand out as part of the diagnosis. Children often have developmental problems, delays and disabilities that can expose them to social vulnerabilities³.

Conclusion

The repercussions on the newborns of women who consume alcohol revealed alterations such as low birth weight, inadequate suction, hypertonia, tremors, convulsions, including extreme irritability, excessive acute crying, sleep disturbance, and the possibility of sudden death. The behavioral characteristic highlighted hyperactivity.

Prenatal exposure to alcohol can trigger Fetal Alcohol Spectrum Disorders (FASD), Partial Fetal Alcohol Syndrome (SAFP), Alcohol-related neurodevelopmental disorders (ARND), the most severe being Fetal Alcohol Syndrome (FAS) which is considered one of the diseases with the greatest neuropsychiatric impairment in babies of women who drank excessively during pregnancy. Abnormalities in heart rate and breathing, temperature instability, spotting, sweating, and yawning were also observed.

The physical characteristics of the abstinent newborn indicated facial malformations such as vertical depression above the upper lip, absent or indistinct; thin upper lip; smooth philtrum, cleft lip, hemangiomas, short palpebral fissures, hypotelorism or approaching eyes; strabismus, maxillary hypoplasia, and short nose.

Evidence indicates that physical characteristics can be confused with other diagnoses due to the similarity of signs and symptoms, thus requiring a trained professional



for the correct diagnostic investigation, detecting it early and assisting in adequate care.

In the work of the multidisciplinary team, the nurse plays the primary role of identifying possible abnormalities, which makes it possible to prevent or intervene early in neonatal damage. The recognition of the signs and symptoms of the Neonatal Withdrawal Syndrome favors the immediate intervention to the risks and contributes to the reduction of infant mortality, also preventing irreversible sequelae that could alter the newborn's life. This requires improvement and up-to-date scientific training.

One of the difficulties faced by nurses in identifying the diagnosis is the similarity of characteristics related to

other syndromes and the lack of preparation for the practice.

The study showed considerable scientific contributions and answered the thematic question, showing the capacity of alcohol to cause countless damages to the newborn, considering the damage to the CNS and developmental damage as the most serious. The information collected serves as a warning to health professionals, but the subject is minimally discussed, noting the scarcity of data and information. It is believed that further studies on the subject should be carried out for cooperation in confronting the health of newborns abstinent from ethyl alcohol.

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