

Based on the analysis of the chart, it is evident that children aged between 13 and 18 exhibit higher levels of anxiety and uncertainty. This observation can potentially be attributed to their increased comprehension and awareness of the COVID-19 situation compared to younger children.

Conclusion

In summary, when considering all the collected data, the findings consistently indicate a heightened risk of negative implications on the mental health of children during the COVID-19 pandemic and associated lockdown period. This heightened risk can be primarily attributed to factors such as limited social interactions with peers, disruptions in familiar environments, and the dissemination of alarming information regarding the relatively unknown virus. As health-care professionals, it is our opportunity to utilize research findings and disseminate awareness to parents and the general population, with the aim of preventing the emergence of a generation burdened by mental illness.

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COMPARATIVE ANALYSIS OF CLINICAL PRESENTATION AND RISK FACTORS IN CYANOTIC AND PALLID BREATH HOLDING SPELLS IN PEDIATRIC PATIENTS

Introduction

Breath-holding spells (BHS) are a common phenomenon in pediatric patients, characterized by a sudden, involuntary interruption of breathing that can lead to transient loss of consciousness [1]. These spells are typically classified into two main types based on the predominant color change observed during the episode: cyanotic and pallid BHS [2]. Cyanotic BHS are characterized by a bluish discoloration of the skin and mucous membranes, while pallid BHS present with a pale or pallor appearance [1, 2]. Understanding the clinical presentation and risk factors associated with cyanotic and pallid BHS is essential for accurate diagnosis, appropriate management, and improved outcomes in pediatric patients. Despite both types of BHS sharing a common underlying mechanism of autonomic dysregulation, they may exhibit distinct features that warrant further investigation [2]. This study seeks to investigate how cyanotic and pallid breath-holding spells differ in terms of their colour changes, duration, frequency,

associated symptoms (loss of consciousness, seizure like activity, postictal symptoms) and risk factors (family history, age of onset, emotional triggers) ,diagnostic methods , treatments and prevention among pediatric patients. By identifying these distinctions, healthcare providers can improve their ability to diagnose these conditions accurately, customize treatment strategies, and provide better care for children affected by breath-holding spells.

Goal

To compare and evaluate clinical presentation and risk factors in cyanotic and pallid breath holding spells in pediatric patients through a systematic review.

Research material and methods

The analysis and generalization of scientific literature on this topic from PubMed, National library of medicine and other scientific articles were done. The search terms were “breath holding spells”, “cyanotic”, “pallid”.

The results of the research and their discussion

In cyanotic breath-holding spells, the bluish discoloration of the skin and mucous membranes, known as cyanosis, occurs due to the inadequate oxygenation of the blood. When breathing is temporarily interrupted during a spell, oxygen levels in the blood decrease, leading to hypoxemia. This drop in oxygen saturation causes the skin and mucous membranes to appear bluish in color, signaling a lack of oxygen in the tissues [3]. On the other hand, in pallid breath-holding spells, the sudden pallor or paleness observed is associated with a reflex-mediated response that results in a transient decrease in blood flow to the brain. This reflex mechanism can lead to a temporary reduction in cerebral perfusion, causing the skin to lose its normal coloration and appear pale [2].

The duration of the episode in cyanotic breath-holding spells, is often influenced by the individual’s response to the transient interruption in breathing. Once the breath-holding event ends and normal respiration is restored, the bluish discoloration of the skin and mucous membranes typically resolves rapidly as oxygen levels in the blood return to normal. The duration of cyanosis in these spells is usually brief and self-limiting, lasting for seconds to minutes [3]. In contrast, pallid breath-holding spells may involve a more prolonged alteration in cerebral perfusion due to the reflex-mediated decrease in blood flow to the brain. This can result in a longer-lasting episode compared to cyanotic spells. The pallor or paleness observed during pallid spells may persist for a longer duration, potentially causing concern for caregivers witnessing the episode [2].

When considered about frequency, cyanotic breath-holding spells are estimated to occur in approximately 20–30% of pediatric patients experiencing breath-holding episodes. On the other hand, pallid breath-holding spells, accounting for about 70–80% of cases in children [2, 3]. Research suggests that cyanotic breath-holding spells occur more frequently in full-term babies compared to premature infants, while pallid breath-holding spells may have a higher incidence in premature babies [1, 2]. Several factors that can influence the frequency of breath-holding spells including age, family history, emotional triggers, underlying medical conditions, breathing patterns, sleep quality, nutritional deficiencies, and neurological factors. It is found that the current data are insufficient to provide a comprehensive understanding of the frequency of breath-holding spells across different countries worldwide over various years, particularly in countries such as Belarus and Sri Lanka where limited or no research has been conducted on this topic. Interestingly, existing reports indicate that breath-holding spells have been documented to occur in 0.1% to 4.6% of children in western countries [2, 3].

When it comes to associated symptoms such as loss of consciousness, in cyanotic breath-holding spells, some children may experience a transient loss of consciousness during

the episode, often brief and typically occurs when the child is already in a state of breath-holding and cyanosis and is usually secondary to the autonomic response triggered by the breath-holding reflex in response to emotional or physical stimuli [3]. Pallid breath-holding spells also have loss of consciousness similar to cyanotic spells, with a transient loss of consciousness during the episode typically associated with a sudden pallor (paleness) of the skin and decreased blood flow to the brain as a result of a vasovagal response triggered by the breath-holding reflex in response to emotional or physical stimuli [1, 2].

In terms of seizure-like activity, cyanotic breath-holding spells typically do not involve true seizure activity and the child may exhibit tonic posturing (stiffening of the body) and may lose consciousness, which can sometimes resemble a seizure. Similarly pallid breath-holding spells also do not involve true seizure activity and the child may exhibit pallor (paleness), decreased muscle tone, and transient loss of consciousness, which can be mistaken for seizure-like activity by observers [2, 3].

In the context of postictal symptoms (term “postictal” is typically used to describe the period following a seizure, during which the individual may experience confusion, fatigue, headache, or other neurological symptoms), in cyanotic breath-holding spells child may exhibit fatigue or tiredness, emotional distress, residual cyanosis while in pallid breath-holding spells child may show fatigue or weakness along with pallor (the paleness of the skin may persist for a short period after the spell), and emotional response [1, 2].

In terms of risk factors when family history is considered in cyanotic breath-holding spells there may be a familial predisposition or history of breath-holding spells in children, a genetic component can be involved in the susceptibility to cyanotic breath-holding spells and family members of children with cyanotic spells may report a history of similar episodes in siblings or other relatives, indicating a potential genetic predisposition to these episodes [3]. When pallid breath-holding spells is considered similar to cyanotic spells, there may be a familial tendency or history of pallid breath-holding spells in affected children, a genetic influence in the occurrence of pallid breath-holding spells, with reports of clustering of these episodes within families and family members of children with pallid spells may also report a history of similar episodes in siblings or other relatives, indicating a possible genetic link to the predisposition for these spells [2].

Regarding the age of onset, cyanotic breath-holding spells typically have an onset between 6 months to 18 months of age, with peak prevalence around 6 to 8 months while in pallid breath-holding spells the age of onset is between 6 months to 2 years of age, with peak prevalence around 12 to 18 months [1, 2].

When taking into account emotional triggers causing breath-holding spells, emotional factors such as frustration, anger, fear, sudden fright, anger over not getting their way, or feeling overwhelmed can lead to cyanotic breath-holding spells meanwhile emotional triggers such as sudden fright, pain, or frustration including unexpected loud noises, sudden scares, or experiences of physical discomfort can trigger pallid breath-holding spells [1, 2].

The diagnosis of cyanotic and pallid breath-holding spells is typically based on a thorough clinical evaluation, medical history, and observation of the episodes. Diagnostic tests such as electroencephalogram (EEG) and echocardiogram may be performed to rule out underlying conditions that could mimic breath-holding spells. However, the diagnosis is primarily made through a detailed assessment by a healthcare provider [1, 3].

The treatment for breath-holding spells, whether cyanotic or pallid, typically involves reassurance, managing triggering factors, and educating caregivers on how to respond calmly during episodes, while prevention strategies focus on avoiding situations that may lead to emotional distress, promoting healthy coping mechanisms, maintaining a consistent routine, teaching relaxation techniques, ensuring adequate rest, and fostering open communication with

caregivers and healthcare providers to develop a tailored plan based on individual needs and triggers [1, 2].

Conclusions

Cyanotic and pallid breath-holding spells are common benign conditions in children, with cyanotic spells characterized by bluish skin discoloration due to decreased oxygen levels and pallid spells associated with transient decreased blood flow to the brain; these episodes vary in duration, frequency, associated symptoms, seizure-like activity, postictal symptoms, risk factors, age of onset, emotional triggers, diagnosis, treatment, and prevention strategies, with cyanotic spells often lasting seconds to minutes and pallid spells potentially having a longer duration, occurring more frequently in children aged 6 months to 2 years and triggered by emotional factors such as frustration or sudden fright, while a family history of similar episodes may suggest a genetic predisposition, diagnosis is typically based on clinical evaluation and observation, and management involves reassurance, trigger management, and caregiver education to ensure a safe and supportive environment, highlighting the importance of tailored prevention plans focusing on promoting healthy coping mechanisms, maintaining routine, teaching relaxation techniques, and fostering open communication with healthcare providers to effectively address the individual needs and triggers of each child experiencing these spells.

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MEDICATION-INDUCED WEIGHT GAIN AND MANAGEMENT IN PEDIATRICS

Introduction

Medication related weight gain is a common yet an overlooked issue among pediatric patients. Excessive weight gain can lead to several long-term health issues such as obesity, diabetes, cardiovascular diseases & mental health related issues.

Goal

Being proactive in addressing medication related weight gain in pediatric patients in order to promote healthy growth & development both physically and mentally to prevent short- & long-term health complications.

Material and methods of research

Relevant data and statistics were referred from Obesity Medicine Association (OMA), Obesity Action Coalition (OAC), American Academy of Child & Adolescent Psychiatry and also from one-on-one discussions with several patients from Pediatrics Department No. 2 (Cardiology) in Gomel Regional Children’s Clinical Hospital while on duty.