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Use of Alternative and Complementary Medicine in the Treatment of Pediatric Pain

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Abstract

Children experience severe pain, and many suffer from persistent pain. Because of their different maturation pathways than adults, babies and youngsters may be more vulnerable to chronic pain sensitivities. Acute and chronic pain must be addressed in order to alleviate children's suffering and avoid possible pain problems. In accordance with a biopsychosis viewpoint, full and complementary (CAM) treatment should be considered in the management of acute and chronic child pain. Although the data on paediatric pain is limited, hypnosis, acupuncture, and music therapy are the most effective therapies. The therapeutic benefits of yoga, massages, humour therapy, and the usage of physiologically based therapies are also demonstrated.

Keywords: *Alternative medicine, Pain, Paediatric Pain Management, CAM*

INTRODUCTION

Pain in children:

Children of all ages are suffering. Acute pain from a venipuncture, vaccination, or ordinary childhood disasters might take the form of diagnostic and therapy interventions such as playground falls. Some children suffer from persistent discomfort or disorders, such as childhood cancer or juvenile arthritis. Many healthy children may have significant functional pain, such as persistent headaches, stomach discomfort, and limb pain. These youngsters frequently have no indications of disease; nonetheless, neurosensitive pain regulation systems appear to be impaired.

Premature newborns who must endure a range of painful procedures, frequently without enough analgesics, may be more susceptible to pain. Children, due to their sensitivity and the sheer amount of pain episodes, require good pain control in particular. Unfortunately, many children and teens are not receiving proper treatment for acute and chronic pain.

While it was long thought that children were less prone to pain than adults due to immature neural networks, pain in childhood is now thought to be connected with higher reactivity or stress reactions. Children are born with fully established pain transmission systems but not completely developed pain inhibitory mechanisms, making them vulnerable to the development of even brief painful episodes. Repeated acute pain encounters in newborn pain management settings are likely to contribute to fundamental brain alterations that might contribute to later pain sensitivity and cognitive impacts .

Untreated pain in neonates, particularly preterm discomfort, has been proven in studies to have serious short- and long-term consequences. Furthermore, a child's neurological system develops until early adulthood. Taken together, this research suggests that it is critical to develop effective therapy for childhood pain in order to prevent persistent pain sensitivity.

COMPLEMENTARY AND ALTERNATIVE MEDICINE FOR PAEDIATRIC PAIN

Traditional pain interventions, such as pharmaceutical therapy, psychotherapy, and physical therapy, have shown some benefit in children. However, present treatments for paediatric pain leave much to be desired. Despite standard therapy, it is believed that between 15% and 30% of children have chronic pain, with many more enduring acute pain that may be better managed. As the biopsycho-social pain paradigm has gained recognition, so has our understanding of how non-conventional drug treatments and remedies might act on the mind and body to reduce pain.

The recent rise in popularity of complementary and alternative medicine (CAM) for pain and sickness in adults and children highlights a move toward therapies that may supplement traditional treatments. There is also an urgent need for information on the availability, effectiveness, and safety of such complementary and alternative medicine modalities. We hope that this review will enhance interest in and knowledge of

complementary and alternative medicine therapies, as well as the need for more research on safety and effectiveness problems. A variety of complementary and alternative medicine (CAM) therapies for acute and chronic paediatric pain are available, as mentioned below. Efficacy varies depending on the pain condition and the age of the kid.

CAM is defined as therapeutic treatments that are not typically employed in regular health care practise. The National Center for Complementary and Traditional Medicine categorises CAM treatments into five categories: alternative treatment approaches, scientifically based exercises, body- and psychological exercises, mental-health treatments, and energy therapies (10). Traditional Chinese medicine, for example, is built on a whole theory and practise framework. Herbal medicines, vitamins, and other healthful supplements are examples of biologically based therapy. Chiropractic, osteopathic manipulations, and massage are examples of manipulative and body-based methods. Mind-Body treatments encompass a variety of tactics that aim to increase the mind's potential to boost physical function and alleviate symptoms, such as mental healing, creative therapies like music, painting, or dance therapy, and spiritual activities like meditation and prayer. Hypnosis, meditation, and relaxation are also used for therapeutic purposes. Reiki and the uncommon use of electromagnetic energies such as pulsed fields, alternating current or direct current fields are examples of energy therapies. Many of these complementary and alternative medicine therapies strive to restore equilibrium and balance in the mind and body, comparable to Western medicine's objective of restoring homeostasis.

ALTERNATIVE TREATMENT OPTIONS

Acupuncture:

Although the analgesic mechanics have not been determined, needle stimulation is thought to include the nervous system, neurotransmitters, and endogenous chemicals. Experiments on children and young people have been effective in persistent nausea, exhaustion, and a wide range of chronic pain problems, including migraines, endometriosis, and reflex sympathetic dystrophy. An uncontrolled study included the treatment of headaches, abdominal pain, fibromyalgia, and complex Type I regional pain. Although the findings confirmed the feasibility of this combination acupuncture/hypnotherapy strategy, more controlled studies are required to prove the

efficacy of this multimodal complementary and alternative medicine intervention.

Only one acupuncture trial (RCT) for children's chronic pain has been conducted. Pintov et al. treated 22 migraine headache patients aged 7 to 15 years with either genuine acupuncture or a 10-week placebo regimen. The infants, parents, and nurse raters who gave the pain medicine are all blinded by the research group categorization. The genuine category of acupuncture exhibited reductions in migraine frequency and severity, as well as enhanced panopioid production in both plasma and ß-endorphin levels. There were no such alterations observed in the placebo group. In a meticulously planned sample, our findings indicate the efficacy of acupuncture in the treatment of juvenile migraine. However, there are several red flags, such as a limited sample size, selective generalisation owing to the absence of prophylactic patients, and a lack of refusal rates, which limits information on the acceptability of therapy. Finally, no follow-up findings have been provided. However, it is unclear whether the treatment improvements maintained or how long after the publication. There is an RCT for acupuncture, although traditional acupuncture was not utilised. In this study, 108 children aged 4 months to 9 years who were undergoing hernia surgery were randomly assigned to either capsicum plaster or control groups (sham capsicum plaster and placebo tape). For the first 6 hours, there were no differences between groups, after which the acupoint group experienced much decreased pain and opiate intake. The findings are encouraging and call for more research into the use of acupressure and acupuncture for acute pain.

While acupuncture has been used successfully with children as young as one year old, there are concerns regarding children's capacity to take needles. Preliminary research has revealed that teenagers have an acceptable experience, while at least one study has found that children under the age of six had an acceptable experience. Children may be less resistant to acupuncture than many adults.

BIOLOGICAL DEPENDENT THERAPIES

A number of studies have been conducted to investigate the efficacy of sucrose in the early newborn phase for acute pain. The literature recommends the use of sucrose, often supplied through pacifier,

capitalising on the benefits of non-nutrient sucking (NNS) for baby physiological discomfort, such as circumcision, venipuncture, and heel hold. A sweetened substance with or without NNS is typically as successful as conventional treatments, such as EMLA, for circumcision, with several trials showing greater results. More acceptance for scientifically proven therapies has been observed in older paediatric groups suffering from acute and chronic pain concerns. In newborns, using peppermint oil orally to treat irritable bowel syndrome has been demonstrated to be effective. Furthermore, two randomised controlled trials proved the efficacy and safety of a naturopathic herbal extract for ear discomfort associated with acute otitis media in children over the age of five. Despite these promising findings, more study on the safety and efficacy of a broader spectrum of herbal supplements and biological-based treatments is needed, as several have been proven to interact negatively with other traditional drugs via pharmacodynamics or pharmacokinetic pathways.

BODY DEPENDENT THERAPIES

Massage:

Massage treatment is meant to increase nutrition supply and eliminate waste items from the body. Massage necessitates possibly parasympathetic behaviour as well as a relaxed physiological state. Massage has been shown to lower pain and cortisol levels, as well as enhance sleep and happiness in children with rheumatoid arthritis, cancer, and fibromyalgia. A review of paediatric massage randomised controlled trials found that children can benefit from reduced anxiety and joint discomfort, as well as better muscular tone, despite the fact that the majority of the literature has poor power and confusing methodologies. Furthermore, there has been little research on acute paediatric pain, however one study revealed that massage (to undamaged body areas) was useful in lowering children's anguish during burn therapy. The absence of a physical contact (such as light touch) control group is a flaw in most massage research.

Kangaroo care/Touch:

In Kangaroo care, the parent maintains the newborn skin-to-skin against his or her body at an upright angle of 40o to 60o and covers the infant with a blouse or shirt; a second layer can be utilised to offer additional warmth. Skin-to-skin contact has been linked to decreased discomfort and interest in full-term and preterm newborns suffering from systemic discomfort such as heel sticks.

Furthermore, sensory stimulation, which includes sucrose, NNS, and massage or skin contact, has been shown to be particularly beneficial in reducing discomfort from newborn heel sticks. Swaddling can also be used to relieve discomfort in youngsters. Despite the promise of kangaroo therapy and other touch-related therapies, there are a number of limitations in the literature. Some difficulties may include trouble blinding raters, a lack of understanding regarding inter-rater reliability in pain coding, and difficulty monitoring the intervention group, since some caregivers may unknowingly administer verbal or other types of calming.

MIND-BODY THERAPIES

Meditation:

Consciousness meditation necessitates intentional concentration management in the present time. While there are many different styles of meditation, a sort of mindfulness meditation known as Vipassana meditation needs a focused concentration on the breath with the goal of stabilising the mind and cultivating peace. Meditation on awareness is likely to relieve pain by identifying discomfort from bodily experience and separating oneself from it, so lowering tension. Hospital care has been seen to lessen pain symptoms in persons with various types of pain and cancer. Meditation offers various anti-stress benefits due to the impact of teenagers on blood pressure and heart rate. There are no longterm studies that monitor treatment for child distress at the moment. Nonetheless, case studies demonstrate that the sense of nausea and epigastric discomfort in children is crucial.

Therapeutic yoga:

Yoga offers unique therapeutic applications for achieving balance of mind, body, and spirit. This yoga practise employs asana (body positions) modifications, such as blankets, restraints, and blocks, to treat a variety of ailments. Iyengar Yoga is very useful in chronic pain, as well as boosting mood, energy, sleep, and anxiety. Yoga is connected with mood and function improvements in young individuals and is especially beneficial for chronic musculoskeletal diseases, headaches, and stomach troubles. A four-week home-practice study for children and adolescents with irritable bowel syndrome found that the yoga group significantly decreased disability, coping, and anxiety rates compared to the typical intervention control group. However, it is unclear to what degree the individuals actually practised yoga and to what extent the yoga routine was recommended. Another study

with college students suffering from moderate depression found that five weeks of twice-weekly sessions were sufficient to significantly lessen and strengthen depressed symptoms.

Biofeedback:

This approach employs a computer or other communication tool to assist youngsters in dealing with discomfort feelings by increasing their awareness of and learning how to monitor their physiological stress response. Modifications that are monitored may include muscular stiffness, skin temperature, and bodily reaction, brain wave, or breathing rate. The bulk of biofeedback (BFB) trials in children have focused on paediatric pain, paediatric migraine, and a few stress headaches. Current conceptualizations of a spectrum model in which migraine and stress headaches both involve neurological and muscular aspects have changed the usage of BFB in children for head pain. Biofeedback can reduce migraine and anxiety discomfort by up to 50% while also providing a sense of control. Thermal biofeedback was connected to placebo therapy (hand chilling) and a paediatric migraine waiting list community in a well-designed randomised controlled trial. The researchers discovered that 53.8 percent of the thermal biofeedback group reported a 50% or more drop in post-treatment effects at 3- and 6-month follow-ups, compared to just 10% of the hand cooling community. During the tracking period, the waiting list group made no significant progress. The results suggest that thermal biofeedback may be used therapeutically, which supports the existing body of data for its usefulness in paediatric migraine. Biofeedback lacks the cognitive abilities and physiologic information required to manage stress reactivity in children aged 8 and up.

Humor and laughter therapy:

Laughter and humour have been linked to pain management in both adults and children, which can have a positive influence on immunological function. A pilot research found that watching a funny film reduced discomfort in the lab and decreased stress hormone levels in youngsters. Based on a number of observational studies, a recent study on pain reduction during kid vaccines found that employing laughing might successfully deflect children from the trauma of the procedure. Clearly, further studies are required before humour can be used to justify the use of medication (i.e.), but preliminary evidence for laughing and laughter for acute pain permits all children

to find the same content amusing? Are TV programmes more popular than live events and stories? More clinical research is needed to assess the therapeutic benefits of chronic pain management in children.

Music therapy:

Several studies recommend music for paediatric acute pain, including as injection, venipuncture, abortion, burn therapy, and discomfort during surgery. Therapeutics delivery tactics include calculated pullouts played on speakers or headphones, as well as live music. The majority of the literature, however, makes no explicit mention of music therapy, a formal approach based on scientific data. Therapists in this discipline are educated to assist patients in recovering from an enjoyable musical activity, where the patient is generally engaged in generating music (27). The effects of active music therapy have been proven to be more prevalent and relaxing than simply listening. Several studies employing a systematic description of active music therapy discovered benefits. Recent randomised controlled trials employing effective music therapy have demonstrated lower anxiety and pain levels in the population than a placebo group paid by parents for 108 children aged 4 to 13 years.

Art, dance, and aromatherapy:

In observational or clinical settings, each of these techniques has been related to both appropriate care for certain children and pain. Music and common smells (such as breast milk for moms) can be utilised to reduce discomfort associated with unpleasant procedures such as heel sticks and circumcision in newborns and youngsters. Art and dance therapy can help older children and teens with chronic pain manage and relax.

CONCLUSION

Children and newborns are more sensitive to pain. There are several surgical therapies for acute pain in infancy and children. Many newborns may have major, difficult-to-manage issues. At the very least, health care practitioners should explore the potential analgesic effects of stimulation and diversion. Several screen therapies, such as music and mood manipulation, provide distraction and relaxing. Many additional approaches will aid in muscular relaxation and alleviate pain-related discomfort. Fun strategies to assist the newborn acquire attention based on the infant's curiosity and development stage Controlled breathing and gradual muscle relaxation can be used to treat acute and chronic pain in children as young as preschool age. Attending school

also provides a significant distraction for children suffering from chronic pain. CAM treatments provide a method of dealing with suffering and trauma. There are several suitable and efficient therapies that health care practitioners may choose to investigate using mainstream medicine. Any of these metrics varies depending on the infant's age and stage of development. Yoga or meditation, for example, may be difficult for younger children. CAM therapies are beneficial for a wide range of illnesses and age groups, but more research is needed to determine their effectiveness and safety. Clearly, paediatric CAM research is in its infancy, and more investigation is needed before suggestions for a range of pain states can be provided.

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