



## CLÍNICA

### Assessment of knowledge and application of tetanalgesia in a unit of neonatology

Evaluación de los conocimientos y de la aplicación de la tetanalgesia en una unidad de neonatología

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### ABSTRACT

**Introduction:** During the hospitalization, newborn children are subjected to constant painful and stressful procedures. There is evidence that breastfeeding makes an analgesic effect. This is known as *Tetanalgesia*.

**Objective:** To value the knowledge of health professionals on tetanalgesia and analyze the causes of their lack of implantation during painful procedures realized to hospitalize newborn children.

**Material and Methods:** Was realized an observational, cross-sectional and descriptive study, using a validated questionnaire autocompleted by health professionals in the Unit of Neonatology of the Hospital University Virgen del Rocío (Seville).

**Results and Conclusions:** Of the total study population (51 health professionals), only 45% knew the concept of tetanalgesia what it denotes the deficit of formation in the matter. Of these, only 22% apply it. The main causes of non-applicability were lack of consensus among the professionals (55,56%) and lack of time (38,89%), factors related to teamwork and working conditions.

### RESUMEN

**Introducción:** Durante la hospitalización, los neonatos están sometidos a constantes procedimientos dolorosos y estresantes. Está demostrado que la lactancia materna realiza un efecto analgésico. Este beneficio analgésico se conoce como *tetanalgesia*.

**Objetivo:** Valorar el conocimiento de los profesionales sanitarios sobre la *tetanalgesia* y analizar las causas de su falta de implantación durante los procedimientos dolorosos realizados en el neonato hospitalizado.

**Material y Métodos:** Se realizó un estudio observacional, transversal y descriptivo, mediante un cuestionario validado autocumplimentado por los profesionales sanitarios en la Unidad de Neonatología del Hospital Universitario Virgen del Rocío (Sevilla).

**Resultados y Conclusiones:** Del total de la población estudiada, 51 profesionales sanitarios, sólo el 45% conoce el concepto de tetanalgesia lo que denota el déficit de formación al respecto. De estos, sólo el 22% lo aplica. Las causas principales de la no aplicabilidad fueron la falta de consenso de los profesionales (55,56%) y la falta de tiempo (38,89%), factores relacionados con el trabajo de equipo y con las condiciones de trabajo.

## INTRODUCTION

More than a decade ago it was thought that children inability to verbalize feelings and express pain was synonymous with inability to feel and remember so it was not a concern for professionals caring for premature infants <sup>(1)</sup>. However, we now know that the anatomical, physiological and neurochemical structures that transmit pain are developed before birth <sup>(2)</sup>. It is also known that nociceptive descending inhibitory pathway is not functionally mature until weeks or months after birth <sup>(3)</sup>. In infants born at or near term has been demonstrated physiological and hormonal response similar pain, and often exaggerated when compared with that of older children and adults, with lower pain threshold at lower gestational age <sup>(1)</sup>.

This difficulty recognizing pain has caused pain in neonatal units of insufficiently concerned <sup>(4)</sup>; and also has feared the possible adverse effects of analgesics <sup>(5)</sup>. Today there is ample evidence to show that infants are capable of feeling pain <sup>(4)</sup>.

Breast milk is the food that receives the neonate or infant and that comes from his mother. So far, and with regard to its composition, breast milk has not been matched by any modified milk; Human milk is a variable and adaptable compound to the child <sup>(6)</sup>.

One of the properties of breast milk, not always taken advantage, is its analgesic effect; known as Tetanalgesia.

The analgesic breastfeeding mechanism is not fully known, but may have a multifactorial origin, in which aspects of containment are interrelated, touch, skin to skin, stimulating suction and sweet taste, with distraction and hormonal induction. The combination of all this achieves high analgesic effectiveness. Compared with the artificial milk, breast milk contains a higher concentration of tryptophan, the precursor of melatonin, which increases the concentration of beta endorphins <sup>(7)</sup>.

Besides breast milk is the analgesic procedure most economical, ecological, which has no adverse effect on the newborn and its benefits are demonstrated at all levels, both physically and emotionally, for both the child and the stem <sup>(8)</sup>.

A study in Bilbao in 2007, which was conducted a clinical trial to compare the analgesic efficacy of breastfeeding when taking blood heel in healthy newborn compared to other procedures, concluding that breastfeeding is the most effective method showing a crying time reduction of 98% compared to other analgesic techniques <sup>(2)</sup>.

A Cochrane review translated in 2008 in which all clinical trials evaluating the effects of breastfeeding or breast milk during a painful procedure from the years 1966-2006 are analyzed, conclude that breastfeeding in infants is associated with a reduction changes in heart rate, duration of crying, the percentage of time crying and validated measures of improvement in pain and not validated when compared to placebo, no intervention or change of position <sup>(7)</sup>.

Despite everything mentioned above still pain management in Newborns is far from optimal. The prevention and treatment of pain should be considered as an essential human right of newborns regardless of its consequences in the short or long term.

The study of this problem is motivated by the negative consequences both physically and psychologically in the neonate, which are derived from multiple painful experiences during their care and the need to find effective and safe for non-pharmacological pain management alternatives. The results obtained will enable the implementation of improvement measures to achieve a higher quality of clinical practice.

We evaluate the knowledge of health professionals on the Tetanalgesia and analyze the causes of their lack of implementation during painful procedures performed in hospitalized neonates.

## **MATERIAL AND METHODS**

The study was realized in the clinical management of Neonatology, includes hospitalization plants, intermediate cares and the unit of neonatal critics cares of the university Hospital Virgen del Rocío of Seville.

A validated questionnaire was conducted and disseminated by professionals from different disciplines who wanted to participate in the study. The questionnaire entitled "Evaluation of knowledge and application of tetanalgesia by the healthcare professional in a neonatal unit" consists of four sections. In the first, information is collected to determine the profile of health professionals. In the second called "knowledge" a total of 10 closed questions (yes, no, do not know), including false questions (3) and true (7) is made, which allowed us to assess the professional who really knows the concept and who does not know. The third section refers to the "applicability" where it is judged whether or not performed tetanalgesia and a list of reasons for non-implementation of the tetanalgesia if the answer is negative are offered. Finally, section four is the "training" if needed or not training on the subject, if there training and if you would be interested in attending.

The study population consisted of health professionals from different disciplines working or currently are in the Clinic Neonatology Unit of the university Hospital Virgen del Rocío (Sevilla); regardless of time worked in pediatrics and, more specifically, neonatology. Health professionals who wish to participate, they were informed and accepted under its responsibility and signed, informed consent for participation in this study.

The data analysis was conducted by the working group study. The percentages of each of the sections were removed and making comparisons between different outcomes and variables.

## RESULTS

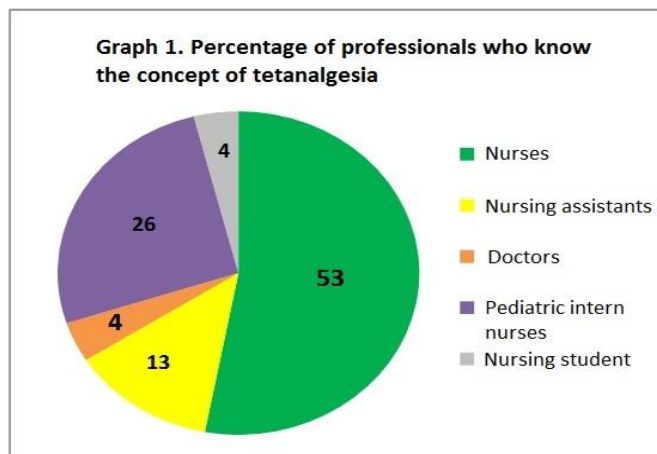
### Personal data

- **Sex:** 15,7% of the professionals were male( 8 of 51) and 84,31% were women (43 of 51).
- **Age:** 23,53% of ages comprised 20-30 years, 25,49% were between 31-40 years, 33.33% between 41-50 years, 15.68% between 51-60 years and 2 % possessed an age over 60 years.
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- **Time worked in pediatrics:** The 17.65% indicated having worked less than a year in Pediatrics, the 41.18% 1-5 years, 19.61% worked 6-10 years, 11.76% between 11-20 years and 7.84% had worked between 21 to 30 years.
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- **Clinical units in which they have worked in pediatrics:**The 86.27% worked in neonatal units, 27.45% in pediatric neuro nefro , 37.25% in internal medicine pediatric infectious diseases, 27.45% in units pediatric intensive care, 58.82% in neonatal intensive care units, 27.45% in pediatric surgery, pediatric oncohematology 25.49%, 45.10% in the observation-emergency pediatric, the 21.57% in outpatient consultations, 35.29% have worked in the nursing unit and 13.72% have worked in other units in pediatrics.
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- **Position of actual work:** 47.06% were nurses, 11.76% were residents of pediatric nursing, 1.96% was nursing students, the 21.57% were nursing assistants, 3.92% were midwives, another 3.92% were residents of midwife and 5.88% were pediatric residents.

### Knowledge

50% of the nurses know the concept, 27% of nursing assistants, 33% of pediatric residents. Midwifery professionals involved no one knows the concept as residents midwife. All residents of pediatric nursing and nursing students knew the concept of tetanalgesia.

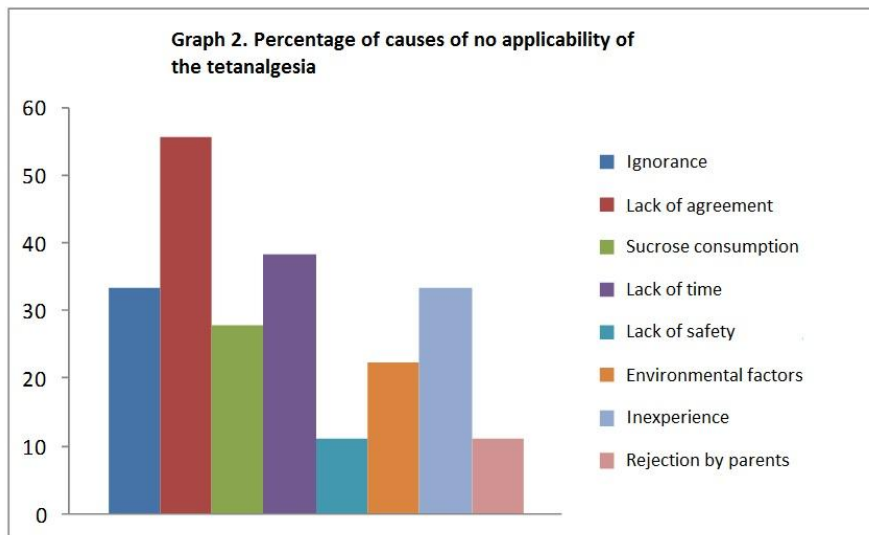
**Figure I. Percentage of professionals who know the concept of tetanalgesia**



## Applicability

Of the total study sample who knows the term tetanalgesia (45%), only 22% of them use in their daily practice tetanalgesia. The remaining 55% of professionals who know the term does not apply. The reasons for non-implementation were: lack of consensus among professionals (55.56%), lack of time (38.89%), ignorance (33.34%), lack of experience (33.34%) administration of sucrose as an analgesic procedure (27.78%), environmental factors (22.23%), lack of security (11.11%) and rejection by the presence of parents (11.11%).

**Figure II. Percentage of causes of non-applicability of the tetanalgesia**



## TRAINING

23.53% of professionals say their unit or your hospital take courses related to tetanalgesia, 27.45% reported having attended training on the subject but of these only 64.28% know the concept of tetanalgesia. The 88.23% of health professionals are interested in receiving training on tetanalgesia.

## DISCUSSION

We can say that very close to half of the study population (45%) know the analgesic effect having breastfeeding, but nevertheless, most choose not to perform this technique relating it to the grounds of teamwork and job conditions work. The main causes identified by the professionals was the "lack of consensus among professionals", because that is observed in many other techniques in healthcare, not all medical professionals prescribe equal, not all nurses channel peripheral lines of the same So ... are examples of situations that occur in our hospitals where there is no basis for scientifically evidenced knowledge and there is no adequate training to ensure homogeneity of the care with which would increase safety professionals for their actions, patient safety when receiving care evidenced a quality and safety of family members to receive and observe the same information and care at the hands of the various professionals; i.e. all summed up in foster teamwork, to foster a fruitful working environment where every opinion counts and the whole team row towards the same end, the patient. However, there may be cases that do actually exist in this training or have entrepreneurial people and a fighter who tries to give voice within the

workgroup but faces a group of unmotivated professional or immersed in a work routine difficult to modify where new people are entering the group or decide to do what they think best individual level or just doing what "everybody does", which would enter into a vicious circle where the only loser is the patient.

The second cause more marked by professionals was "lack of time". Currently we are experiencing a harsh reality in health where less is intended to encompass health personnel working the same number and the same effectiveness in care. We find burdened health professionals who do not enjoy what they do and do not take home a "good taste" that have done what they could in their workday. We all know the reality that awaits us and that this "lack of time" often is real and that therefore a technique such as the tetanalgesia, which requires a certain time (minimum 5 minutes before feeding) can be no priority when have a time limit for a series of care.

Following the order, on the same level we find "ignorance" and "lack of experience"; i.e not made tetanalgesia because they have no training or information sufficient to perform it as not perform reliably and palpable evidence that gives the experience is not set.

The administration of sucrose is this cause, which is another technique demonstrated analgesic effect in all trials reviewed in which breastfeeding had no advantages when compared with higher concentrations of glucose / sucrose <sup>(7)</sup>. Furthermore, the effectiveness of sucrose over breastfeeding is probably due to the higher concentration of sugar in the first, although the mechanism of action is not clear sucrose <sup>(7)</sup>. That is, with the administration of sucrose have a faster analgesic action (just two minutes earlier), but no scientific studies that demonstrate the action that sucrose in the neonate and the lowest concentration to produce analgesia, can make the glucose overload error newborn without knowing the actually existing capacity to metabolize and synthesize. Therefore, physiological, chemical and mother-child link properties make breastfeeding the method of choice against all existing techniques.

Finally we find the causes of environmental factors that may be related to the stated above the working environment and working conditions; lack of security, lack of experience and knowledge tetanalgesia and rejection parents. This last cause surprised that reflected out into the possible causes of non-implementation of the tetanalgesia. Many professionals are "uncomfortable" the continued presence of parents believing perhaps, from our point of view, these are mere agents looking for the slightest fault committed by professional or agents demanding incessantly child care. It is true that there is much variability in these parental behaviors and cultures and values they may have, it is true above all the best for the newborn is the presence of their parents and start as early possible bonding with them, so much so, that is considered one of the fundamental rights. It is therefore nothing more than undertake the difficult initiative to break the hard traditional routine of children when they entered were the responsibility of the professional who cared and parents remained in the background and continue to build this reality where the fact of being is entered another stage in the child's life, a stage that must live in front with their parents, which must be active agents in care and participate in everything related to life and her child illness.

Throughout the development of the research project we face the following problems: in time, we note that the questionnaire takes too long compared to the time available to professionals to answer it, limiting their possible responses and may lead to information bias. It could also have led to an information bias by giving professionals

the answers to the possible causes of the failure to implement the tetanalgesia directly; more information can be obtained through open questions. We must therefore reassess the questionnaire again and give it an adapted to the conditions and unit personnel format.

As measures of future improvement will implement a training program for health professionals through clinical sessions where they discuss the analgesic effect of breastfeeding, tetanalgesia, as well as other topics of clinical relevance. Such training could also be extended to the family, forming from primary care in the perinatal period prospective parents on all aspects of breastfeeding, including the tetanalgesia, like that in cases such as child immunization, whether the mothers themselves the they are pre-nursing before entering the room and so would reduce the waiting time and, more importantly, the child's pain. The value and ease the pain should be a fundamental objective within a neonatal unit, research focused on the assessment of pain in the newborn and breastfeeding and its benefits must be new.

Finally, we believe that through this study we have fulfilled the goal set at the beginning of the investigation, exposing through a clear need for training in tetanalgesia and analyzing the possible causes that promote its not start practice relating them with our clinical reality.

We thank all health personnel Unit Clinical Management of Neonatal University Hospital Virgen del Rocío of Seville for their cooperation and support for the collection of data, the monitoring unit for allowing the study observed thereby improving existing initiative and, of course, thanks to our tutors that guide us in our day to day training as residents of pediatric nursing.

## **CONCLUSIONS**

Within the context of patient safety, we as health professionals have a duty to ensure patient comfort and to prevent as far as possible to feel pain. We need to reach all health professionals that Tetanalgesia turns out to be a harmless, easy and economical method that will help us achieve this welfare for both the child and the family, especially the mother, encouraging further research to improve the present and by solving limitations that may exist in any unit of work for its implementation.

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