Original Article

Pediatric pain management: More opportunities for better comfort

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ABSTRACT

Pediatric pain assessment is vital for optimal pediatric practice. After a year of implementation of pediatric pain assessment tools at a tertiary university hospital (King Saud University Medical City, Riyadh, Saudi Arabia), the physicians in the Department of Pediatrics were invited to participate in an interactive lecture about pediatric pain management to assess their awareness about using these tools. Their responses demonstrated that almost half of them were not using any pain scale in their daily practice. These findings highlight the need for a new strategy of implementation. The improvement of pain assessment and management necessitates extensive educational campaign for all health care providers and early audit in order to improve the physicians' awareness and compliance with these changes.

Keywords:

Pain; Assessment; Children; Awareness; Interactive; Score.

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INTRODUCTION

Effective pain management is increasingly and widely recognized as an important component of standard health care practice [1,2]. Despite the significant effort to improve pain management in pediatric practice, it remains undertreated [1,3]. In early 2011, pain assessment guideline for children admitted at King Khalid University Hospital, Riyadh, Saudi Arabia, was formally adopted. As part of the associated educational campaign to facilitate the implementation of this guideline, an interactive lecture was conducted for the staff in the Pediatric department. The main objectives of this lecture were to enhance the awareness of pain management for children and to encourage adapting and using pain management guidelines including a multidisciplinary team approach. Simultaneously, to explore the attending physician's knowledge, attitude and intended practice in response to several clinical scenarios related to different paediatric age group.

METHODS

This is a descriptive hospital based study, which used a qualitative approach in a form of a survey design. The guided (Multiple Choice) survey was incorporated into the slides of an interactive lecture titled: "Pediatric Pain Management: The Facts and Misconceptions?" The Authors conducted the survey in a Pediatric Grand Round at the end of the year 2011. The audience consisted mainly of Pediatric Department physicians at various levels of experience ranging from junior trainees to experienced consultants. Their responses were collected live using an Interactive Response System.

Following the introduction of a pediatric pain assessment tool and the recently adapted Modified Wong Baker Scale at our institute (Figure 1), the audiences were prompted by several clinical scenarios, and were asked to approximate what the Modified Wong Baker Faces Scale in each case could be.

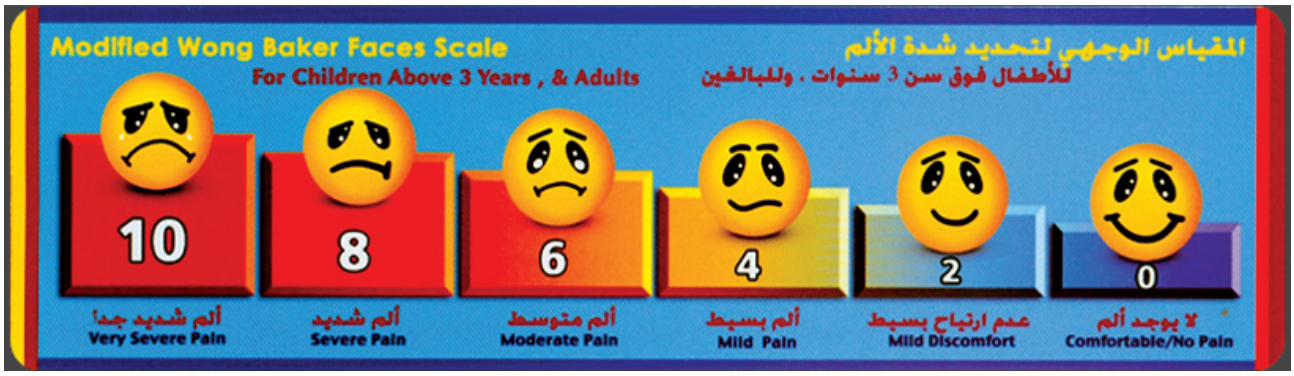

Figure 1 - Adapted modified Wong Baker Scale at our Hospital used in the study.

RESULTS

The audiences who participated in this activity were 28, who were distributed as follows: Pediatric Consultants (n=11/28, 39.3%), Senior Registrars (n=3/28, 10.7%), Registrars (n=3/28, 10.7%), Residents (n=9/28, 32.1%) and Pediatric Nurses (n=2/28, 7.1%). The participants were asked about how frequently they use the recommended score in managing pain and discomfort in their patients (Table 1).

Table 1 – The participants' responses on how frequently they use the standard tool

Frequency	Percentage
Almost on daily basis	14.8
3-5 times per week	3.7
1-2 times per week	18.5
I use other Pain Scale	7.4
I do not use any Pain Scale, rather I asses by other measures	55.6
Total	100

The voting results, using live IRS, about different theoretical case scenarios have widely varied. The pain assessment included what the Modified Wong Baker Faces Scale in each case would be (Table 2).

Table 2 - Audience assessment for Modified Wong Baker Faces Scale

Scenario	Audience assessment					
	0	2	4	6	8	10
Lumber Puncture in a 5 year old child	0%	0%	7.1%	43.9%	46.4%	3.6%
Peripheral intravenous Insertion in a 3 year-old child	0%	3.6%	17.9%	57.1%	14.3%	7.1%
Circumcision in a 2-day-old boy	0%	3.6%	3.6%	17.9%	35.7%	39.3%
Vaso-occlusive Crisis in a 7- year-old child with sickle cell disease	0%	0%	3.7%	7.4%	51.9%	37.0%
A 6-year-old child screaming in pain post scoliosis surgery	0%	3.6%	0%	0%	25.0%	71.4
A 3-year-old child, with metastatic Wilm›s tumor, crying from pain	0%	3.7%	0%	3.7%	22.2%	70.4%
Vaccination in a 3-year-old child	0%	10.7%	21.4%	53.6%	14.3%	0%

DISCUSSION

Understanding the importance of pain management and utilizing an instrument to measure its severity are extremely important for the managing physician, particularly in acute care setting. As a matter of fact, it is a prerequisite prior to perform any procedures in order to predict and thus, prevent painful experience by a child. Despite having pain assessment and management guideline being introduced for almost a year at our hospital, which was accompanied initially by educational and awareness campaign, there were still major areas of gaps in awareness and implementation, which requires further development, particularly among physicians. More than half of our paediatric practitioners still voted as they "do not use any Pain Scale", rather they "asses by other measures", and only 14.8% voted as using the Pain Scale on daily basis. Moutte et al [4] reported a decreasing trend, when caring for younger children, in percentage of physicians who used pain scale in their practice in emergency setting. Furthermore, only 3% of them use pain scale in children less than 3 years [4]. In order to optimize the pain management approach, it should be integrated in a multidisciplinary team where nurses

are important partners. Thus, they should be targeted in education and awareness campaigns. Ortiz et al [5] reported a significant area of improvement in nurse's practice regarding pain management in children. The study by Vael and Whitted [6] demonstrated that educating nurses about the use of pain assessment scale altered their practice and improved the frequency of pain assessment of preverbal children.

Optimizing pain control in pediatric population is a real challenge. Not only due inability of communicating the pain experience, but also due to different perception of pain severity by the caregiver. Another finding, in our study, was the wide discrepancies between the audience's voting for the pain scores in various case scenarios, which they were prompted with. Although they all agreed that these scenarios would be associated with pain, the pain scores ranged from mild to severe for the peripheral intravenous Insertion in a 3-year-old child, circumcision in a 2-day-old boy, a 6-year-old screaming in pain post scoliosis surgery, and a 3-year-old child with metastatic Wilm's tumour, crying from pain. However, the pain assessment in these scenarios by majority of the audience ranged from moderate to severe. It is likely that this variation is due to variable perception rather than under reliability of the pain measurement tool. The reliability and validity of a pain measuring instrument has been a focus of many researchers and scientific initiatives [7-9]. The self-reporting faces scales are well recognized and validated instrument for clinical use in children [10].

An interesting, yet somehow a challenging finding, was that the vaccination associated pain was given quite a variable score by audiences as either mild discomfort (10.7%), mild pain (21.4%), moderate pain (53.6%) or severe pain (14.3%). This could reflect different experiences among the surveyed practitioners or their different perceptions of pain in this category. However, it may highlight the need for further studies and exploration of this area. Several studies have demonstrated various methods in reducing pain and anxiety in such setting, and these have to be emphasized for the Health Care Workers providing these vaccination tasks [11-15]. For instance, a prospective study by Abuelkeir et al [16] demonstrated that application of EMLA® cream can be effectively incorporated as a routine pain-relieving intervention within routine vaccination schedules. McMurty et al [17] described several available strategies to mitigate pain associated with vaccine injections. Taddio et al [18] found some evidence for a benefit for using the following procedures and physical interventions during vaccine injections in selected populations: no aspiration, injecting most painful vaccine last, simultaneous injections, vastus lateralis injection, positioning interventions, non-nutritive sucking, external vibrating device with cold, and muscle tension. However, such strategies are uncommonly utilized, leading to unnecessary pain and suffering. Some children may develop a high level of fear and their needle procedures become unnecessarily associated with significant distress [17].

CONCLUSION

With the introduction of "new process improvements" strategies in our institute, such as pain assessment and management guidelines, an urgent need has emerged for a simultaneous extensive educational campaign for all health care providers. Also, it indicates the need of early auditing to facilitate better awareness and compliance with these changes. Since our results showed suboptimal awareness and compliance with the hospital pain assessment and management guidelines, a focused team was formed and a plan was adopted to improve the implementation of the guidelines.

REFERENCES

1. Lee GY, Yamada J, Kyololo O, Shorkey A, Stevens B. Pediatric clinical practice guidelines for acute procedural pain: a systematic review. Pediatrics 2014; 133:500-515.
2. Phillips DM. JCAHO pain management standards are unveiled. Joint Commission on Accreditation of Healthcare Organizations. Jama 2000; 284:428-429.
3. Birnie KA, Chambers CT, Fernandez CV, Forgeron PA, Latimer MA, McGrath PJ, et al. Hospitalized children continue to report undertreated and preventable pain. Pain research & management: the journal of the Canadian Pain Society = journal de la societe canadienne pour le traitement de la douleur 2014; 19:198-204.
4. Moutte SD, Brudvik C, Morken T. Physicians' use of pain scale and treatment procedures among children and youth in emergency primary care - a cross sectional study. BMC emergency medicine 2015; 15:33.
5. Ortiz MI, Ponce-Monter HA, Rangel-Flores E, Castro-Gamez B, Romero-Quezada LC, O'Brien JP, et al. Nurses' and Nursing Students' Knowledge and Attitudes regarding Pediatric Pain. Nursing research and practice 2015; 2015:210860.
6. Vael A, Whitted K. An educational intervention to improve pain assessment in preverbal children. Pediatric nursing 2014; 40:302-306.
7. Stinson JN, Kavanagh T, Yamada J, Gill N, Stevens B. Systematic review of the psychometric properties, interpretability and feasibility of self-report pain intensity measures for use in clinical trials in children and adolescents. Pain 2006; 125(1-2):143-57.
8. von Baeyer CL. Children's self-reports of pain intensity: scale selection, limitations and interpretation. Pain research & management: the journal of the Canadian Pain Society = journal de la societe canadienne pour le traitement de la douleur 2006; 11:157-162.
9. Tsze DS, von Baeyer CL, Bulloch B, Dayan PS. Validation of self-report pain scales in children. Pediatrics 2013; 132):e971-979.
10. Tomlinson D, von Baeyer CL, Stinson JN, Sung L. A systematic review of faces scales for the self-report of pain intensity in children. Pediatrics 2010; 126:e1168-1198.
11. Gupta NK, Upadhyay A, Agarwal A, Goswami G, Kumar J, Sreenivas V. Randomized controlled trial of topical EMLA and breastfeeding for reducing pain during wDPT vaccination. European journal of pediatrics 2013; 172:1527-33.
12. Taddio A, Ho T, Vyas C, Thivakaran S, Jamal A, Ilersich AF, et al. A randomized controlled trial of clinician-led tactile stimulation to reduce pain during vaccination in infants. Clinical pediatrics 2014; 53:639-644.
13. Reducing pain at the time of vaccination: WHO position paper - September 2015. Releve epidemiologique hebdomadaire / Section d'hygiene du Secretariat de la Societe des Nations = Weekly epidemiological record / Health Section of the Secretariat of the League of Nations 2015; 90:505-510.
14. Marti M. Reducing pain at the time of vaccination: WHO position paper, September 2015-Recommendations. Vaccine 2015. Epub 2015/11/17.
15. Taddio A, McMurtry CM, Shah V, et al. Methodology for Knowledge Synthesis of the Management of Vaccination Pain and Needle Fear. The Clinical journal of pain 2015; 31(10 Suppl):S12-19.
16. Abuelkheir M, Alsourani D, Al-Eyadhy A, Temsah MH, Meo SA, Alzamil F. EMLA(R) cream: a pain-

relieving strategy for childhood vaccination. The Journal of international medical research 2014; 42:329-336.

17. McMurtry CM, Riddell RP, Taddio A, Racine N, Asmundson GJ, Noel M, et al. Far From "Just a Poke": Common Painful Needle Procedures and the Development of Needle Fear. The Clinical journal of pain 2015; 31(10 Suppl):S3-11.
18. Taddio A, Shah V, McMurtry CM, MacDonald NE, Ipp M, Riddell RP, et al. Procedural and Physical Interventions for Vaccine Injections: Systematic Review of Randomized Controlled Trials and Quasi-Randomized Controlled Trials. The Clinical journal of pain 2015; 31(10 Suppl):S20-37.