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Parents' preferences strongly influence their decisions to withhold prescribed opioids when faced with analgesic trade-off dilemmas for children: A prospective observational study

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ABSTRACT

Background: Despite parents' stated desire to treat pain in their children, recent studies have critiqued their underuse of prescribed analgesics to treat pain in their children after painful procedures. Parents' analgesic preferences, including their perceived importance of providing pain relief or avoiding adverse drug effects may have important implications for their analgesic decisions, yet no studies have evaluated the influence of preferences on decisions to withhold prescribed opioids for children.
Objectives: We prospectively explored how parents' preferences influenced decisions to withhold prescribed opioids when faced with hypothetical dilemmas and after hospital discharge.
Design: Prospective Observational Study Design: Phase 1 included hypothetical analgesic decisions and Phase 2, real analgesic decisions after hospital discharge.
Setting: Large tertiary care pediatric hospital in the Midwest of the United States.
Participants: Five-hundred seven parents whose children underwent a painful surgical procedure requiring an opioid prescription were included.
Methods: At baseline, parents completed surveys assessing their pain relief preference (i.e., their rated importance of pain relief relative to adverse drug event avoidance), preferred treatment thresholds (i.e., pain level at which they would give an opioid), adverse drug event understanding, and hypothetical trade-off decisions (i.e., scenarios presenting variable pain and adverse drug event symptoms in a child). After discharge, parents recorded all analgesics they gave their child as well as pain scores at the time of administration.
Results: Higher preference to provide pain relief (over avoid analgesic risk) lessened the likelihood that parents would withhold the prescribed opioid when adverse drug event symptoms were present together with high pain scores in the hypothetical scenarios. Additionally, higher preferred treatment thresholds increased the likelihood of parents withholding opioids during their hypothetical decision-making as well as at home. The

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strong influence of these preferences weakened the effect of opioid ADE understanding on decisions to withhold opioids when ADEs (i.e., nausea/vomiting or oversedation) were present together with high pain.
Conclusions: Findings from this study suggest that preferences strongly influence and may interfere with parents' effective and safe analgesic decision-making when conflicting symptoms (i.e., high pain and an ADE) are present. To improve effective analgesic use, there is a need to shape parents' preferences and improve their understanding of safe actions that will treat pain when ADE symptoms are present.

What is already known about the topic?

- Concerns about adverse drug effects have been associated with adult patients' decisions to take analgesics as well as parents' administration of analgesics to their children postoperatively.

What this paper adds

- This paper shows how parents' analgesic preferences strongly influence their decisions to give or withhold opioids when symptoms of pain and adverse drug effects are present.
- Clinicians may need to better advise parents regarding safe actions to address pain when conflicting and important symptoms are present.

1. Introduction

Parents have universally expressed a desire to prevent or relieve pain in their children (Kankkunen et al., 2002), and most have reported using or supporting the use of a variety of pharmacologic and non-pharmacologic strategies to do so (Forward et al., 1996; Kankkunen et al., 2003, 2008; Jonas, 2003). Despite these findings, parents have been critiqued for undertreating children's pain by withholding prescribed analgesics following surgery (Fortier et al., 2009). Further, many studies suggest that most parents give less than prescribed analgesic doses after surgery in a manner that correlates only poorly to moderately with their children's reported pain intensity (Kankkunen et al., 2003; Rony et al., 2010; Stewart et al., 2012; Vincent et al., 2012; Warnock and Lander, 1998; Zisk et al., 2008; Hamers and Abu-Saad, 2002; Helgadottir and Wilson, 2004; Unsworth et al., 2007; Wiggins and Foster, 2007; Huth and Broome, 2007). Many discontinue analgesics even when pain is ongoing (Warnock and Lander, 1998; Hamers and Abu-Saad, 2002). Such findings suggest that parents are responding to or influenced by other situational and, perhaps, personal factors when making analgesic decisions for their children.

1.1. Effect of analgesic adverse drug effects on parents' decisions

To date, no study has evaluated the effect of opioid adverse drug effects (ADE) on parents' decision to give a prescribed opioid to their child. However, *concerns* about ADEs have been associated with adult patients' decisions to take analgesics (Older et al., 2010) as well as parents' administration of analgesics to their children postoperatively (Forward et al., 1996; Kankkunen et al., 2003; Rony et al., 2010). ADEs, which occur commonly during opioid use (Duedahl and Hansen, 2007; Sutters et al., 2010; Gregorian et al., 2010; Sutters et al., 2012), add complexity to analgesic decisions since they introduce trade-off dilemmas wherein individuals must choose between competing goals of minimizing ADEs versus maximizing pain relief as the pain experience unfolds.

1.2. Effect of preferences on parents' analgesic decisions

Little is known about how parents' analgesic preferences affect their treatment decisions for their children. However, one study demonstrated significant variability in parents' preferred treatment threshold (i.e., the level of pain at which they would administer a non-opioid) for common pains (e.g., mean severity of 4.4 ± 2.1 out of 10 to treat earache) (Forward et al., 1996). This study also described differing preferred treatment thresholds for different types of everyday pains (e.g., mean 4.4/10 for headache versus 5.9/10 for muscle/limb pain). Another study found wide variation in parents' estimates of their child's preferred treatment thresholds after surgery (i.e., range of 2–4.5 out of 6 on a Faces Pain Scale [FPS]), however, parents' own treatment thresholds were not explored, and their estimates agreed with their child's stated thresholds in only 24% of cases (Demyttenaere et al., 2001). It remains unknown whether there is similar variability in the thresholds at which parents would prefer to give opioid or non-opioid analgesics for their children's postoperative pain. Furthermore, it is unknown whether treatment thresholds shift in the presence of other symptoms (i.e., ADEs), or whether such arbitrary thresholds affect the quality or safety of pain management.

Adults with pain have indicated a willingness to give up or trade some pain relief in order to minimize ADEs even to the point of analgesic discontinuation (Gregorian et al., 2010; Gan et al., 2004). Furthermore, these preferences were stable from preoperatively to two weeks postoperatively, even as ADEs presented. Whether parents have similar trade-off preferences for their children has not been studied, yet they do change their treatment decisions in response to situational signals such as presence of an ADE and degree of pain (Voepel-Lewis et al., 2015). Additionally, parental knowledge of analgesic-related ADEs has been shown to influence their decisions to give a prescribed opioid to a child in pain when ADE symptoms appear (Voepel-Lewis et al., 2014). The additional