

The Impact of Positioning on Fear During Immunizations: Supine Versus Sitting Up

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This study explored the impact of a child's position on the level of fear and perception of pain during an immunization injection. One hundred seven children, ages 4–6, participated in a random-assignment, two-group design study to evaluate the effect of positioning on fear and perceived pain. Group 1 was placed in the supine position and Group 2 in the sitting position prior to immunizations. The results substantiated the belief that children are significantly less fearful about receiving an injection when they are sitting up as compared to when they are lying down. There was no difference in perception of pain.
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RESearch indicates that children identify injections as one of their most feared and painful events (Hart & Bossert, 1994). It is likely that a child who comes to a clinic for an MMR (measles, mumps, and rubella), DTaP (diphtheria, tetanus, and acellular pertussis), or inactivated poliovirus vaccine immunization injection will arrive fearful and reluctant. If this child is placed in a supine position during such a procedure, the result may be a feeling of loss of control, which, in turn, invokes more fear. This fear can be associated with confusion about why trusted adults are inflicting pain on them; anger at the loss of choice, control, and autonomy; and invasion of privacy and body space (Gaskell, Binnes, Heyhoe, & Jackson, 2005). Research related to pain perception in children has explored the relationship of pain to fear, anticipatory anxiety, tension, and distress. Eland (1981) reported that fear was a potentially uncontrolled variable in her study for minimizing pain of prekindergarten intramuscular injections, "If a child was particularly anxious, it is possible that pain reduction interventions might not have been successful." Sparks (2001) found that a lower level of fear correlated to a decreased perception of pain. Stephens, Barkey, and Hall (1999) reported that during stressful procedures, children experience less fear related to loss of control when placed in a sitting position as compared to a supine position. Lambert, Barkey, Stephens, and Walsh-Sukys (1997) suggested that

even in infancy, sitting up seems to be accompanied by a sense of control, and in a situation where an infant or child is forced to lie down, it is common for the infant to cry and struggle to get up. Pate, Blount, Cohen, and Smith (1996) reported that childhood memories of "aversive medical events may last for years, and early negative experiences may lead to negative attitudes about, and avoidance of, health care experiences" for adults later in life. Ost (1991) cited in his study, in which there were 56 adults with needle phobia, that 52% could trace their fear back to a negative childhood event.

Low rates of immunization have been attributed to parental fear of not wanting to see their child cry (Abbotts & Osborn, 1993). Nir, Paz, Sabo, and Potasman (2003) reported that fear of injections in young adults is also associated with fear of needles,

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hospitals, surgical procedures, pain, doctors, and dentists. Children receiving routine immunizations have the highest level of fear of injections (Nir et al., 2003) and display significant levels of distress prior to their injections (Jacobson et al., 2001). Child fear has also been identified as a significant predictor for avoidance, correlating to later avoidance of medical situations into adulthood (Pate et al., 1996). Nir et al. studied young adult travelers and reported that more than a fifth of respondents revealed that they had a fear of injections, and of those who were fearful, 8.2% reported experiencing fear “of an unreasonable magnitude.” This fear may keep travelers from receiving recommended immunizations and, thus, spreading potentially deadly diseases (Nir et al., 2003).

There are few studies that focus on relief methods for fear, anxiety, or tension during injections and how these relate to the perception of pain (e.g., Bowen & Dammeyer, 1999; French, Painter, & Coury, 1994). This research study compared whether a child’s fear and perception of pain were affected by lying supine versus sitting up during an upper thigh injection. It was anticipated that a child sitting up when receiving an injection would feel more in control and be less fearful than when lying down. When a child is in an upright position, it is less likely that the thigh muscle will be tense. Administering an injection into a tensed contracted muscle is more painful than an injection into a relaxed muscle and could result in a higher degree of pain (Stephens et al., 1999). A staff person or parent can also effectively immobilize a child’s legs and/or arms if he or she is in an upright sitting position or sitting in a parent’s lap. Although many children appeared comforted by their parents’ support, Kuttner (1989) reviewed literature suggesting that physical restraint is one of six identified factors most likely to result in psychological trauma in pediatric patients. Physical restraint, whether by a parent through a comfort hold or hug or by health care staff with or without the child’s consent, further increases the child’s fear and “fight” against lying down.

This research study occurred in two pediatric clinics where patients typically lie down on the examination table during immunizations. The prevalent thought has been that if the child is supine, with legs bent over the side of the examination table, the nurse or medical assistant giving the injection will have the ability to better control a child’s movement. Although, in the supine position, upper body movement is often limited

through parental or staff physical restraint, leg movement from kicking is not as easily managed. It is also common practice for parents to assist in controlling movement by holding the child’s hands and/or arms or by leaning against their child’s upper body to minimize wiggling.

We hypothesized that a child sitting up when receiving an injection would feel more in control and be less fearful than when lying down.

METHODS

A two-group design evaluated the effect of positioning on anxiety and pain during immunizations. A convenience sampling approach was used where consecutive patients qualifying for the study were asked to participate. They were randomly assigned to one of two groups where Group 1 was placed in the supine position and Group 2 in the sitting position prior to immunizations. This study was approved by the hospital’s institutional review board.

Participants

Patients, ages 4–6 years old, at the general pediatric clinics within a Midwest hospital receiving their immunizations (MMR, DTaP, and IVP) were eligible to participate. This age group was chosen because immunizations at this age are a standard requirement for entrance to prekindergarten or kindergarten. Also, 4- to 6-year-old children are likely to be able to verbalize how they are feeling. Each family had to review and sign the informed consent and state no preference for the child’s position during the administration of the injection. Children who had four or more procedures/surgeries within the last 2 years and those with chronic illness, cognitive disabilities, or a physical impairment that affects their ability to sit up were excluded from the study. Families who were unable to understand the study due to language barriers were also excluded.

Measures

Two tools were used with the study participants to measure fear. The Child Medical Fear Scale (CMFS; Broome, Hellier, Wilson, Dale, & Glanville, 1988) identifies overall fear as it relates to health care events. The Fearmometer (Wagner, 2002) provides a subjective measure of fear related to the experience. Two items from the CMFS, a 17-item questionnaire, were used to measure children’s level of worry and fear about

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