Pain-relief drug delivers choices for mothers in labour

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Choice and control are important factors for ensuring a positive childbirth experience, yet until recently, little was known about the impact of alternative administrations of fentanyl—one of the pain relief

drugs used during labor–on both mother and baby.

Now, world-first research from the University of South Australia confirms nasal or subcutaneous (injected) administration of fentanyl a safe option for both mothers and babies, ensuring greater choices of pain relief for women during childbirth.

The study is the first to assess fentanyl concentrations following subcutaneous fentanyl administration.

Testing fentanyl levels in 30 mother-baby pairs (via maternal and cord blood samples taken with 30 minutes of birth) the study found that despite nasally administered levels of fentanyl being significantly higher than those by injection, all babies had lower levels of fentanyl in their systems than their mothers, regardless of administration method.

All babies had five-min Apgar scores within normal ranges; none required admission to the nursery for special care and levels of the drug were considered very low, well below those shown to depress breathing.

This is in contrast to cord concentrations of pethidine and norpethidine where other studies have shown levels have been shown to be comparable to their mothers and significantly supressed a baby's behavior in the first few weeks of life.

Lead researcher, UniSA's Dr. Julie Fleet says the findings are an important step in understanding pain relief options in labor providing support for less invasive forms of drug administration.

"Many women worry about managing pain during labor and the impact that their choices might have for themselves and their newborn child," Dr. Fleet says.

"For women who choose pain relief in labor, there are still very few options available—the most common are 'gas' (nitrous oxide and oxygen), injection of a narcotic or opioid (such as fentanyl, morphine or pethidine), or an epidural—but as with all analgesics, there are side effects. Negating and managing side effects is critical for both mother and baby, which means the need for choices in pain relief is all the more essential. Fentanyl is a popular choice for regulating pain during labor because it provides rapid pain relief while not restricting mobility and reduces incidents of adverse side effects such as nausea, vomiting or sedation. It can also be administered via nasal spray or small injection under the skin, enabling women more control over their pain. The strength of this research is that it confirms that fentanyl can be used safely for both mother and baby—regardless of whether it is administered nasally or via injection—giving strong supportive evidence of its use as an alternative pain relief option."

In South Australia, subcutaneous administration of fentanyl is standard practice, with the nasal spray growing in popularity.

"Importantly, for women who choose pain relief in labor, fentanyl has been shown to reduce pain intensity while enabling women to work with the contractions. Additionally, women report it provides increased autonomy and satisfaction in birth—both important factors for ensuring a positive birthing experience."

More information: J.-A. Fleet et al. Fentanyl concentration in maternal and umbilical cord plasma following intranasal or subcutaneous administration in labor, *International Journal of Obstetric Anesthesia* (2020). DOI: 10.1016/j.ijoa.2020.01.001

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