Obstetrical and Pediatric Anesthesia

Epidural analgesia does not prolong the third stage of labour

[L'analgésie épidurale ne prolonge pas la délivrance lors de l'accouchement]

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Purpose: To investigate whether there is an association between epidural analgesia and duration of third stage of labour, and between epidural analgesia and type of placental delivery (spontaneous vs expressed vs manual).

Methods: We examined, retrospectively, the computerized labour and delivery data of all 7,468 parturients who had vaginal deliveries from 1996 to 1999 at the Civic Campus of the Ottawa Hospital.

Results: There was no difference in duration of third stage of labour between women with and without epidural pain relief who had spontaneous or expressed (fundal pressure/gentle cord traction) placental delivery. Duration of third stage of labour was shorter in women with epidural analgesia requiring manual removal of placenta. (25.3 min vs 40.1 min, $P < 0.0001$). The incidence of expressed placental delivery or manual removal of placenta was not different between the groups.

Conclusions: We conclude that there is no clinically important difference in duration of third stage of labour between women with or without epidural analgesia who have spontaneous placental delivery or placental expulsion with fundal pressure/gentle cord traction. However, duration of third stage of labour was shorter in women who received epidural analgesia and required manual removal of the placenta.

Objectif : Rechercher une association possible entre l'analgésie épidurale et la durée de la délivrance, et entre l'analgésie épidurale et le type d'expulsion placentaire (spontanée vs facilitée vs manuelle).

Méthode : Nous avons vérifié, rétrospectivement, les données informatiques sur le travail et l'accouchement par voie vaginale de 7 468 parturientes, entre 1996 et 1999 au Civic Campus du Ottawa Hospital.

Résultats : La durée de la délivrance n'a pas été différente, que les femmes aient reçu ou non une analgésie épidurale et aient connu une délivrance spontanée ou facilitée (pression utérine/légère traction

ombilicale). La délivrance a été plus courte chez les femmes qui ont reçu de l'analgésie épidurale et chez qui on a dû extraire manuellement le placenta. (25,3 min vs 40,1 min, $P < 0,0001$). L'incidence d'expulsion placentaire facilitée ou d'extraction manuelle n'a pas été différente entre les groupes.

Conclusion : La durée de la délivrance ne présente pas de différence clinique significative entre les femmes qui ont reçu ou non de l'analgésie épidurale, qui ont connu une délivrance spontanée ou une expulsion placentaire avec compression utérine/légère traction ombilicale. Cependant, elle a été plus courte chez les femmes qui ont reçu l'analgésie épidurale et qui ont connu une délivrance manuelle.

META-ANALYSES of clinical trials comparing epidural analgesia with parenteral opioid analgesia have suggested that epidural analgesia, while providing superior pain relief, may prolong first and second stage of labour.^{1,2} However, another quantitative review of clinical studies of the possible effect of epidural analgesia on outcome of labour concluded that it was unclear whether epidural administration of local anesthetics had any effect on duration of labour.³ A recent randomized clinical trial of parturients with epidural analgesia vs women receiving pain relief with *im* meperidine during labour also failed to detect a difference between groups in duration of first or second stage of labour.⁴ A number of recent studies indicate that there is no change or an augmentation in uterine activity after administration of epidural pain relief.⁵⁻⁸

The association between epidural analgesia during labour and the outcome of third stage of labour

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remains unclear. We therefore conducted a retrospective review of all parturients who delivered *per vaginam* at the Civic Campus of The Ottawa Hospital during a recent three-year period. We obtained demographic data and recorded the duration of third stage of labour and the method of placental delivery in women with and without epidural labour analgesia.

Methods

Demographic and procedural data were retrieved from the Med2020 Discharge Abstract Database and the Civic Campus Obstetrical Discharge Database. The Obstetrical Discharge Database, an internal customer-defined product of the Civic Campus, was created in 1996 as an electronic Labour, Delivery and Discharge Summary and for report generation. The obstetric chart summary form is completed by hand by physicians and nursing staff and the data is encoded and entered into the database by a Health Record Analyst. The obstetrical data screens were implemented in conjunction with the Med2020 software abstracting system. The data from all deliveries at the Civic Campus of the Ottawa Hospital from January 1, 1996 to December 31, 1998, excluding parturients who delivered by Cesarean section, were retrieved and transferred into a Microsoft Excel data file. Epidural pain relief during labour was provided according to a standard written protocol during this time period, using a continuous infusion of a pre-mixed solution of bupivacaine 0.125% with fentanyl 2 µg·mL⁻¹. After 1998 epidural analgesia was provided with more dilute solutions of different local anesthetics and with combined spinal-epidural analgesia, hence the data from 1999–2000 was not used for analysis.

The statistical analysis of the data was performed with StatView® statistical software using Chi square and ANOVA where appropriate. $P < 0.05$ was considered statistically significant.

Results

The total number of vaginal deliveries at the Civic Campus of The Ottawa Hospital in the three-year period from January 1, 1996 until December 31, 1998 was 7 468. Of these, 4,954 parturients (66.3%) received epidural pain relief during labour whereas 2,514 received parenteral opioid analgesics or no analgesic medication.

Epidural analgesia was used more frequently in primigravid women and was associated with a higher neonatal birth weight and a greater mean gestational age than parturients who did not receive epidural pain relief (Table I). Primigravid women had longer duration of third stage of labour, whether or not they

TABLE I Demographic data

	<i>Epidural analgesia</i>	<i>Opioid or no analgesia</i>
Gestation (weeks)	38.9 ± 1.9	38.6 ± 2.5*
Primigravida	79.4 (%)	20.6 (%)*
Multigravida	60.4 (%)	39.6 (%)*
Neonatal weight (g)	3415 ± 557	3349 ± 635*

Values represent mean ± SD. * $P < 0.0001$. Epidural *vs* opioid or no analgesia.

TABLE II Duration of third stage of labour and mode of placental delivery

	<i>Epidural analgesia</i>		<i>Opioid or no analgesia</i>	
	% of total	Duration 3 rd stage (min)	% of total	Duration 3 rd stage (min)
All parturients	100%	7.7 ± 9.7	100%	8.2 ± 14.2
Spontaneous	81.4%	7.1 ± 6.4	85.4%	7.4 ± 9.1
Expressed	16.1%	8.3 ± 13.2	12.8%	7.8 ± 9.2
Manual	2.5%	25.3 ± 31.5	1.8%	40.1 ± 57.3*

Values represent mean ± SD. * $P < 0.0001$. Epidural *vs* opioid or no analgesia.

received epidural analgesia (8.5 min *vs* 7.6 min, $P < 0.05$). The proportion of women who had expressed (fundal pressure, gentle cord traction) placental delivery or manual removal of placenta was not different between the groups (Table II). The duration of third stage of labour in parturients with spontaneous or expressed placental delivery was not different in women with or without epidural pain relief. The duration of third stage of labour was shorter in patients with epidural analgesia who required manual removal of placenta than women without epidural analgesia who required this intervention (Table II).

Discussion

The establishment of a detailed Labour and Delivery database at our hospital in 1996 allowed us to retrieve data from a large three-year cohort of parturients, many of whom received epidural analgesia. Hence, we were able to examine, retrospectively, whether there was an association between epidural analgesia and duration of third stage of labour and also between epidural analgesia and mode of placental delivery.

The putative effect of epidural analgesia on the progress and outcome of first and second stage of labour (instrumental delivery and Cesarean section rates) have been studied in some detail by several investigators. Meta-analyses and systemic reviews of clinical trials of the effect of epidural pain relief on duration of first stage of labour suggest that epidural

analgesia may be associated with longer first and second stage of labour.^{1,2} However, the results from a recent large clinical trial suggest that epidural analgesia is not associated with prolonged first or second stage of labour when strict criteria for definition of onset of labour are used and active labour management is employed.⁴ Impey *et al.*⁹ likewise found no increase in the duration of the active phase of second stage of labour in a retrospective, 'before-and-after' analysis of the impact of institution of epidural pain relief on outcome of labour in women who received active and standardized labour management.

Our data indicate that there was little difference in the duration of third stage of labour between women who received epidural analgesia and those who did not. But the duration of third stage of labour was shorter in women with epidural analgesia who required manual removal of placenta. Our hypothesis is that epidural analgesia may have provided a 'permissive' role; i.e., epidural pain relief provided excellent perineal analgesia which allowed earlier intervention by the obstetrician. Epidural analgesia was not associated with an increased incidence of intervention to deliver the placenta with fundal pressure/gentle cord traction or manual removal of placenta.

Prospective clinical trials have indicated that active management of third stage of labour (including administration of oxytocics and gentle cord traction) results in less post-partum blood loss and lower risk of post-partum hemorrhage compared to expectant, non-interventional management of third stage of labour.¹⁰⁻¹² A systematic review of prospective studies of active vs expectant management of third stage of labour confirmed that the risk of post-partum hemorrhage is less in women who receive active management of third stage of labour.¹³ However, Begley¹⁰ noted that active management was associated with more pain than expectant third stage management. A prospective controlled clinical trial is required to not only confirm our retrospective data, but also to determine the extent of pain associated with active management of third stage of labour in women with and without epidural analgesia.

In conclusion, epidural analgesia is not associated with longer duration of third stage of labour in women with spontaneous or expressed placental delivery. However, duration of third stage of labour was shorter in parturients requiring manual delivery of the placenta.

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