The correlation of pain intensity during local infiltration for spinal anesthesia, and subsequent pain after cesarean section

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Abstract

Background: Local anesthetic infiltration, prior to spinal anesthesia, is generally performed and results in pain upon local injection. This study was conducted to determine the correlation between; pain intensity caused by local anesthetic infiltration in cesarean section patients, and subsequent pain after 24 hours, 1 month and 3 months, postoperatively.

Materials and Methods: This prospective, observational cohort study was performed with 215 patients, scheduled for elective cesarean section. Prior to, a spinal needle insertion, 3ml of 2% lidocaine without adrenaline was locally infiltrated via a 24G needle for 4 seconds. The patients were asked to rate their pain intensity, upon local infiltration, by using a verbal numerical rating score (VNRS) from; 0-10, whereas, 0 = no pain and 10 = the worst possible pain. The VNRS, at rest and with movement, were evaluated at 24 hours postoperatively as well as at 1 month and 3 months, postoperatively. The correlation was calculated using Spearman's correlation.

Results and Discussion: At 24 hours postoperatively, positive correlation was found between pain intensity of local anesthetic infiltration and acute pain intensity, both at rest ($r = 0.554$, $p\text{-value} < 0.001$) as well as with movement ($r = 0.576$, $p\text{-value} < 0.001$). Positive correlation was also found for pain at rest ($r = 0.296$, $p\text{-value} < 0.001$) along with movement ($r = 0.525$, $p\text{-value} < 0.001$), at 1 month, postoperatively. At 3 months, positive correlation was found for pain with movement ($r = 0.299$, $p\text{-value} < 0.001$), but there was no statistical significance for pain at rest ($r = 0.076$, $p\text{-value} = 0.273$).

Conclusions: Statistically, significant correlations have been found between; pain intensity during local infiltration for spinal anesthesia, and both acute, chronic pain after a cesarean section. Local infiltration pain may be used as a predictor for acute and chronic pain, after cesarean section.

Figure 1: VNRS at rest and with movement at 24 hours

Figure 2: VNRS at rest and with movement at 1 month

Figure 3: VNRS at rest and with movement at 3 months

Table 1: Correlation coefficient between the pain intensity during local infiltration for spinal anesthesia and pain at rest and with movement after cesarean section at 24 hours, 1 month, and 3 months

	Correlation coefficient	p-value
At 24 hours		
• Pain at rest	0.554	< 0.001
• Pain with movement	0.576	< 0.001
At 1 month		
• Pain at rest	0.296	< 0.001
• Pain with movement	0.525	< 0.001
At 3 months		
• Pain at rest	0.076	0.273
• Pain with movement	0.299	< 0.001