



## Effect of transcutaneous electrical nerve stimulation (TENS) procedure on postoperative pain after cesarean section delivery

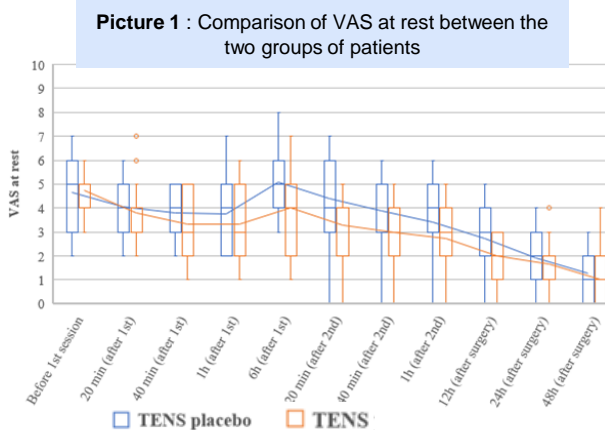
**Backgrounds and aims :** The choice of analgesics in obstetrics is limited due to their maternal adverse effects and to the possible transmission through breast milk. TENS is mostly used in physical therapy for chronic pain . It is safe, easily applied, and low-cost. Our study aims to determine its efficiency for acute pain management after cesarean section

### Methods :

- We initiated a prospective, controlled, randomized double blinded study
- Including 30 women undergoing a cesarean section under spinal anesthesia
- They were randomized into 2 groups: **a TENS and a placebo group**
- On the first postoperative day, they all received paracetamol and non steroidal anti-inflammatory drugs
- **TENS was applied twice for 30 minutes via electrodes placed above and below the incision**
- Intensity was increased to reach tolerable tingling sensation only in the active group, and set to zero in the placebo group
- Our primary outcome was pain intensity using **Visual analogue Scale (VAS) at rest and after uterine globe examination**

- VAS was evaluated at 20, 40 and 60 minutes after each session, 12, 24 and 48 hours after surgery
- Secondary outcomes were systolic blood pressure (SBP), heart rate, need for rescue analgesics, pain complications and intestinal transit restoration.
- P-value < 0.05 was considered as statistically significant

**Results :** Our study showed that in TENS group VAS at rest was reduced one hour after the first session (H1 : 4 vs 2 ; p=0.001) and throughout the period following the second session ( Picture 1)



➢ No significant difference were observed for VAS after globe uterine examination ( p > 0.05)

**Picture 2 :** Comparison of VAS at globe uterine examination

	Total (n=30)	TENS (n=15)	TENS placebo (n=15)	P
Before first session	8 (6-10)	8 (6-10)	8 (6-10)	0.948
20 min after the first session	8 (5-10)	8 (5-10)	9 (6-10)	0.204
40 min after the first session	8 (5-10)	8 (5-10)	8 (6-10)	0.306
1 hour after the first session	8 (5-10)	8 (5-10)	9 (6-10)	0.254
6 hours after the first session	8 (5-10)	8 (5-10)	8 (6-9)	0.965
20 min after second session	7 (5-9)	7 (5-9)	8 (6-9)	0.132
40 min after second session	7 (4-9)	7 (4-9)	8 (4-9)	0.137
1 hour after second session	7 (4-10)	7 (4-10)	8 (6-9)	0.132
12 hours after second session	5 (2-8)	5 (2-8)	5.5 (4-7)	0.218
24 hours after second session	4 (2-7)	4 (2-7)	4 (3-7)	0.331
48 hours after second session	3.5 (1-7)	3 (1-7)	4 (2-5)	0.096

- SBP was significantly higher in the placebo TENS group after the second session at H1 (116.2±9.638 vs. 107.07±10.215; p=0.018) and at H12 (114.53±8.56 vs. 108.13±6.664; p=0.03). The median time to restore intestinal transit was shorter too in the TENS group (18 heures vs 8 heures ; p<0,001)
- No significant differences were observed for heart rate and rescue analgesics. In placebo group, only one case of bronchial congestion due to ineffective cough was observed

**Conclusion :** TENS represents a safe and effective non-pharmacological treatment option for pain management after a C-section delivery