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## **INTRAPARTAL DILATATION OF UTERINE CERVIX UNDER TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TNS)**

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### **Introduction**

Lately, in many countries(1) as well as in Yugoslavia(6) transcutaneous electrical nerve stimulation (TNS) has been increasingly used for reducing intrapartal pain. Because such a stimulation at the same time hinders the activity of the sympathetic, it has been found to accelerate the intrapartal dilatation of the cervical canal(4). The aim of our study was to examine the effect of TNS on the dilatation of the cervix in induced labours (amniotomy and infusion of Oxitocin) in primiparae and in multiparae. The electrical stimulator used in our experiments was constructed in the Institute Jožef Štefan(5).

### **Method**

TNS was applied in 160 induced labours - in 100 primiparae and 60 multiparae. The partograms of these labours were compared to

160 partograms (100 primiparae, 60 multiparae) of induced labours *in* which the parturient women were not given any medicaments except in rare cases Dolantin and Buscopan comp. TNS was performed by the one or two-channel stimulator constructed at the Institute Jožef Stefan in Ljubljana. In our study, the frequency used was always 100 HZ and the amplitude width 0,2 ms, with the individually selected amplitude up to 50 mV. The amplitude was usually intensified in the final phase of labour. The parturient women switched the stimulation on by themselves, by pressing a switch on a cord which they held in their hand through labour. We used electrodes made of conductive silicone rubber with the dimensions 5 times 10 cms, covered by neutral gel.

### **Results**

If the 4 to 5 cm dilated cervix is rigid and spastic, in our hospital Buscopan comp. and Dolantin are usually administered. By the identical medication criteria, both medicaments were administered in the experimental group to 28 primiparae 34 times and to 10 multiparae 11 times, and in the control group to 54 primiparae 67 times and to 20 multiparae 21 times. The results of dilatation of the cervix in parturient women who received TNS in comparison to parturient women of the control group are shown in Figure 1 for primiparae and in Figure 2 for multiparae. The figures show that in primiparae TNS started on an average half an hour after the beginning of induction, and

in multiparae on an average 15 minutes after the beginning of induction. In primiparae and in multiparae with TNS the dilatation of the uterine cervix is faster than in parturient women of the control groups. In primiparae the dilatation under TNS is significantly faster. In the 10 cm-opened cervix  $t=2,68$ ;  $p<0,01$ . The differences in multiparae are not statistically significant because of great standard deviations. In multiparae the accelerated dilatation began immediately after TNS started.

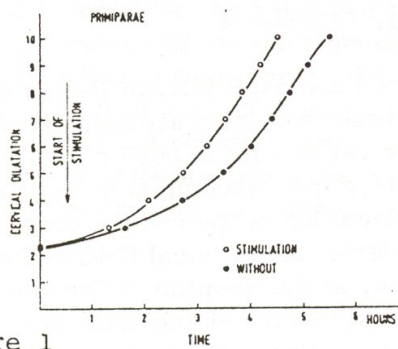


Figure 1

Figure 2. Intrapartal dilatation of the cervix (partogram) for multiparae without TNS

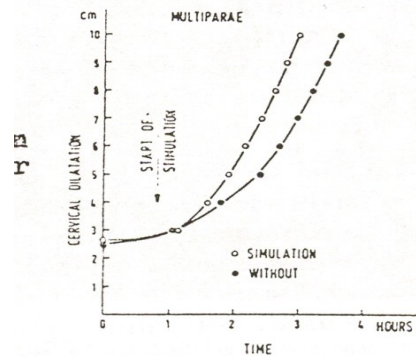


Figure 2

## Discussion

TNS on an average started when the dilatation of the cervix was identical in the experimental and control group. Although women in the control group were given more spasmo-analgetics, it may be said that the cervical dilatation was faster in parturient women with TNS. The effect is more obvious in primiparae than in multiparae because of the nonhomogeneity of the multiparous group. This group was not homogenous especially with regard to the maturity of the cervix at the beginning of the labour. TNS positive effects on the intrapartal dilatation of the cervix is probably because of its influence on the hyper-tonus of the sympathetic nervous system, and thus through various mechanisms(2) reduces the intrapartal spasticity of the cervix.

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