EVALUATION OF CHILD DELIVERY TRAUMA ON ANAL SPHINCTER MUSCLE BY MEANS OF SURFACE ELECTROMYOGRAPHY (Results of the multicenter study TASI-2)

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Introduction. Recent studies demonstrated that there is a significant correlation between anal sphincter damage during vaginal birth, with or without episiotomy, and subsequent development of anal incontinence in women. Functional asymmetry of pelvic floor innervation has been shown to exist in healthy subjects.

Methods. In this prospective cohort study, 511 pregnant primiparous women, by nine clinical partners from five European Countries, were involved and surface EMG was performed to detect the distribution of IZs of external anal sphincter. EMG measurements were performed at the 28th – 34th gestational week and 6-8 post-delivery week (end of puerperium). The study was conducted in double blind, meaning that the clinical partners did not receive any information regarding the IZs of the patients and the signal analysis was performed without having information regarding the type of delivery.

Results. 331 women returned, after delivery, for the second test. The subjects were divided in four groups according to the delivery mode (Caesarean, vaginal with no evident damage, spontaneous lacerations and episiotomies). The numbers of IZs were compared before and after delivery. In the 82 women who underwent right mediolateral episiotomy, a statistically significant reduction of IZs was observed (mean=0.62, 95%CI [-0.03; -0.21]) after delivery, in the right ventral quadrant (side of episiotomy) of the EAS (external anal sphincter), while women who had Caesarean section, spontaneous lacerations or no evident damage did not present any significant change in the innervation pattern.

Conclusions.

- Right episiotomy reduces the number of IZs on the right-ventral side of the EAS.
- Knowledge of the pre-partum distribution of IZs allows obstetricians choose the side where to perform episiotomy (in case it would be necessary at the time of delivery) in order to avoid iatrogenic damage of pudendal nerve.
- This knowledge, which can be obtained with a disposable probe and a minimally invasive surface EMG pre-partum test, is expected to reduce the consequences of episiotomy and subsequently minimize the risk of anal incontinence.

Acknowledgements
This work was sponsored by Projects TASI (Claie Kromer-Fresenza-Stiftung, Compagnia di San Paolo) and TASI-2 (Compagnia di San Paolo). The authors are thankful to prof. Mauro Gepardini for the help with statistical analysis and to Dott. Pier Dino Rattazzi, Luigi Spagno, Adolfo Lucanovici, Anna Maria Paoliotti, Domenica Matteis, Maggiorino Barbetti, Vicky Babka, Lena Martynshyn, Marina Steroshuk, and Milena Iaudus for their help in recruiting patients and making EMG measurements.

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