117

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EFFECTIVENESS OF PERINEAL EXERCISES IN CONTROLLING URINARY INCONTINENCE AND IMPROVING PELVIC FLOOR MUSCLE FUNCTION DURING PREGNANCY

Hypothesis / aims of study

Pregnancy and childbirth can cause changes in the anatomical position of the pelvis, shape of the pelvic floor muscles, and perineum (1). Pelvic floor muscle function (PFMF) decreases during gestation and after childbirth favoring the onset of urinary incontinence (UI) (2). Perineal contraction exercises may enhance PFMF and thus prevent UI (3). Within this framework, the purpose of this investigation was to assess the effectiveness of perineal exercises on PFMF and UI.

Study design, materials and methods

This randomized controlled trial. Assuming a UI prevalence of 40% in pregnant women, a 40% reduction in UI occurrence after physiotherapy, a type I error of 5% and a type II error rate of 20%, and a non-differential loss of 20%, the sample size was estimated to be 29 individuals per group. Thus, 87 primigravidas, aged 20-35 years, were randomly allocated into three intervention groups: supervised group (SG) – exercising under the supervision of a physiotherapist during monthly visits, and daily at home; observational group (OG) – unsupervised daily exercising at home; and control group (CG)– no exercising. All participants underwent perineometry at 18, 22, 26, 30, 34, and 38 of gestation and completed a urinary loss report form. All comparisons were performed usingsoftware PASW Statistics, version 17.0.2., respecting the assumptions concerning the structure of each response variable. Significance level was set at 5%.

Results

Perineometry showed that, in both SG and OG, PFMF improved between visits 2 and 4. However, at visit 5, and more markedly at visit 6 (38 weeks of gestation) it was reduced, although contraction values were still higher than those observed at baseline at 18 weeks of pregnancy. In CG, PFMF decreased since visit 2. At visit 1, UI was reported by 58.6% of the women in SG, followed by 51.7% in OG, and 48.3% in CG. Statistically significant differences were found from visit 5 on, demonstrating the impact of kinesiotherapeutic activities. At the last visit, UI rates were 6.9%, 6.9%, and 96.6% in SG, OG and CG respectively. Comparison of SG and OG with CG showed that, at visit 2, 46 women reported UI, whereas 41 did not; mean perioneometric values (MPV) were 6.81 and 9.83 cmH_2O, respectively, and odds ratio (OR) was 1.319 (95%CI=0.540-3.222). At visit 3, 48 women were incontinent and 39 were continent with MPV 7.40 and 10.43, respectively, and OR 1.001 (95%CI=0.408-2.450). At visit 4, 43 were incontinent and 44 were continent with MPV 7.60 and 10.58, respectively, and OR 0.372 (CI95%=0.147-0.939). At visit 5, 29 were incontinent and 58 continent with MPV 6.02 and 10.36, respectively, and OR 0.031 (CI95%=0.008-0.103). Finally, at visit 6, 32 were incontinent and 55 were continent with MPV 5.24 and 9.39, respectively, and OR 0.002 (CI 95%=0.001-0.025).

Interpretation of results

There was a direct correlation between IU presence and perioneometric PFMF values. As gestation advanced and perineometric values became higher as a result of exercising, the differences in muscle function between continent and incontinent groups increased, as well as the protective effect of PFMF against UI, with statistically significant OR values being observed at visits 5 and 6.

Concluding message

This study demonstrated that perineal exercises increased pelvic floor muscle function and strength decreasing UI occurrence. Perioneometric assessment showed that the higher PFMF values, the lower UI incidence, indicating a direct relationship between UI and PFMF.

Given the high prevalence of female urinary incontinence, this highly effective and low-cost conservative approach should be used, during pregnancy or after delivery, as a prevention and health promotion strategy.

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Is this a Randomised Controlled Trial (RCT)?	**Yes**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
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Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**