PROFit Primi: The role of proprioceptive, fear-related and inflammatory factors in the persistence of pregnancy-related lumbopelvic pain in primiparous women: study protocol

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Abstract:

Pregnancy-related lumbopelvic pain (PLPP) affects 50-90% of pregnant women and often persists into the postpartum period. It limits the ability to return to work, sports, and daily activities, significantly impacting quality of life and making PLPP a leading cause of sick leave during and after pregnancy. Despite its high prevalence, only a few women with PLPP receive treatment. Healthcare providers often dismiss it as a normal part of pregnancy, which leads women to believe that persistent PLPP is expected. Additionally, existing preventive and therapeutic approaches remain inadequate due to a limited understanding of its multifactorial etiology.

This prospective cohort study aims to address this knowledge gap by identifying proprioceptive, fear-related, and inflammatory predictors for PLPP onset during pregnancy and its persistence postpartum. Specifically, three main objectives will be addressed: (1) to investigate changes in these factors over time and their differences between women with and without PLPP, (2) to examine correlations among these factors in women with PLPP, and (3) to determine their predictive value for developing PLPP during pregnancy and its persistence postpartum.

To achieve this, 211 primiparous women without PLPP at the time of inclusion will be recruited and assessed during the 1st and 3rd pregnancy trimesters, and at six weeks and nine months postpartum. Data collection includes sociodemographic variables, lifestyle determinants, and a clinical evaluation of PLPP. Proprioceptive factors include body perception and use of proprioception during postural control, which will be assessed through average response time and accuracy in a left-right judgment task and compensatory center-of-pressure shifts recorded with a force plate during ankle and back muscle vibration, respectively. Fear-related factors will be evaluated by using questionnaires such as the Pain Catastrophizing Scale and the Depression Anxiety Stress Scale-21. Moreover, task-related fear of movement will be determined by asking participants to rate pain intensity, perceived harmfulness, fear, and self-efficacy for three tasks they fear to perform due to their low back or pelvic girdle pain. Finally, inflammatory markers, including serum cytokines and C-reactive protein, will be analysed.

Multivariate models will be used to identify predictors of PLPP, while canonical correlation and logistic regression will explore interactions between proprioceptive, psychological, and inflammatory variables. This study aims to establish a predictive framework for PLPP, paving the way for future targeted interventions to improve maternal health outcomes.

The study has been approved by the Ethics Committee Research UZ/KU Leuven (EC Research, S69463).