Midwifery 54 (2017) 25–28

Contents lists available at ScienceDirect

Midwifery

journal homepage: www.elsevier.com/locate/midw

Association between severities of striae gravidarum and Obstetric Anal Sphincter Injuries (OASIS)

Ofra Halperin, RN, CM, PhD Senior Lecturer[a,*], Anita Noble, DNSc, CNM, CTN-A, IBCLC, PhD Transcultural Scholar and Lecturer[b], Shosh Balachsan, RN, CM, MA Head Nurse[c], Ester Klug, RN, CM, MA Midwife[d], Michal Liebergall-Wischnitzer, RN, CM, PhD Senior Lecturer[b]

[a] *Nursing Department, Max Stern Academic College of Emek Yezreel, 19300 Israel*
[b] *Henrietta Szold/Hadassah-Hebrew University School of Nursing, Faculty of Medicine, Jerusalem, Israel*
[c] *Bnai-Zion Medical Center Delivery Room, Haifa, Israel*
[d] *Assaf Harofeh Medical Center Delivery Room, Zerifin, Israel*

ARTICLE INFO

Keywords:
Striae Gravidarum (SG)
Obstetric anal sphincter injuries (OASIS)
Quality of life

ABSTRACT

Objectives: to examine the association between the severities of Striae Gravidarum (SG) and Obstetric Anal Sphincter Injuries (OASIS) and to measure the symptoms regarding urinary incontinence, fecal/flatus incontinence, and dyspareunia, at 6 and 12 months postpartum.
Design: this is a cohort study.
Setting: four university teaching medical centers in Israel, two in the north and two in the center of the country.
Participants: women with OASIS were interviewed and assessed for SG. OASIS was divided into 4 groups: 3A, 3B, 3C and 4. Inclusion criteria were:OASIS diagnosis, non-instrumental vaginal childbirth, birth between 37 and 42 gestational weeks, singleton newborn, neonatal birth weight of Severity scoring of SG severity scoring, using Atwal's Numerical Scoring System,observed 4 body sites; Abdomen, Breasts, Hips, and Buttocks., Total severity score (TSS) for all sites range between 0 and 24 and categorized: 0–3: no SG (NSG) and 4 and over: SG.

The Pelvic Floor Symptom Bother Questionnaire (PFBQ),a validated, structured questionnaire, was used for the 6 and 12 month follow-up assessments, with nine items regarding pelvic floor dysfunction (urinary and bowel impairment uterine prolapse and sexual function).
Measurements and findings: eighty women who had OASIS were enlisted, interviewed and assessed for SG. The average score for women with some SG was 6.10 (SD = 4.12). There were 58 (72.5%) women with OASIS level 3A; 12 (15%) had 3B; 4 (5.0%) had 3C and 6 (7.5%) had 4th degree anal injuries, respectively. Forty two (52.5%) of the women had SG and 38 (47.5%) had no SG. There was no association between SG severity and OASIS (3A, 3B, 3C+4th) χ^2 (6) = 8.4014; p = 0.2. As there were only 10 women with OASIS of 3C and 4, we re-analyzed the association between SG severity and OASIS severity of 3A and 3B. There was a significant association between SG severity and OASIS severity (3A, 3B) χ^2 (3) = 9.306; p = 0.025.
Additional findings: women with SG were younger (mean = 26.74, SD = 3.57) than women without SG (mean = 29.29, SD = 4.40) (t(78) = 2.86, p = .005). Three symptoms had a significant reduction in the bother degree between 6 and 12 months: urinary incontinence (p = 0.017), flatus incontinence (p = 0.031) and sexuality (p = 0.016).
Key conclusions: the innovation of this research is the association between SG severity and OASIS severity (3A, 3B), added information regarding OASIS risk factors.

Introduction

Obstetric anal sphincter injuries (OASIS) include third and fourth degree tears, which are serious sequelae of vaginal births (Sultan and Thakar, 2009). The prevalence of OASIS varies between 0.25% and 0.34% of primiparous and multiparous women in Israel (Groutz et al., 2011; Mizrachi et al., 2017), to 5.9% of women in the U.K. (Gurol-Urganci et al., 2013). OASIS has many risk factors such as: primiparity;

* Corresponding author.
E-mail address: ofrah@yvc.ac.il (O. Halperin).

http://dx.doi.org/10.1016/j.midw.2017.07.019
Received 5 April 2017; Received in revised form 5 July 2017; Accepted 31 July 2017

instrumental birth (forceps and vacuum); precipitous labor; fetal weight ≥ 4 kg; shoulder dystocia; prolonged second stage of labor > 4 hours; occipito- posterior position; gestational age > 40 weeks; episiotomy; Asian or Indian ethnicity; and kneeling or lithotomic birthing (Andrews et al., 2006; Groutz et al., 2011; Dahlen et al., 2007;Haslinger, et al., 2015; Hauck et al., 2015; Melamed et al., 2013; RCOG, 2015).

OASIS is diagnosed in the delivery room and has short- and long-term implications. Women who had OASIS report symptoms such as: fecal and flatus incontinence, fecal urgency, and urinary incontinence (Bagade and Mackenzie, 2010; Scheer et al., 2008). Social isolation and psychological effects such as impaired self-esteem and sexuality have also been reported (Priddis et al., 2013).These symptoms negatively affect quality-of-life (Evers et al., 2014; Scheer et al., 2008). A prevalence of 20–40% of symptoms post-OASIS was noted at 12 months postpartum (RCOG, 2015). Nineteen percent of women with past anal sphincter laceration reported anal incontinence 5–10 years after the injury (Evers et al., 2012).

Striae distensae or "stretch marks," referred to as striae gravidarum (SG) when they occur in pregnancy, are a common skin problem and pose considerable cosmetic concern for many patients. SG occurs on the abdomen, breasts, buttocks, hips, and thighs and may develop after the 24th week of gestation (Chang et al., 2004). The causes of SG are multifactorial and attributed to hormonal factors (i.e. effect of adrenocortical steroids, estrogen, and relaxin on the skin's elastic fibers) as well as physical factors (i.e. actual stretching of the skin) (Osman et al., 2007). The incidence of SG ranges between 43% and 88% (Oakaly and Bhimji 2017). In a sample of 800 primpara women, with a mean age of 26.3 ± 4.8, SG incidence was 56% (Picard et al., 2015). SG occurs in up to 90% of pregnant women by the third trimester (Tunzi and Gray, 2007). They are more common in younger women, those with larger babies, and higher body mass indices. Treatment is nonspecific and a limited evidence base exists (Oakaly and Bhimji, 2017). In a previous study that we conducted, SG, especially on the hips and chest, predicted first and second degree perineal tears. In a previous study, a significant association between SG severity (i.e. SG total score) and the degree of tear was found (F = 5 2.94, p = 0.05) (Halperin et al., 2010). Based on these results, the aim of this study was to examine if there is an association between the SG severity and OASIS severity and to measure the symptoms associated with urinary and bowel impairment, uterine prolapse and sexual function at 6 and 12 months postpartum.

Methods

Design

This is a cohort study, that took place over a period of three years (from May, 2011 to July, 2014).

Setting

The majority of women in Israel give birth in hospitals. Midwives attend and manage all normal vaginal births, regardless of the number of birth, and may use techniques such as the use of oil and/or perineal massage. When the midwife deems a need to perform an episiotomy, only a medio-lateral episiotomy is performed. In 2010, the rate of performing episiotomies ranges between 3.6% and 21% (Sholovitz and Bar, 2012).

Women with OASIS were interviewed and assessed for SG in the postpartum units, and had a telephone interview after 6 and 12 months.The study was conducted at four university teaching medical centers in Israel, two in the north and two in the center of the country, each with 4000–8000 births per year. The Internal Review Board at each medical center involved in the research approved this multi-center study.

Data collection

Women diagnosed with OASIS post-birth were approached on the postpartum unit by the research midwife for recruitment into the study. The purpose of the study was explained and women were told that they would be interviewed and examined for SG. Demographic, medical, and obstetric data were collected from the medical files by a single research midwife at each center. Women were included in the study according to the following inclusion criteria: birth between 37 and 42 gestational weeks, OASIS diagnosis, non-instrumental vaginal birth, singleton newborn, neonatal birth weight of < 4500 kg and vertex presentation.

Variables

Perineal and anal injuries**:** categorized according to the degree of laceration: first-degree tear as a laceration of the perineal skin; second degree tear referred to an injury of the perineum with the perineal muscles involved and; third degree tear as an injury of the perineum that included the anal sphincter. Third degree tears were further divided into three types: 3A for an injury of less than 50% of the external sphincter thickness (EAS), 3B for more than 50% of the EAS thickness, and 3C included EAS and internal anal sphincter (IAS) thickness. A fourth degree tear included injury to the perineum, EAS, IAS and the anal epithelium (Halperin et al., 2010; Roos et al., 2010; Sultan and Thakar, 2009).

OASIS: 3rd (3A, 3B, 3C) and 4th degree anal injuries (Roos et al., 2010). For the purpose of the analysis, the severity was divided into three groups: women with OASIS 3A, women with OASIS 3B and women with OASIS 3C to 4.

Striae gravidarum**:** defined according to the Numerical Scoring System by Atwal et al. (2006). This scale provides a rank based on observation of four areas in which SG is most commonly observed (abdomen, breast, hips, and buttocks);striae were described according to the amount and color (Atwal et al., 2006). The scale comprises the following criteria (a) the number of SG at each body site *(0 = no striae, 1 = 1–4 striae, 2 = 5–10 striae, 3=more than 10 striae),* (b) the color of the SG range from *pale to purple (0 = no redness, 1 = pink, 2 = dark red, 3 = purple).* The final score for each body site, refers to both number and color of SG, ranges from 0 to 6, thus, the total striae score (TSS) for all four body sites can range between 0 and 24 and was categorized: 0–3: no striae gravidarum (NSG), 4 and over: striae gravidarum (SG). For the present study, inter-rater reliability was achieved via a structured education program designed for detailing SG assessment, using a Power Point presentation, for all midwives who intended to be involved in the study. Consensus was achieved among the research midwives. Only SG that appeared during the present pregnancy were addressed in the analysis. Prior SG were documented.

Pelvic Floor Symptom Bother Questionnaire (PFBQ): A validated, structured questionnaire, was used for the follow-up assessment. It contained nine items regarding pelvic floor dysfunction: urinary impairment (stress urinary incontinence [SUI]; urinary frequency; urinary urgency; urinary urge incontinence [UUI] and incontinence); uterine prolapse and sexual function (dyspareunia). The questionnaire contains dichotomous questions ("yes" or "no") for each subject. If a woman responded that a particular subject did not physically bother the woman, the score given for that particular question was zero; therefore, the range of scores is 0–9. The PFBQ responses are recorded on a Likert scale ranging from 1 to 5 (1 = not at all through 5 = a lot) A higher mean score, therefore, indicated a higher bother level (Peterson et al., 2010). The Hebrew version of the PFBQ was used in previous study and aimed to describe symptoms of primiparae women 10–14 months postpartum (Lipschuetz et al., 2015) with Cronbach's alpha of the Hebrew and Arabic version were 0.571 and 0.670 respectively; The Cronbach's alpha of the current study was 0.712 after 12 months for both Hebrew and Arabic questionnaires (0.723, and 0.553, for Hebrew and Arabic, respectively). Medical files: The demographic, medical, and obstetric data were collected from the patients' medical files.