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ScienceDirect

Journal of the Chinese Medical Association 79 (2016) 235–236

www.jcma-online.com

Editorial

Younger pregnant women have a higher risk of striae gravidarum, the study said



Striae gravidarum (stretch marks) is a common connective tissue disorder of pregnant women that often initiates as erythematous streaks or violaceous lesions. Over time, these marks become pale, atrophic, and lax, and skin elasticity is ultimately reduced.¹ The histology of striae gravidarum shows a reorganization and diminution of the elastic fiber network of skin, atrophy, a decrease in the thickness of the dermis, and loss of rete ridges.² Although striae gravidarum apparently does not affect body function, it is considered to be a disfiguring lesion due to the permanent scar-like alteration in skin appearance that can result in itching and discomfort. Furthermore, it can place a significant psychological burden on affected women.^{3,4}

Little is known about its epidemiology. The estimated prevalence of striae gravidarum ranges from 50% to 90% in pregnant women, making this the most common cutaneous complication of pregnancy and one of the most prevalent skin complaints in affected individuals.⁵ Elastic fibers are complex, multicomponent structures that imbue tissues with the ability to resist forces in a controlled and measured way, ultimately returning the tissue to its original anatomical position.⁵ A recent publication in England showed a marked disruption of the elastic fiber network and the emergence of newly synthesized thin and disorganized tropoelastic-rich fibrils. This contributed to an abnormal function of the elastic fibers in the early stage of striae gravidarum, suggesting a significant remodeling of the cutaneous elastic fiber system as a result of the increased low-intensity load placed on the skin during pregnancy.¹ However, the key biological driver underlying this remodeling is still unknown, contributing to the difficulty in identifying the real causative mechanisms of striae gravidarum, which subsequently result in an unfavorable outcome in any attempt to prevent the development of striae gravidarum; this includes the study by Ersoy et al⁶ in this issue of the *Journal of Chinese Medical Association*.

The study by Ersoy et al⁶ investigated 211 pregnant women attending Zekai Tahir Burak Women's Health Care Training and Research Hospital, Altindag, Ankara, Turkey between August 2013 and October 2013. The results in this study showed that $\geq 80\%$ of pregnant women with striae gravidarum had the following identified situations, including a family history of

striae gravidarum: delivery of a male baby and a low education level (primary school education or less).⁶ In addition, factors such as younger age, a high prepregnancy body mass index, a high postpregnancy body mass index, a large abdominal circumference, a considerably large ratio of abdominal circumference to length, and a high birth weight were associated with an elevated risk of developing striae gravidarum.⁶ However, any treatment strategy that included oil, cream, and any combination of both showed little effect on the prevention of striae gravidarum, due to the absence of any statistically significant difference between women who received and those who did not receive such treatment.⁶ Therefore, the findings in Ersoy et al's⁶ report were not surprising, since a recent *Cochrane Database of Systematic Review* summarized the clinical data comparing topical preparation (with active ingredients) with a placebo. Those results showed no significant average difference in the development of striae gravidarum in women who were treated compared with those who were not treated [average risk ratio 0.74, 95% confidence interval (CI) 0.53–1.03; 5 trials enrolling a total of 474 women].⁴ The authors concluded that there was little evidence to support the use of any topical preparation in the prevention of striae gravidarum during pregnancy.⁴ Since prevention of striae gravidarum does not work, how can we undertake therapies or treatments that fail to recognize this? Therefore, identification of the potential risk factors that may contribute to striae gravidarum may be an alternative way to approach this problem.

By multivariate analysis, Ersoy et al⁶ found that only age may be the most important factor for development of striae gravidarum. Additionally, women who were considerably younger might have a significantly elevated risk of developing striae gravidarum (risk ratio 1.15, 95% CI 1.06–1.25, $p = 0.001$),⁶ suggesting that age might be one of the important modifiable factors that can result in striae gravidarum. However, the authors' finding begs the question: what is the cutoff age for women who are young enough to influence the development of striae gravidarum? Unfortunately, the authors failed to answer this question. The answer could, in fact, be that younger women have considerably higher fragility in their fibrillin, as explained by the authors.⁶ Finally, is this finding consistent with previous studies?

<http://dx.doi.org/10.1016/j.jcma.2016.01.003>

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To respond to the last question, we used the term “striae gravidarum” to search PubMed (<http://www.ncbi.nlm.nih.gov/pubmed>), and a total of 57 published articles were identified. It was interesting to discover that nearly all those articles addressing risk factors for the development of striae gravidarum were related to younger age, except for one study by Dr Davey⁷ in 1972. That is to say that it is credible that younger patient age is a risk factor for striae gravidarum, which would provide a reasonable response to the first question. One similar study from France by Picard et al,³ which enrolled 800 consecutive primigravida, might be a good reference to investigate the younger age cutoff value as referenced above. For pregnant women younger than 20 years (51 women in the study group), more than 80% were complicated with striae gravidarum [43 (84.3%) vs. 8 (15/7%)].³ By contrast, the percentage was 78.8% in women with striae gravidarum who were 20–24 years of age, 51.8% in women 25–29 years of age, and 24.1% in women ≥ 30 years of age. This contributed to an odds ratio of 24.61 (95% CI 9.96–60.77) for women younger than 20 years, 12.85 (95% CI 7.85–21.04) in women aged between 20 and 24 years, and 3.43 (95% CI 2.21–5.34) in women aged between 25 and 29 years, compared for women aged ≥ 30 years.³ Therefore, the concept that pregnancy in adolescents is associated with the risk of developing striae gravidarum is worthy of our attention. In fact, pregnant adolescents might not only increase the risk of these permanent body image changes (occurrence of striae gravidarum), but also have the highest risk of increased perinatal morbidity and mortality.^{8,9} Based on the above findings, this reinforces the idea that global health is associated with the sexual activity of adolescents, underscoring the often-neglected need for appropriate contraception education and improved steps to prepare these high-risk women who attempt to get pregnant.^{10–12} Considerably more efforts should be undertaken to minimize the possibility of unwanted and/or unplanned pregnancy in adolescents.

Conflicts of interest

The authors declare that they have no conflicts of interest related to the subject matter or materials discussed in this article.

Acknowledgments

This work was supported in part by a grant from the Ministry of Science and Technology, Executive Yuan (MOST 103-2314-B-010-043-MY3), and by Taipei Veterans General Hospital (V102C-141; V103C-112; V104C-095; and V105C-096). We appreciate the Clinical Research Core Laboratory and the Medical Science & Technology Building of Taipei Veterans General Hospital for providing experimental space and facilities.

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