Research Letters

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Rosacea changes during pregnancy: a single-center retrospective survey study

Keywords: hormone, pregnancy, rosacea, skin

Dear Editors,

Rosacea is an inflammatory skin disorder with clinical manifestations that include centrofacial erythema, inflammatory papules and pustules, and recurrent flushing.[1] The onset of rosacea is common in women during childbearing years and may be influenced by hormones,[2,3] but little data beyond case reports are available about the course of rosacea during pregnancy. Rosacea pathogenesis includes innate and adaptive immune dysfunction and neurovascular dysfunction.[1] Each of these systems also undergoes physiologic changes during pregnancy. For example, decreased Th1/Th17 immunity, with increased Th2 immunity during the third trimester of pregnancy,[4] could suggest an environment that favors an improvement in rosacea. Conversely, decreased peripheral vascular resistance and hormone elevations during pregnancy may lead to exacerbation of rosacea.[3] We conducted a descriptive retrospective survey study examining rosacea severity during and after pregnancy.

Eligible participants were women ≥18 years with a diagnosis of rosacea (ICD10 L71) recorded in the electronic medical record prior to the onset of pregnancy, admitted to Oregon Health & Science University for labor and delivery from June 27, 2015 to June 27, 2020, who were able to be reached by telephone (n = 48). The study was approved by the Oregon Health & Science University institutional review board (#16647). Thirty nine of forty eight eligible women assented to participate (81.3% survey response rate). Patient global assessment (clear [0], mild [1], moderate [2], or severe [3]) was rated across 5 timepoints: 1–3 months preconception, first, second, and third trimesters, and 6 weeks postpartum. The mean (SD) age of the participants at delivery was 35.5 (4.3) years, and the mean (SD) gestational age at the date of delivery was 39.4 (2.1) weeks. Thirty eight of thirty nine (97.4%) were singleton pregnancies and 7/39 (17.9%) had undergone fertility treatments to achieve pregnancy, which likely reflects the average age of rosacea onset.[2] Thirty eight of thirty nine (97.4%) reported symptoms of erythematotelangiectatic rosacea and 26/39 (67%) reported symptoms of papulopustular rosacea.

Nearly half (19/39, 48.7%) of the participants said their rosacea worsened during pregnancy; 13/39 (33.3%) reported no change in rosacea severity during pregnancy; and 7/39 (17.9%) reported their rosacea improved during pregnancy (Fig. 1A). The mean rosacea severity score was mild prior to conception, 1.10 (95% CI [0.92–1.29]), with no significant difference over time calculated by a generalized estimating equation method when averaging all participants together (all $P > 0.05$), reflecting the individual variation (Fig. 1B). Most participants did not use prescription rosacea treatments prior to (40/48, 83.3%) or during pregnancy (43/48, 89.6%). Limitations of the study include the small sample size, single institution study, overall prevalence of mild disease limiting the ability to detect change, and recall bias.

Despite these limitations, this study expands the current knowledge base by providing observational data on changes in rosacea during pregnancy and suggests that, like acne,[5] rosacea lacks a predictable group effect. While the mean change in severity during pregnancy was not significant across a population, most women reported changes in rosacea severity during pregnancy. More individuals reported worsening (one-half of the study group), but some reported improvement (one-sixth of the study group) and only about one-third of individuals reported no change in rosacea severity during pregnancy.

Conflicts of interest

None.

Funding

None.

What is known about this subject in regard to women and their families?

- Rosacea commonly affects women in their childbearing years, but it is not known how the physiologic changes of pregnancy affect rosacea severity.

What is new from this article as messages for women and their families?

- A survey of women with a diagnosis of rosacea prior to pregnancy found that about half of women reported their rosacea worsened during pregnancy.
- Approximately one-third of women reported no change in rosacea severity during pregnancy, and the remaining respondents reported improvement.
- Thus we conclude that rosacea, like acne, lacks a predictable group effect and instead each individual may have a different response to the physiologic changes of pregnancy.

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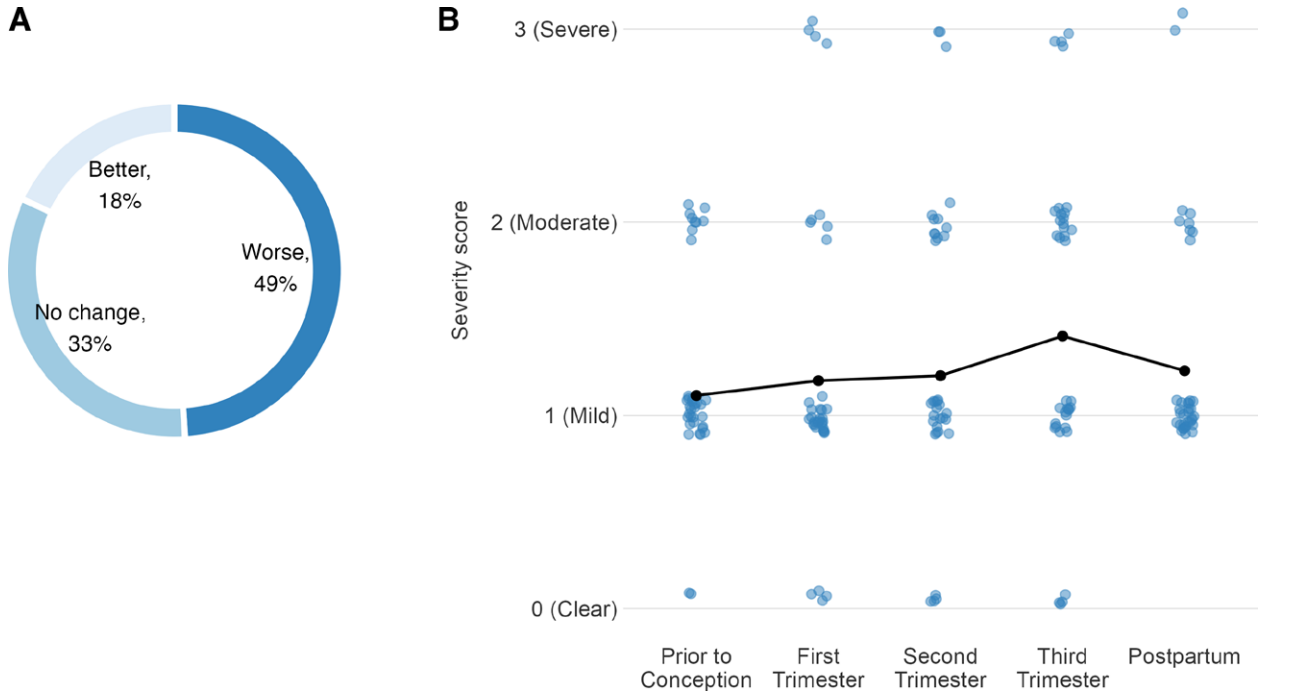

Fig. 1. Changes in rosacea during pregnancy. (A) Patient overall assessment of rosacea severity from prior to conception to pregnancy. (B) Patient global assessment of rosacea over time. Each dot represents 1 participant. Black line shows change between trimesters calculated by a generalized estimating equation method (all $P > 0.05$).

Study approval

The study was approved by the Oregon Health & Science University institutional review board (#16647).

Author contributions

GB: Participated in research design, performance of the research, data analysis, and writing of the manuscript. CS: Participated in data analysis, writing of the manuscript, and approval of the final manuscript. RV: Participated in performance of the research and approval of the final manuscript. EL: Participated in data analysis and approval of the final manuscript. SC: Participated in data analysis and approval of the final manuscript. KS: Participated in research design and approval of the final manuscript. TMG: Participated in research design, data analysis, writing of the manuscript, and approval of the final manuscript.

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