

The effect of the menstrual cycle on acne

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Acne is a common disease with an underlying hormonal basis; however, there has never been a study to determine the ways in which the different stages of the menstrual cycle affect acne in women. Four hundred female participants, aged 12 to 52 years, were questioned whether their acne got worse before, during, or after their menstrual period and also asked whether it was unrelated to the menstrual period. Their age, severity of acne, ethnicity, and oral contraceptive use were also recorded. Overall 177 of 400 (44%) of those interviewed experienced premenstrual flares of their acne. Severity of acne, ethnicity, and oral contraceptive use did not affect the premenstrual flare rate. Women older than 33 years had a higher rate of premenstrual flares relative to women aged 20 to 33 years ($P = .03$ by χ^2 analysis). We concluded that almost half of all women experience premenstrual flares of their acne. Premenstrual flares may be more common in older women. (J Am Acad Dermatol 2001;45:957-60.)

There is a pervasive medical and lay opinion that most women experience premenstrual flares in their acne. However, there do not appear to be any studies to support this assumption. Williams and Cunliffe¹ state that "...acne gets worse pre-menstrually in 60-70% of females with this disease" but do not offer a source for this statistic. Shaw² recently reported a 27% rate of premenstrual acne flares in a small sample of 85 women. The purpose of this study was to explore the relationship of the menstrual cycle to acne.

Questionnaires were filled out by physicians interviewing female patients being evaluated for acne. Three different medical centers were selected to participate in the study.

Patients were asked whether their acne got worse before, during, or after their menstrual period as well as whether their acne appeared to be unrelated to the menstrual period. The following data were recorded: age (grouped as >33, 20-33, <20 years),

severity of acne (severe, moderate, mild), ethnicity (black, Latino, Asian, Caucasian), and whether or not they were taking oral contraceptives.

The results were obtained from 400 participants in the study and are graphically presented in Figs 1-4. Fig 5 displays the overall findings of our study.

This study demonstrates an overall premenstrual flare rate of 44%. Severity of acne, ethnicity, and oral contraceptive use did not influence the premenstrual flare rate. Women older than 33 years had a higher rate of premenstrual flares relative to women aged 20 to 33 years ($P = .03$ by χ^2 analysis).

COMMENT

Although it is well known that hormones affect acne, their exact mechanism of action remains unknown. There are numerous reports demonstrating normal androgen levels in women with acne³⁻⁵ with just as many reports demonstrating increased androgen production in women with acne.⁶⁻⁸ Two separate studies on women with acne revealed ovulation disturbances in 58%⁹ and 57%¹⁰ of those surveyed. Both studies attributed these disturbances to elevated testosterone levels.

Investigators have tried to explore the physiology of the skin as it relates to the menstrual cycle. Burton, Cartlidge, and Shuster¹¹ found a premenstrual decrease in sebum excretion. They theorized that premenstrual skin edema could impede the free flow of sebum to the surface. This in turn would cause sebum build-up and subsequent acne. Williams and Cunliffe¹ showed that the pilosebaceous

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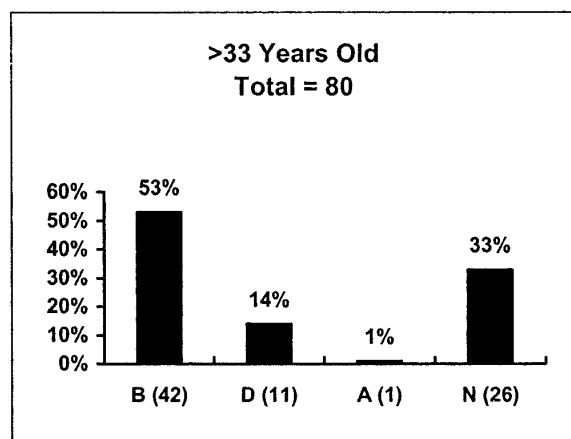
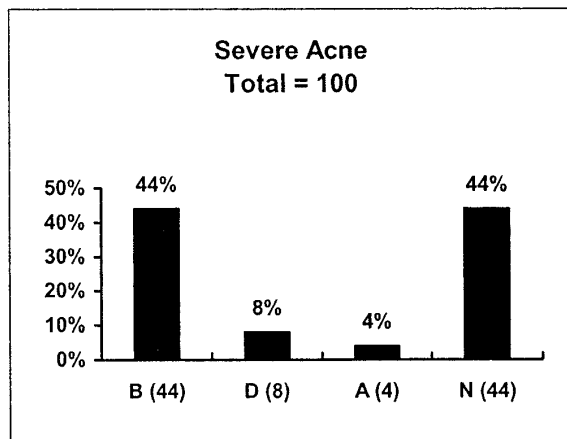
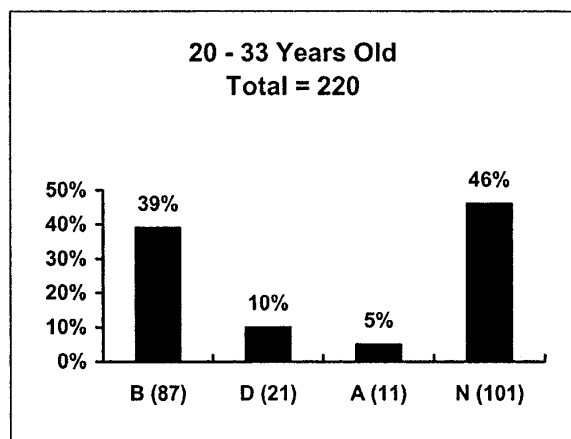
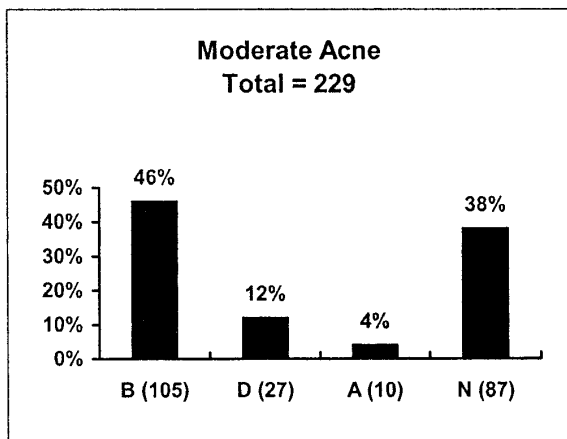
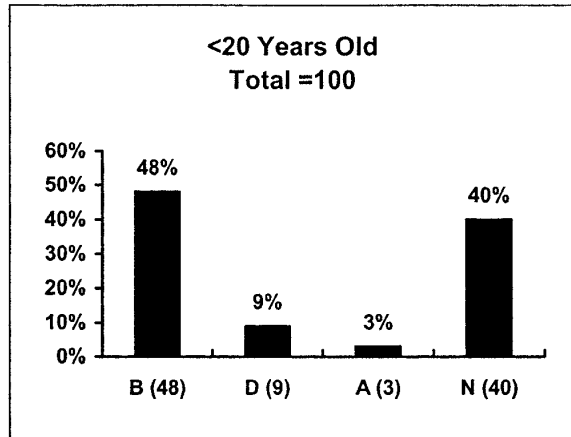
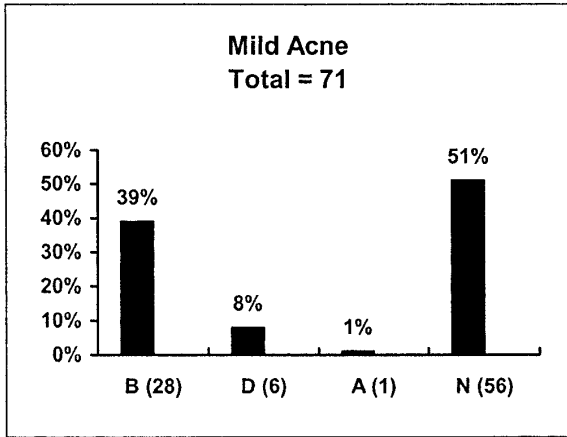


Fig 1. Severity of acne. *B*, Flares before menses; *D*, flares during menses; *A*, flares after menses; *N*, not affected.

Fig 2. Age. *B*, Flares before menses; *D*, flares during menses; *A*, flares after menses; *N*, not affected.

ceous duct opening was smallest in days 15 to 20 of a 28-day menstrual cycle, increased in days 21 to 26, and decreased again in the 2 days before menstruation. On average their patients experienced worsening of their acne on day 22.

The mechanism of premenstrual acne flares is still unknown, but it appears that slightly less than half of women experience premenstrual acne flares. Older women seem to experience a higher rate than younger women.

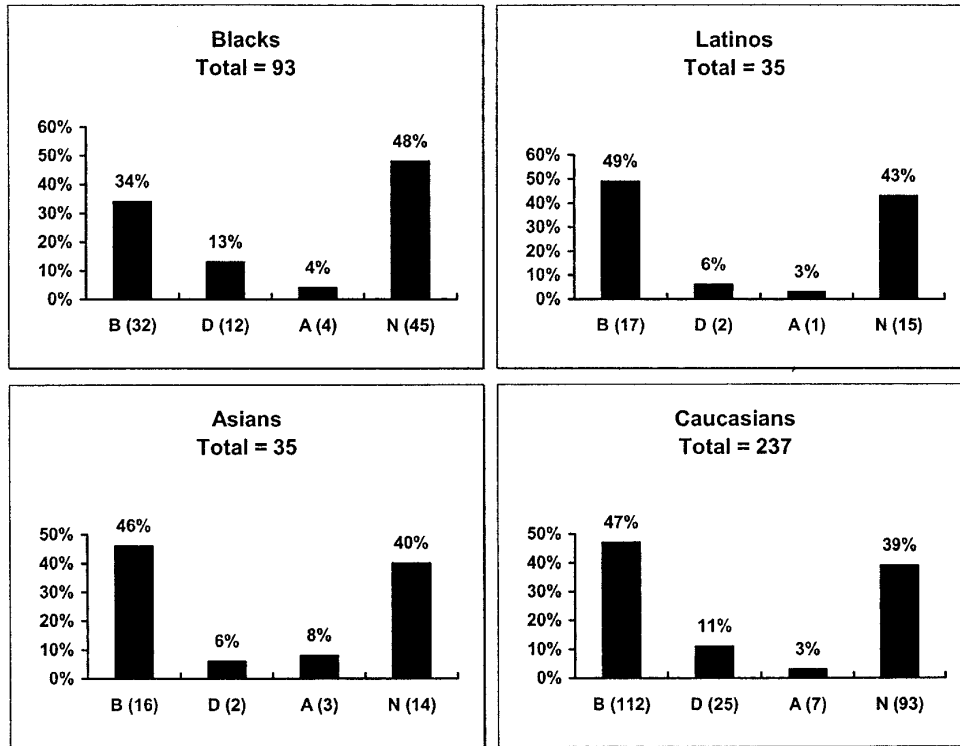


Fig 3. Ethnicity. *B*, Flares before menses; *D*, flares during menses; *A*, flares after menses; *N*, not affected.

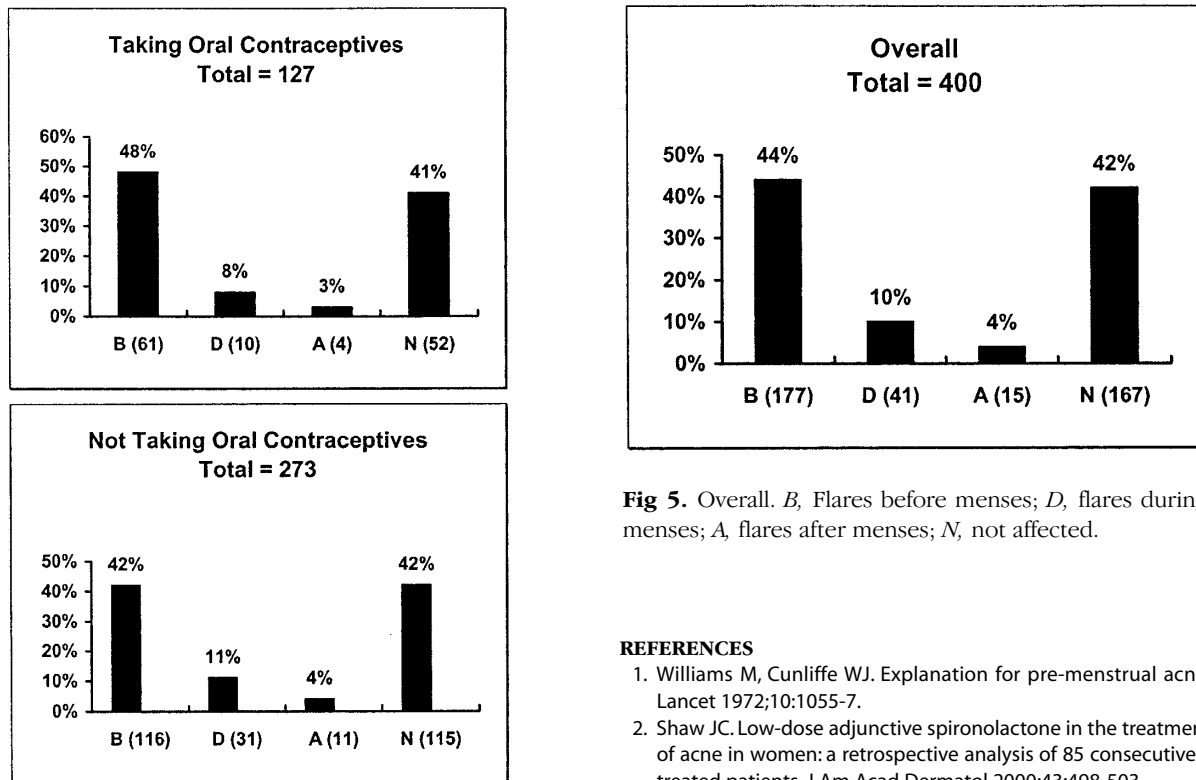


Fig 5. Overall. *B*, Flares before menses; *D*, flares during menses; *A*, flares after menses; *N*, not affected.

Fig 4. Oral contraceptive use. *B*, Flares before menses; *D*, flares during menses; *A*, flares after menses; *N*, not affected.

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CORRECTIONS

Thompson AK, Finn AF, Schoenwetter WF. Effect of 60 mg twice-daily fexofenadine HCl on quality of life, work and classroom productivity, and regular activity in patients with chronic idiopathic urticaria (J Am Acad Dermatol 2000;43:24-30 [July])

In Fig 1 (page 27), which describes overall DLQI scores (change from baseline at end of study), the arrow on the vertical axis (mean change from baseline, improvement) is incorrectly oriented downward. Improvement should be indicated by an upward arrow.

Rebora A, Drago F. *Helicobacter pylori* and rosacea [letter] (J Am Acad Dermatol 2000;43:884 [November])

In this letter to the Editor by Alfredo Rebora, MD, and Francesco Drago, MD, references 7 and 8 were incorrectly cited. Reference 7 should read: Utaş S, Özbakir Ö, Turasan A, Utaş C. Reply to Hirschmann [letter]. *J Am Acad Dermatol* 2000;43:538-9. Reference 8 should read: Rebora A, Drago F, Picciotto A. *Helicobacter pylori* in patients with rosacea. *Am J Gastroenterol* 1994;89:1603-4.