

Introduction

The population of post-adolescents with acne has increased significantly over the past 10 years. Almost all people between the ages of 12 and 17 have at least an occasional whitehead, blackhead or pimple, regardless of race or ethnicity. In most cases, acne is a condition common to adolescence, usually beginning between the ages of 10 and 13 and lasting for 5 to 10 years. Acne normally diminishes without intervention sometime in the early 20's. However, acne can persist into the late 20's or 30's or even beyond (AcneNet, May 2000). Previous studies examining the prevalence of this condition in post-adolescence demonstrated clinical facial acne present in women greater than 35 years of age. Goulden et al. (1999) indicated that 12% of adult women present facial acne, which did not substantially decrease until after the age of 44 years. By surveying 1066 healthy women and 1089 healthy men, Cunliffe et al. (1979) reported the incidence of acne in 3% of men and 5% of women between the ages of 40-49 years and 6% of women and 8% of men between the ages of 50-59 years. Goulden et al. (1997) reported the mean age at which post-adolescent acne is observed as 35.5 years and reported the occurrence of acne in women up to age 55. The purpose of this study was to investigate clinical characteristics of post-adolescent acne, with respect to the severity of the condition, the types of acne lesions and the distribution of facial acne lesions in different age groups. A retrospective assessment of facial lesion counts of subjects participating in clinical safety and efficacy studies evaluating the potential acneogenic and comedogenic properties of cosmetic and pharmaceutical products was performed. The data collected prior to commencement of test material use were analyzed for 240 females ranging in age from 18-55. The results indicated that the prevalence of acne did not substantially decrease until after the age of 35. The numbers of two specific classes of acne lesions, open comedones and pustules, were statistically the same in subjects of ages 18-25, 26-35, 36-45 and 46-55 years. In subjects in the 36-45 age group, acne lesions were observed with significantly higher frequency on the right side of the face compared to the left side. One particular region of the right side of the face of these middle aged (36-45 years) women, which includes the cheek, periorbital area and side of the nose, demonstrated significantly higher acne lesion counts than all other component areas of the face, excluding the right side of the forehead. These findings may have implications for the clinical management of acne and acne-related disorders.

Purpose

The objective of this study was to investigate the clinical characteristics and distribution of facial acne lesions in post-adolescent women by examining the severity, type and location of acne lesions in subjects classified by age into one of four groups, ages 18-25, 26-35, 36-45 and 46-55.

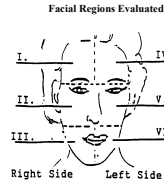
Methods

We performed a retrospective assessment of facial lesion counts of subjects participating in clinical safety and efficacy studies evaluating the potential acneogenic and comedogenic properties of cosmetic and pharmaceutical products. The data collected prior to commencement of test material use was assessed for 240 females ranging in age from 18-55.

Subjects were examined using a Circline Magnifier with a 22-watt circline fluorescent light source (Model 8MC-300/1050, Dazor Mfg. Corp., St. Louis, MO.). Six sections of the face were individually evaluated, and the numbers of each acne lesion type were enumerated for each distinct area. The number of each lesion type and total numbers of lesions were recorded for each subject. Subjects were classified by age into 1 of 4 groups, 18-25, 26-35, 36-45 and 46-55 years.

The number of total acne lesions, the number of each type of acne lesion, defined as papules, pustules, and open and closed comedones, and the location of facial lesions (Regions I-VI) were compared with respect to the defined age categories. This data was evaluated statistically using Student t-test, multiple comparison and correlation analyses.

Methods (Continued)



Results

Subject Demographics

Age (yrs)	No. of Subjects	%
18-25	27	11.25
26-35	57	23.75
36-45	117	48.75
46-55	39	16.25
Total	240	100

Table 1. Subject Demographics

Data was collected from a total of 240 female subjects ranging in age from 18 to 55. Subjects were classified by age into 1 of 4 groups. Twenty-seven subjects (11.25%) were 18-25 years, 57 subjects (23.75%) were 26-35 years, 117 subjects (48.75%) were 36-45, and 39 subjects (16.25%) were 46-55 years of age. All subjects signed an Informed Consent Form in conformance with 21 CFR Part 50: "Protection of Human Subjects" prior to examination.

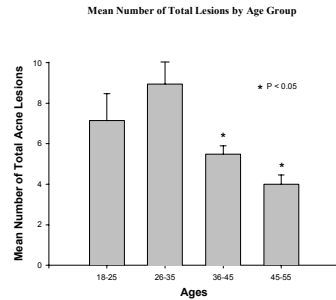


Figure 1. Mean Number of Total Lesions in Each Age Range

The mean number of total acne lesions, which includes open and closed comedones, papules and pustules, was 7.8 (±1.33) for ages 18-25 years, 8.95 (±1.09) for subjects 26-35 years, 5.48 (±0.41) for 36-45 year olds and 4.00 (±0.46) for the 46-55 year old group. The mean number of total lesions (7.14 and 8.95) in subjects aged 18-25 and subjects aged 26-35 years were each significantly greater than the mean number of total lesions for subjects in the 36-45 year group (p=0.03 and p=0.0004) and the 46-55 year group (p=0.003 and p=0.0005). Data shown are mean ± standard error of the mean.

Results (Continued)

Mean Number of Each Lesion Type by Age Group

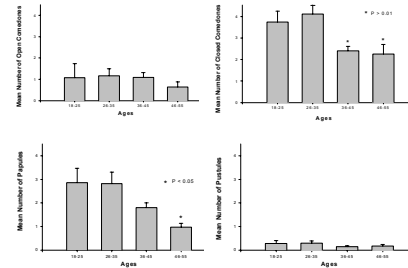


Figure 2. Mean Number of Each Lesion Type by Age Group

a.) The mean number of open comedones for each age group were 1.07 (±0.66), 1.60 (±0.34), 1.09 (±0.23) and 0.64 (±0.24) for 18-25, 26-35, 36-45 and 46-55 year olds, respectively. Differences in means between groups were not statistically significant. b.) The mean number of closed comedones for each age group were 3.75 (±0.51), 4.13 (±0.41), 2.41 (±0.21) and 2.26 (±0.45) for 18-25, 26-35, 36-45 and 46-55 year olds, respectively. The average number of closed comedones for subjects ranging in age from 36 to 45 and subjects ranging in age from 46 to 55 were significantly less than the average number of closed comedones for each the 18-25 year olds (p=0.007 and p=0.03) and the 26-35 year olds (p=0.00004 and p=0.003). c.) The mean number of papules for each age group were 2.86 (±0.61), 2.82 (±0.49), 1.80 (±0.20) and 0.97 (±0.17) for 18-25, 26-35, 36-45 and 46-55 year olds, respectively. The average number of papules for subjects ranging in age from 36 to 45 and subjects ranging in age from 46 to 55 were significantly less than the average number of papules for each the 18-25 year olds (p=0.04 and p=0.001) and the 26-35 year olds (p=0.02 and p=0.003). d.) The mean number of pustules for each age group are 0.29 (±0.11), 0.30 (±0.09), 0.15 (±0.04) and 0.18 (±0.06) for 18-25, 26-35, 36-45 and 46-55 year olds, respectively. Differences in means between groups were not statistically significant. Data shown are mean ± standard error of the mean.

Mean Number of Total Lesions on the Right and Left Sides of the Face for Each Age Group

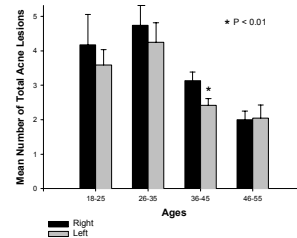


Figure 3. Mean Number of Total Lesions on the Right and Left Sides of the Face for Each Age Group

The mean number of total acne lesions on the right and left sides of the face was 4.17 (±0.90) and 3.58 (±0.44) for subjects in the 18-25 age group, 4.74 (±0.58) and 4.25 (±0.56) for subjects in the 26-35 age group, 3.13 (±0.25) and 2.42 (±0.19) for subjects in the 36-45 age group, and 2.00 (±0.25) and 2.05 (±0.38) for subjects in the 46-55 age group. The predominance of acne lesions on the right side of the face relative to the left side was statistically significant for the subjects ranging in age from 36 to 45 (p=0.0003). No other age group demonstrated statistically significant differences in the numbers of total acne lesions on the right and left sides of the face. Data shown are mean ± standard error of the mean.

Results (Continued)

Mean Number of Total Lesions in Component Areas of the Face of 36 to 45 Year Olds

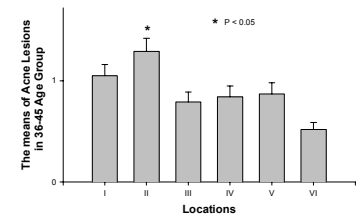


Figure 4. Mean Number of Total Lesions in Component Areas of the Face of 36 to 45 Year Olds

In each of the six component areas of the face for which acne lesions were enumerated (see Methods), the mean number of total acne lesions was 1.05 (±0.11) in region I, 1.29 (±0.13) in region II, 0.79 (±0.10) in region III, 0.84 (±0.11) in region IV, 0.87 (±0.11) in region V and 0.52 (±0.07) in region VI. Region II, which includes the right cheek and periorbital area and right side of the nose, exhibited the greatest number of acne lesions in the 36-45 year old group, which was statistically significant compared to the numbers of lesions in regions III, IV, V and VI (p<0.05). Data shown are mean ± standard error of the mean.

All Pairwise Multiple Comparison Procedures (Tukey Test) for the 36-45 Age Group

Comparison of Regions	Difference of Means	P < 0.05
II vs. VI	0.77	Yes
II vs. III	0.5	Yes
II vs. IV	0.45	Yes
II vs. V	0.42	Yes
II vs. I	0.24	No
I vs. VI	0.53	Yes
I vs. III	0.26	No
I vs. IV	0.21	No
I vs. V	0.18	No
V vs. VI	0.35	No
V vs. III	0.08	No
V vs. IV	0.03	No
IV vs. VI	0.32	No
IV vs. III	0.05	No
III vs. VI	0.27	No

Table 2. All Pairwise Multiple Comparison Procedures (Tukey Test) for the 36-45 Age Group

Total lesions in each of the six component areas of the face of subjects aged 36-45 were analyzed in pairwise comparisons. There were statistically significant differences between the total number of lesions in region II compared to each regions III, IV, V and VI, with region II exhibiting the greatest number of lesions (p<0.05).

Conclusion

The prevalence of acne did not substantially decrease until after the age of 35. The numbers of open comedones and pustules were equivalent in subjects of all the age groups evaluated. The right side of the face of subjects in the 36-45 age group exhibited greater numbers of acne lesions relative to the left side of the face, which was statistically significant (p<0.01). One particular region of the right side of the face of middle aged (36-45 years) women, which includes the cheek, periorbital area and side of the nose, demonstrated significantly higher acne lesion counts than all other component areas of the face (p<0.05), with the exception of the right side of the forehead. These findings may have implications for the clinical management of acne and acne-related disorders.