

## RESEARCH REPORT

# Perceptions of acne vulgaris in final year medical student written examination answers

Jack Green and Rodney D Sinclair

*Department of Medicine (Dermatology), The University of Melbourne, St Vincent's Hospital, Melbourne, Victoria, Australia*

### SUMMARY

Misconceptions exist in the community regarding factors that exacerbate acne vulgaris. In particular stress, diet, lifestyle and personal hygiene are often erroneously claimed to be important factors. In order to investigate whether these common misconceptions persist in medical graduates, we analysed the answers of 215 sixth year medical students, who all subsequently graduated from The University of Melbourne, to a short-answer question on acne management and exacerbating factors in one of their final year examination papers. With respect to exacerbating factors, 67% of students identified stress, 10% identified lifestyle factors (smoking and alcohol consumption), and 25% claimed poor facial hygiene exacerbated acne. Diet was stated to be an important factor by 41% of students, of whom 12% specifically mentioned chocolate. Persistence of these misconceptions among medical graduates is likely to perpetuate misinformation in the community.

**Key words:** aetiology, diet, medical education, personal hygiene, stress, treatment.

### INTRODUCTION

Acne vulgaris is a common chronic inflammatory disease of the pilosebaceous units, which affects the majority of individuals at some time in their lives, usually during adolescence. Although much research has been conducted into the aetiology of this disease and we certainly have a clearer understanding than in previous decades, much unsubstantiated myth still abounds with regards to both the treatment

and cause of this condition. Although there are very useful treatments available there are still many in the community who do not get the therapy they require at the appropriate time. Given the possibility of permanent scar formation as a result, an understanding of this disease by not only specialists but other medical practitioners, in particular the general practitioner, is required.

In this study, we reviewed the final year examination papers of medical students answering a question on their understanding of the factors leading to acne exacerbations as well as on the treatments available.

### METHOD

With the approval of the Chair of the Health Sciences Human Ethics Sub-Committee of the University of Melbourne, the Dean of the Faculty of Medicine and the Chairman of the Board of Examiners of the Faculty of Medicine, examination papers of 215 final year University of Melbourne medical students were reviewed by one of the authors (JG). The examination consisted of 36 five-minute short-answer essay questions. The question we reviewed was:

An 18-year-old female who works as a model comes to see you with moderately severe papulopustular acne. She has a marked premenstrual flare of her acne.

- What factors may have exacerbated her acne?
- Describe the treatment options available for her acne.

### RESULTS

Numbers of similar responses were counted and tabulated for comparison (Tables 1–4).

### DISCUSSION

Acne vulgaris is a common chronic inflammatory disease of the pilosebaceous units. Over 90% of schoolchildren suffer acne vulgaris, and over 20% are moderately or severely affected.<sup>1</sup> Twenty-five per cent of 30–39-year-olds continue to suffer acne and about one-third of adults with acne, according to the 'Dermatology Life Index', had felt embarrassed or self-conscious because of their skin in the preceding week.<sup>2</sup>

Correspondence: Dr Rodney D Sinclair, Department of Medicine (Dermatology), The University of Melbourne, St Vincent's Hospital, 41 Victoria Parade, Fitzroy, Vic. 3065, Australia.

Email: [sinclair@svhm.org.au](mailto:sinclair@svhm.org.au)

Jack Green, FRACGP, Rodney D Sinclair, FACD.

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**Table 1** Responses regarding factors likely to exacerbate acne

Suggestion	No. responses*	% of all students	% of all in category
<b>Drugs</b>			
Non-specific response <sup>†</sup>	41	19	
Phenytoin	4	2	
Corticosteroids, oral	34	16	
Corticosteroids, topical	2	1	
Oral contraceptive pill	63	29	
<b>Dietary</b>			
General <sup>‡</sup>	87	41	100
Chocolate	26	12	30
Oily/fatty food	23	11	26
High sugars	6	3	7
Spicy foods	2	1	2
Coffee/caffeine	8	4	9
Diet, refutation <sup>§</sup>	36	17	
<b>Hormonal</b>			
General <sup>‡</sup>	169	79	100
Menstrual cycle	111	52	65
Androgens	22	10	13
Endocrinopathies	38	18	22
Polycystic ovarian syndrome	28	13	74
Cushings disease or syndrome	11	5	29
<b>Lifestyle</b>			
Alcohol	17	8	
Smoking	9	2	
<b>Stress</b>			
All responses**	144	67	
Work	18	8	
Home/family	7	3	
Sleep deprivation	16	7	
Lack of exercise	2	1	
<b>Topical causes</b>			
Cosmetics/makeup	126	59	
Poor facial hygiene	53	25	
Frequent washing	5	2	
Picking/squeezing	20	9	
Infection	23	11	

\*From 215 examination papers. <sup>†</sup>Non-specific response, used terms such as 'drugs' or 'medications'. <sup>‡</sup>General, includes all responses where diet is mentioned non-specifically and/or specific foods are mentioned. <sup>§</sup>Diet refutation, responses that mentioned diet to either refute its connection with acne or to at least point out that the link was controversial. <sup>†</sup>General, includes all responses where terms such as 'hormones', 'hormonal' are used as well as where specific hormonal causes are mentioned. \*\*All responses, includes stress where mentioned non-specifically and also where a particular stressor is cited.

## Stress

Given the lack of support for a psychological aetiology to acne, it is interesting to note that two-thirds of students believed that stress played a role in acne exacerbation. This is consistent with patient's perceptions of stress as a cause of acne; a questionnaire survey of 178 patients and relatives reported that 74% believed that worry (anxiety) was an exacerbating factor.<sup>3</sup>

Acne is undoubtedly a cause of anxiety and stress in those who suffer from it;<sup>4-7</sup> however, strong evidence is lacking for a causal association of stress.<sup>8,9</sup> Major textbook chapters either ignore any such association<sup>10</sup> or acknowledge that although a theoretical connection might exist, there is little objective data to suggest the link.<sup>11</sup>

## Diet

It is cause for concern that despite the prevailing view of no association between acne and diet, almost half of the final year medical students believed diet to be an aetiological factor

**Table 2** Responses regarding topical care of acne

Suggestion	n (%)
<b>Facial care</b>	
Improved facial hygiene	78 (36)
Use cleanser/wash	37 (17)
Use antiseptic/medicated soap	10 (5)
Use of 'facials'	4 (2)
Less use of cosmetics or comedogenic cosmetic brands	62 (29)
<b>Topical acne treatments</b>	
Benzoyl peroxide	100 (47)
Topical retinoids	99 (46)
Salicylic acid	40 (19)
Keratolytics	9 (4)
<b>Topical antibiotics</b>	
General <sup>†</sup>	89 (41)
Clindamycin	27 (12.5)
Erythromycin	28 (13)
Tetracycline	22 (10)

\*From 215 examination papers. <sup>†</sup>General, includes non-specific responses as well as where specific antibiotics are mentioned.

**Table 3** Responses regarding oral treatment of acne

Response type	No. responses*	% of all students	% of all in category
<b>Hormonal</b>			
OCP <sup>†</sup>	140	65	
Ethinylloestradiol/cyproterone acetate	125	58	
Ethinylloestradiol/desogestrel	4	2	
Cyproterone acetate	41	19	
Aldosterone	12	6	
<b>Oral antibiotics</b>			
General <sup>‡</sup>	140	65	100
Tetracycline	75	35	56
Doxycycline	46	21	33
Minocycline	36	17	26
Erythromycin	29	13	21
<b>Oral isotretinoin</b>			
Dermatologist only prescription	175	81	100
	25	12	14
<b>Side-effects of isotretinoin</b>			
Teratogenic/require OCP	104	48	59
Check liver function tests	36	17	21
Dry eyes/mouth/lips	20	9	11
Dry skin	18	8	10
Lipid abnormalities	14	7	8
Photosensitivity	16	7	9
Can initially worsen acne	4	2	2
Depression	2	1	1
Myalgia	2	1	1

\*From 215 examination papers. <sup>†</sup>Oral contraceptive pill, includes where this is mentioned non-specifically and/or where specific examples are given. <sup>‡</sup>General, includes non-specific responses as well as where specific antibiotics are mentioned. OCP, Oral contraceptive pill.

in acne. As expected, chocolate topped the list of specific offending foods, with oily/fatty foods following a close second. These results are consistent with patient misconceptions regarding dietary causes of acne. In an itemized questionnaire survey of patients and relatives it was found that 32% believed that general dietary factors exacerbated acne, and 68% of those questioned incriminated chocolate as a factor.<sup>3</sup> Long-held community misconceptions regarding the association of acne with diet, coupled with the reinforcement of dermatological professionals in the past, have strongly implanted the idea among medical students who were unsuccessfully disabused during their training.

Although previous generations of dermatologists advocated an acne diet, suggesting that patients avoid certain fats, particularly pork fat, chocolate and nuts,<sup>12</sup> studies have not confirmed any association between acne and chocolate<sup>13</sup> or fatty foods.<sup>14</sup> Although a relationship may exist between acne and a Western diet,<sup>15,16</sup> this may be due to its effect on obesity, which consequently impacts on androgen metabolism and the age of puberty.

### Facial hygiene

Unfortunately, a significant number of medical students felt that facial hygiene was an important exacerbator of acne with many of these recommending patients improve their facial hygiene. Apart from the possibility that this may make acne worse, there is the worrying implication of this treatment suggestion; that acne is a consequence of being dirty and sufferers are unhygienic.

Dermatologists once routinely advised patients to regularly clean their facial skin with a mild soap or detergent product in addition to other therapeutic modalities offered. Even as late as the early 1970s, a chapter on cleanliness was included in an acne textbook.<sup>8</sup> However, there is no evidence that removal of surface sebum or bacteria assists treatment of acne<sup>11</sup> and there are no blinded or controlled studies to prove skin cleansing is of use in acne.<sup>17</sup> In fact, there is a suggestion that frequent washing can exacerbate acne.<sup>18</sup> The common community perceptions that blackheads are due to dirt and that regular washing leads to improvement are erroneous.<sup>3</sup>

### Treatment of acne

This section was handled better than that on exacerbations. Almost half of the students were aware of topical therapy, and almost two-thirds were aware that oral antibiotics may be used

**Table 4** Various other suggestions regarding management of acne

Various suggestions	n (%)
Offer counselling and support	18 (8)
Explain the latency of treatment response	31 (14)
Avoid squeezing	13 (6)
Avoid scratching or picking	9 (4)
Dermatology referral	7 (3)
Comedone extraction	16 (7)
Intralesional corticosteroids	12 (6)
Improved diet	31 (14)

\*From 215 examination papers.

in the management of acne. While 80% mentioned isotretinoin in their answer, prescription of this drug is restricted by State and territory law to dermatologists who have been issued a retinoid warrant number.<sup>19</sup> To access the Prescription Benefit Scheme of the Australian Government, prescription of this drug is restricted to the treatment of severe nodulo-cystic acne unresponsive to other therapy. However, the indications for its use in clinical practice at times differ from this (it could be argued that moderate acne in a patient who has a modelling career warrants its use). Of those who did mention isotretinoin, very few demonstrated they knew how to use it, and only 60% seemed aware of its teratogenicity.

Medical students at The University of Melbourne receive lectures and tutorials on various dermatological conditions, including acne. They attend six to eight outpatient clinics and receive a copy of *A Guide to the Treatment of Common Skin Diseases*<sup>20</sup> which deals specifically with the pathogenesis and management of acne. Students also have access to a number of texts and slide atlases. Nevertheless, in a recent survey sent to 60 Victorian dermatologists, of the 46 respondents, 41 stated that medical student dermatology education was inadequate, three felt unable to comment due to limited exposure to medical student teaching and only two respondents thought it was adequate (J Green and R Sinclair, unpubl. data, 2000).

While the medical profession plays a relatively minor role in the management of acne with most sufferers seeking advice from family and friends, alternative health providers and beauticians,<sup>21</sup> it is important that when medical advice is sought, it is accurate and helpful and does not perpetuate mythology.

It has been demonstrated that the extent to which medical students perform in examinations of dermatology is related to the amount of teaching they receive in this subject.<sup>22</sup> Our study adds further evidence to the inadequate teaching of dermatology in our medical schools. When something as common as acne is so poorly handled in final year examinations, it may be appropriate to lobby those who set the curriculum for medical students to increase the time allotted to teaching dermatology.

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