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Original Article

A five-year clinical acne patients profiles and its management based on Indonesian acne expert guideline in Bandung, Indonesia

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Abstract

Background Acne vulgaris (AV) is a chronic inflammatory pilosebaceous follicular disease, with significant psychosocial impact and challenging in its management. Data in Indonesian population is still lacking. This study also highlights AV management according to Indonesian Acne Expert Meeting (IAEM) guideline, which was introduced and implemented nationally since 2012.

Aim To analyse a five-year AV clinical profile and its management in Dermatology Outpatient Clinic, Dr. Hasan Sadikin General Hospital, a tertiary teaching hospital in Bandung, Indonesia.

Materials and Methods A descriptive retrospective study was conducted from January 1st, 2012 to December 31st, 2016, with total sampling data from outpatient's medical records.

Results In this study 670 medical records collected, consisted of 77.16% female and 22.84% male patients. Most prevalent AV was found in females at ages 20-24 years (39.10%), followed by ages 15-19 years (32.25%), and in males at ages 15-19 years (11.94%). In female patients, AV were still found as much as 2.39% at age 35-39 years and 3.28% at age >40 years. By Lehman classification, 332 patients (49.55%) were diagnosed as mild, 292 (43.58%) were moderate and 46 (6.87%) were severe AV. The most used topical preparation were combination of tretinoin, benzoyl peroxide and topical erythromycin or clindamycin in 567 (85.9%) patients. Doxycycline almost always prescribed antibiotics for systemic treatment in accordance with acne severity (99.03%), followed with azithromycin. Patients with mild acne were not given systemic antibiotics.

Conclusion This study showed adolescent AV similar in both gender group, and there were manifestations of adults AV in the female group. Most patients even with mild AV generally seek medication. The management of AV generally were found to be consistent with IAEM guideline recommendation.

Key words
Acne vulgaris, acne treatment, clinical epidemiology profile, Indonesia.

Introduction

Acne vulgaris (AV) is a multifaceted,[1] chronic inflammatory disease of pilosebaceous follicles[2,3] characterized with comedones, papules, pustules, nodules, or cyst in predilection site.[2,3] Acne is the most common skin disease affecting 80-100% population, from infant to adult[2,3] and mostly found in adolescents[1] at the age of 16-19 years in male or 14-17 years in female.[2] Acne vulgaris could regress spontaneously, but there are 7-17% of cases seen until adulthood.[2] Some of which resulted in long term sequele[4] and gave significant psychological and socioeconomical impact in patients.[1-3,5] Until recently, the

management of AV still is challenging, particularly due to its long term therapeutic and the possibility of new lesions occurrence during treatment.[1,5] On a global scale, AV is one of the most frequent dermatologic disease[3] but there is still a limited data on the prevalence, clinical and epidemiological features of AV in Indonesia. Studies about acne from Indonesia within recent years were lacking, nationally or locally. This study is to delineate AV patient's clinical and epidemiological profiles from our tertiary referral and teaching hospital in Bandung, West Java, Indonesia.

The main purpose in the management of AV are early diagnosis and prompt treatment to limit the post-acne sequele.[6] There are different treatment guidelines per country in South-East Asia region,[4,7] as there are local variables require unique clinical approach.[4] In Indonesia, a group of leading dermatologists namely Indonesian Acne Experts Meeting (IAEM) formulated consensus guidelines to harmonized management of AV based on the clinical severity by Lehman (2002)[8] and the guideline was introduced and implemented nationally since 2012. This study also aims to evaluate the implementation of IAEM recommendation of AV patients in our hospital.

Materials and Methods

A descriptive retrospective study using secondary total sampling data of medical record was conducted. We summarized a 5-year data from January 1st, 2012 to December 31st, 2016. Data were taken from all new patients attending outpatient Dermatology Cosmetic Clinic, Dermatology and Venereology Department Dr Hasan Sadikin Hospital, a teaching and tertiary referral hospital in Bandung, West Java Indonesia. This study analysed age, gender, clinical diagnosis, classification of severity and management according to IAEM recommendation.

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Results

During the 5 year period data of 670 patients were available for analysis. As shown in **Table 1**, there were 77.16% female and 22.84% male patients. The most prevalent AV were found in female patients at age 20-24 years (39.10%), followed with age 15-19 years (32.25%), and in male patients at age 15-19 years (11.94%).

Table 2 showed clinical classification of patients based on IAEM guideline,[8] by lesions counting from face (Lehmann, 2002).

Table 3 summarized the initial management of AV patient according to their severity classification based on the IAEM recommendation.

Table 1 Distribution of AV patients by age and gender

Age	*Patients*		*n*
(year)	*Female*	*Male (%)*	*(%)*
< 15	18 (2.68)	2 (0.29)	20 (2.99)
15-19	136 (20.29)	80 (11.94)	216(32.25)
20-24	195 (29.1)	67(10.0)	262(39.10)
25-29	76 (11.34)	3 (0.44)	79 (11.79)
30-34	54 (8.05)	1 (0.14)	55 (8.20)
35-39	16 (2.39)	-	16 (2.39)
40-44	13 (1.94)	-	13 (1.94)
>44	9 (1.34)	-	9 (1.34)
Total	517 (77.16)	153 (22.84)	670(100)

Table 2 Severity of AV Classification according to Lehmann Criteria

Grade of Severity	*Total (Patients)*	*%*
Mild	332	49.55
Moderate	292	43.58
Severe	46	6.87
Total	670	100.00

Table 3 Distribution and Initial Management of AV Patients

AV Classification	*Topical preparation*			*Systemic treatment*		*Other treatment*	
	1	*2*	*>2*	*Given*	*Not given*	*Comedones exctraction*	*Steroid injection*
Mild n=332	29	25	278	-	332	10	-
Moderate n=292	-	40	252	265	27	12	5
Severe n=46	-	-	46	46	-	10	10

Table 4 List of Topical Treatment in AV Patients

Type of Preparation	*n*
Single Preparation	29
- Tretinoin 0.01-0.1%	12
- Niacinamide	7
- Sulphur	5
- Arbutin	3
- Benzoyl peroxide	2
Two Preparations	65
- Benzoyl peroxide + antibiotic*	20
- Tretinoin + antibiotic*	17
- Niacinamide + tretinoin	10
- *Aloe vera* + benzoyl peroxide	8
- Sulphur + benzoyl peroxide	5
- Arbutin + antibiotic*	3
- Niacinamide + benzoyl peroxide	2
> 2 Preparations	576
- Tretinoin + benzoyl peroxide + antibiotic*	576

***** erythromycin or clindamycine

Table 5 List of Systemic Treatment in AV Patients

Type of Systemic Treatment	*Patient n=311*	*%*
Doxycycline	308	99.03
Azithromycin	3	0.44

As for the topical and systemic preparations used for the management in all patients were listed separately in **Table 4 & 5**.

Discussion

The prevalence of AV varies in every population occurring mostly in adolescent and young adults.[2,3] In this study we found female preponderance. Acne was found in female patients at ages 20-24 years (39.10%), followed with age 15-19 years (32.25%), and in male patients at age 15-19 years (11.94%). These findings similarly agrees with prior literatures with a similar background of tertiary hospitals in different parts of India which showed a higher proportion of female patients compared to male patients and majority of cases found at the age group 16-25 years in both gender.[9,10] A10-year epidemiology report from Singapore revealed a consistently increase proportion of female acne patients both in adolescence and post-adolescence group.[11]

When AV is still present after the age of 25 years in women, it is known as adult female acne (AFA) and it can be a persistent or a late-onset of acne. The reasons for its increase in adulthood are still unknown,[12] although it may be due to genetic predisposition, hormonal and environmental factors.[11,12] Retrospective study by Han, *et al*.[11] showed that the AFA cases are not uncommon representing about 30% of all AV cases. Our study also showed similar findings, that the manifestation of AV were still found in female patients as much 2.39% at age 35-39 years and 3.28% at over 40 years old. In this study we did not further analyze the factors that might contribute to AFA in this population.

Following a proper diagnosis, a guideline ensures patients to be treated according to disease severity. The IAEM guideline recommends acne severity classification by Lehmann based on lesion counting on all parts of the face. For 20 comedones, or 15 inflammatory lesions, or total lesion count 30 classified as mild acne; for 20-100 comedones, or 15-50 inflammatory lesions, or total lesion count 30-125 as moderate acne; and severe acne for 5 cysts, or total comedones count 100, or total inflammatory count 50, or total lesion count 125.[8] From this study as much as 332 patients (49.55%) were diagnosed mild, and as

much as 292 (43.58%) were moderate and 46 (6.87%) were severe AV, as shown in **Table 2**. Although there were differences in establishing the severity or grading classifications, the duration, and method of each study, we compared the results to our findings.

Report from Singapore showed that majority of patients had mild acne both for adolescence 65%) and post-adolescence (75%) patients.[12] Those findings are similar with the study from Tamil Nadu, Southern India[10] which showed that 88% patients had mild acne. Conversely, the study from Kerala, Northern part of India[9] revealed higher proportion of moderate to severe acne.

The initial management given in all patients according to IAEM guideline[8] was summarized in **Table 3**. Multiple treatments are used in combination so as to combat the various factors contributing in acne pathogenesis.[3] Mild acne may be treated with topical medications which include retinoids, benzoyl peroxide (BP) or combination of topical medications. Moderate to severe acne may be treated with a combination of topical medication and be given oral antibiotic.[6-8,13] The IAEM guideline is rather similar with the American guideline[6] compare to Singaporean[7] or Japanese[13] guideline. The IAEM guideline also provides evidence-based treatments and with availability of medications according to local variables.[8] Tretinoin acts as comedolytic and anti-inflammatory, while BP has a powerful antimicrobial properties and also act as mild comedolytic.[3,5]

In our study, the use of tretinoin as the mainstay in acne treatment was noted and also in combination with BP. A slight difference with Singapore[7] and Japanese[13] consensus, the use of adapalene was more preferable than tretinoin. Other topical preparations from our study were sulphur, niacinamide, arbutin and aloe vera. Sulphur and niacinamide are not uncommon topical preparations which can be use in the management of AV. Sulphur is still favourable in treating acne through inhibition of free fatty acid production, antibacterial as well as keratolytic properties.[3] It is also mentioned in American and Japanese guidelines[6,13] but not in Singaporean.[7] Niacinamide as adjuvant treatment is shown to have promising anti-sebum properties according to Singaporean and American guidelines[6,7] and also beneficial in treating hyperpigmentation in acne.[14] In our study, the use of arbutin and aloe vera were noted in the treatment of acne patient as adjunctive topical treatment, although none of them were mentioned in the guidelines. Arbutin may be beneficial to treat hyperpigmentation[15] and aloe vera is known for its anti-inflammatory, bacteriostatic, and soothing effects.[16] The extraction of comedones is one of the mainstay physical therapy in acne, aids in bringing involution of individual acne lesion. Whilst, the injection of steroid for papules or nodular lesions can dramatically cease the inflammation thus giving patient satisfactory result.[3,7,13] Those variations and tailored treatments are in accordance with note of the consensus that the guidelines cannot be substituted for clinical judgements[4] and patients should be assessed thoroughly and managed on an individualized basis.[6-8,13]

The recommendation for proper antibiotics use in guidelines are to overcome the emerging issues of antibiotic resistance.[6-8,13] In this study, the list of topical preparations were shown in Table 4. The most common used topical preparation were combination of tretinoin, BP, and topical antibiotics, either erythromycin or clindamycin in 567 (85.9%) patients. These combinations of topical treatments are in accordance with the recommendation in each guideline.

Systemic antibiotics have been a mainstay of acne treatment and are indicated for use in moderate to severe inflammatory acne and should be used in combination with topical acne medications.[6,8] The guidelines support the efficacy of tetracycline, doxycycline, minocycline, trimetoprim/ sulfamethoxazole, erythromycin, azithromycin, and cephalexin for systemic antibiotic treatment in acne.[6-8,13] In this study, patient with mild acne were not given systemic antibiotics. Whereas in moderate and severe acne patients, doxycycline was almost always prescribed antibiotic for systemic treatment (99.03%), followed by azithromycin. In comparison with the systemic treatments shown in the study from Singapore[11] oral tretinoin were readily available and can be prescribed to treat severe and recalcitrant acne. Oral isotretinoin was also mentioned in the American[6] and IAEM[8] guidelines for treatment of severe and recalcitrant acne. Nevertheless, in Indonesia oral isotretinoin is still unavailable and not legally approved by The Indonesian Food and Drug Authority.[17]

This study brings to light the clinical and epidemiological profiles of acne patients from our tertiary teaching hospital in Bandung, West Java, Indonesia. Furthermore, we believe this is the first study with additional valuable information regarding the management of acne in Indonesia, which portrayed for five years after the Indonesian guideline was implemented. A drawback and limitation of this study was that we did not evaluate outcomes of patients' management after the implementation of IAEM guidelines.

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