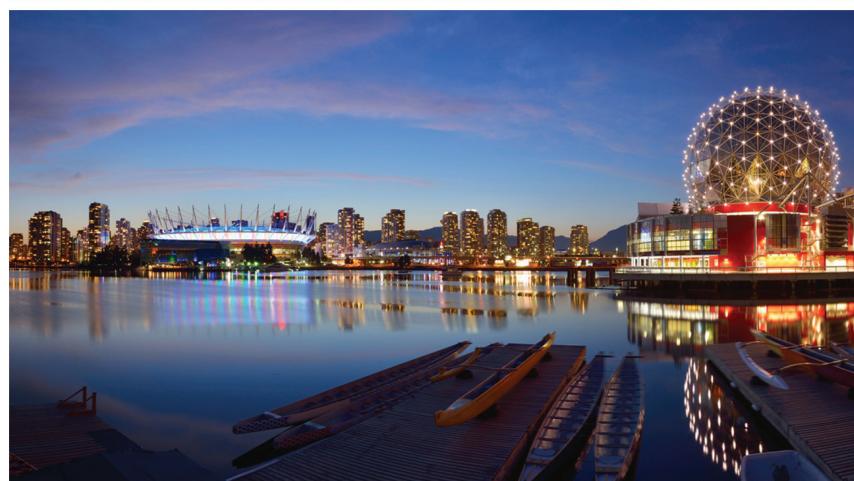


DERMA CONFERENCE COMPENDIUM



Insides

- 23rd World Congress of Dermatology, Vancouver, Canada, June 8-13, 2015
- 73rd Annual Meeting, American Academy of Dermatology, San Francisco Calif, March 20-24, 2015
- 7th European Dermatology Congress, Alicante, Spain, June 13-14, 2016
- 22nd Regional Conference of Dermatology (Asia Australian), Singapore, April 21-24, 2016



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23rd World Congress of Dermatology, Vancouver, Canada, June 8-13, 2015

Therapeutic protocols for treatment of inflammatory acne: Focus on combination on 16.7% salicylic acid and 16.7% lactic acid

Tiwary P

Inflammatory acne is a dermatological disorder that affects the pilosebaceous units. It causes significant physical and psychological morbidity. Different peeling agents are used for the management of inflammatory acne. The present trial attempted to estimate the effectiveness and side-effect profile of an economic formulation of salicylic acid and lactic acid in collodion base in inflammatory acne.

A total of 50 young individuals with inflammatory acne were recruited in the study. Patients were advised application of a combination of 16.7% salicylic acid and 16.7% lactic acid in collodion base fortnightly for 4-6 weeks. The severity of acne was measured according to Michelsons acne severity index at 2, 4, 6 and 8 weeks. The side-effects were also recorded. During the intervals, patients were advised 1% clindamycin gel and photoprotection. Overall patient satisfaction was

A preparation of 16.7% salicylic acid and 16.7% lactic acid in collodion base is effective for the management of inflammatory acne

recorded at the end of the study. Chi-square test and independent sample t-test were used for statistical analysis.

The outcomes of the study were:

- All the patients exhibited reduction in severity of acne
- The mean total acne score at baseline was 53.9; a remarkable reduction was noted at 2 weeks (41.6%), 4 weeks (57.7%) and 8 weeks (73.3%)
- There was significant reduction in post inflammatory hyperpigmentation
- Mild burning, erythema and exfoliation were evident in 31.6% patients
- The cost of therapy was low in comparison to other peeling agents.

A preparation of 16.7% salicylic acid and 16.7% lactic acid in collodion base is effective for the management of inflammatory acne.

Acne remission with oral isotretinoin

Tan J, Knezevic S, Waterman B, Boyal S, Janik T

Oral isotretinoin is one of the preferred agents for severe inflammatory acne. It is believed to be the only therapy with remission potential. A cumulative dosage of 120-150 mg/kg is believed to enhance the therapeutic potential for remission. The trial aimed to assess the efficacy of 120-150 mg/kg cumulative dosage of oral isotretinoin in acne remission. A systematic literature search was conducted to select articles with appropriate quality of evidence. It was observed that definitions of acne clearance, relapse and treatment endpoints varied widely across different studies. The cumulative dose range of 120-150 mg/kg was in accordance to the initial limitations in duration of oral isotretinoin treatment. It was observed that higher cumulative doses yielded better remission. Based on the findings of the trial, it was inferred that a cumulative dosing range of oral isotretinoin 120-150 mg/kg is in accordance to past parameters of treatment duration that may have been tailored with vague or inaccurate definitions of clearance and remission. The most appropriated dose of isotretinoin is still unclear however; it is likely to exceed 150 mg/kg.

Cumulative dosing
range of oral isotretinoin
120-150 mg/kg is in
accordance to past
parameters of treatment
duration

Hyperandrogenemia and acne vulgaris

Munichandappa P, Gautam RK

Acne is an important clinical feature of hyperandrogenemia. Several studies have confirmed the role of various hormones such as testosterone, androstenedione, dehydroepiandrosterone sulfate (DHEAS), prolactin, luteinizing hormone, follicle stimulating hormone, 17-hydroxy progesterone (17-OHP), insulin and sex hormone binding globulin (SHBG) in determining

the severity of acne and hyperandrogenemia. The present study was orchestrated to ascertain the features of hyperandrogenemia by clinical, hormonal and ultrasound examinations in patients with acne vulgaris. A total of 40 females between 12-45 years and age-matched controls were enrolled in the study. Global acne grading system was used to determine the severity of acne. The laboratory parameters and ultrasonographical examination were analyzed by drawing blood sample from patients at 0800 to 0900 hours on the 2nd to 5th day of menstrual cycle.

The outcomes of the study were:

- A positive association between age of onset of acne and age at menarche was ascertained. This association was suggestive of early age of onset of acne in patients who attain early menarche
- A statistically significant association was noted between severe acne and menstrual irregularity, BMI>25, acanthosis nigricans and striae
- Polycystic ovaries were evident in 30% patients on ultrasound examination. There was a statistically significant association between polycystic ovary syndrome and acne
- Severe acne was also related with elevated levels of DHEAS, prolactin and androstenedione.

It was thus concluded that menstrual abnormalities, BMI>25, acanthosis nigricans and striae were commonly associated with severe acne. Furthermore, there was a profound association between PCOS and severe acne. The study attests the importance of evaluating all patients of acne for features of hyperandrogenemia.

Menstrual abnormalities,
BMI>25, acanthosis
nigricans and striae were
commonly associated
with severe acne

The role of histopathology and gene expression in characterizing inflammatory reactions in acne vulgaris and papulopustular rosacea

Deret S, Carlavan I, Menigot C, Reiniche P, Bertino B, Roquet M, Joly F, Gauthier B, Aubert J, Piwnica D, Steinhoff M, Peytavi UB, Voegel J

An analysis was conducted with a goal to characterize specific inflammatory reactions occurring in acne vulgaris and papulopustular rosacea. Large scale gene expression data of these disorders with reports from psoriasis, atopic dermatitis and wound healing was compared. Histological examination was also carried out in parallel which involved acne and rosacea biopsies.

The histological assessment revealed contrast in the composition of the inflammatory infiltrate and the specific dermal location of the infiltrate. Acne vulgaris papules exhibited perifolliculitis/folliculitis up to ruptured follicle walls, acanthosis, hyperkeratosis, and prominent neutrophilic infiltration. However, rosacea papules showed actinic elastosis (potentially age-related), the presence of telangiectasia, granulomatous inflammatory infiltrate, acanthosis and demodex folliculorum. In order to characterize the infiltrate, the mRNA levels of cell surface

markers of Th cells, typical T cell-released cytokines as well as the general cytokine profile in lesional and non-lesional skin biopsies were also investigated. The outcomes were then co-related with those seen in atopic dermatitis, psoriasis and wound healing. It was observed that the increased number of neutrophils in acne can be possibly due to a strong induction of specific neutrophil chemoattractants. Also, the adaptive immune response in acne was primarily due to Th17 cytokines as well as a secondary component of Th1 cytokines. On the other hand, in rosacea the Th1 cytokine pattern was the main characteristic noted. Comparison with other inflammatory skin disorders revealed common and distinct immune responses; especially, a similarity in the cytokine profile between acne and wound healing where the most induced chemokines were neutrophil chemoattractants.

In a nutshell, correspondence between histological and gene expression data of acne and rosacea allows to document histological data at the molecular level, and might aid in the identification of specific therapeutic targets as well as diagnostic tools in its management.

Correspondence between histological and gene expression data of acne and rosacea allows to document histological data at the molecular level, and might aid in the identification of specific therapeutic targets as well as diagnostic tools in its management

Does examining the quality of life and location specific acne severity anticipate acne treatment recommendations?

Tan J, Marc F, Knezevic S, Poulin Y, Lynde C, Gulliver W, Gupta A, Sebaldt R, Thomas D, Sapra S

Recommendations for the management of acne, in each patient, involve a multifaceted approach including clinician and patient reported outcome measures. These recommendations, in most of the cases, are symbolized by increasing treatment intensity with severity. Considering this, a group of investigators examined whether acne treatment recommendations aid in a better theoretical approach in controlling overall acne severity.

A cohort of patients affected with acne was recruited for this analysis. A survey was conducted which included questions based on the patients' reported quality of life, and clinician reported measures of primary and secondary (scar) acne severity for the face, chest and back. For the latter, 3 grading approaches were developed: maximal regional grade, overall grade, and facial grade. Following were the three acne treatment recommendation groups: topicals only (mild cases), oral antibiotics/hormones (moderate cases), and oral isotretinoin or ethinyl estradiol/cyproterone acetate (severe cases). Individuals already on systemic acne medications (antibiotics, hormones, or oral isotretinoin) were not involved.

Acne severity is linked with maximal primary acne grade, total scar grade, and the patients' emotional response

Melasma and its impact on quality of life

Topal Y, Tunca M, Çayýrlý M, Açýkgöz G, Akar A

Melasma is a common disease characterized by hyperpigmented patches with non-uniform margins. It is an acquired disease and mostly presents symmetrically on the face. It does not lead to significant morbidity but can have a deleterious effect on the quality of life. A study was

The results were obtained from 689 acne patients who successfully matched the selection criteria. The prominent factors associated with acne treatment recommendations were: patient' emotional state, maximal regional acne severity and the total acne scar grade. In addition, better acne-specific quality of life was negatively related to acne treatment recommendations intensity, whereas all 3 grading approaches were positively related.

The outcomes deduced that acne severity is linked with maximal primary acne grade, total scar grade, and the patients' emotional response to the same, thereby conceptually predicting acne treatment recommendations for individual patients.

Acne patients: Screening for insulin resistance

Chiang YZ, Zhao C, Wijayanti A, Kidson W, Murrell D

Acne vulgaris is a widespread disease entity. It affects majority of adolescents and around 54% of adults. Substantial evidence suggests the association between insulin resistance (IR) and acne; as IR leads to hyperandrogenism and increased sebum production which in turn is responsible for acne. Screening for IR in patients with acne guides an early intervention and prevents the progression of IR into diabetes.

The aim of the study was to estimate the frequency of IR in acne patients and to assess the outcomes of acne treatment with metformin in IR patients.

A retrospective review of 175 (adult and teenage) patients, referred to dermatology department for acne, from 2009 to 2014 was done. Out of 175, 107 were females and 68 were males. One hundred twenty four patients were screened for insulin resistance. Of these patients, 85 that is 68.5% were found to have insulin resistance. The other risk factors were family history of diabetes mellitus, and irregular menses. After endocrinological review, 90.6% of insulin resistance patients were put on metformin therapy and only 44.5% patients finished their acne treatment; and of these, 74.4% reported to have complete resolution of acne. The mean treatment duration for acne in IR patients was 11.4 months and 9.9 months in those without IR. Out of 36 patients who came for follow-up, 10 had a relapse after a mean duration of 7.6 months. IR was in 50% of patients with relapse. It was concluded that screening for IR in acne patients is important; and risk factors for IR in acne patients should be considered.

It was concluded that screening for insulin resistance in acne patients is important; and risk factors for insulin resistance in acne patients should be considered

done to assess the demographic and epidemiological characteristics of melasma in a cohort population and its impact on the quality of life. The study included 118 patients of melasma, 18 years or older attending the outpatient department (OPD) of the clinic. The patients were asked to complete a questionnaire of 10 items. Different aspects of melasma were studied such as age of onset, precipitating factors, clinical presentation, duration of disease, extent of involvement, Fitzpatrick skin types, past treatments, family history and its impact on quality of life. It was observed that melasma most commonly occurred in patients with skin type 3-4 (89%). The most common clinical pattern was the malar pattern (53.4%) and the most common precipitating factor was exposure to UV rays exposure (50%). Positive family history was found in 41 patients (34.7%). Factors which had a negative impact on quality of life were: Fitzpatrick skin types 3-4, negative family history, onset of melasma less than 5 years and dermal involvement. Thus, it can be concluded that melasma is a disorder that moderately affects the quality of life and all patients are not equally affected.

It is an acquired disease and mostly presents symmetrically on the face. It does not lead to significant morbidity but can have a deleterious effect on the quality of life

Characteristic dermoscopic features of melasma

LI Y, Liu J, Sun Q

Melasma is a common skin disorder among the Asians. Dermoscopy has proved to be an invaluable tool in the diagnosis of pigmented and inflammatory diseases including melasma. It is a non invasive tool which magnifies the colour and structure of the epidermis, dermoepidermal junction and papillary dermis. A study was done to find the characteristic dermoscopic features of melasma. The patients included in the study had typical clinical presentations of melasma. They were evaluated with a hand-held, polarized and nonpolarized dermatoscope with a photographic lens attachment. Alcohol (70%) was used as the interface liquid to abolish the effect of excess keratin. The contact polarized mode of the dermatoscope was used for observation. Twenty patients with clinical diagnosis of melasma were enrolled. All of them had lesions consistent with melasma. Dermoscopy showed four major characteristics of melasma such as light yellow brown uniform patches, dark brown patches, blood capillary net and coarse hair. Thus, it can be concluded that dermatoscopy can be used for accurate diagnosis of melasma.

Dermoscopy has proved to be an invaluable tool in the diagnosis of pigmented and inflammatory diseases including melasma

Acne vulgaris: Retracing the pathogenesis

Winkelmann W, Harvey A

Pathogenesis of acne vulgaris— a usual disorder of the skin— is contributed by various factors such as follicular hyperkeratinization, excess sebum production, proliferation of *Propionibacterium acnes*, and production of proinflammatory mediators. The conventional model of acne lesion formation commences with the formation of a microcomedone that develops either into a non-inflammatory lesion or an inflammatory lesion. Non-inflammatory lesions may then change into inflammatory lesions. Studies lately are suggestive of a more significant role played by inflammatory mediators than anticipated earlier. Of note, microcomedone formation is preceded by subclinical inflammation that persists throughout acne lesion progression. Despite the absence of visible inflammation, comedonal lesions do contain inflammatory mediators. In addition, inflammatory lesions may evolve directly from subclinical inflammation and circumvent the formation of a microcomedone. Even after resolution of acne lesions, inflammatory mediators persist, including scarring.

Inflammatory lesions may evolve directly from subclinical inflammation and circumvent the formation of a microcomedone

Appraising the histopathological features and c-kit level in lesional skin of melasma in Indian patients

Mantri M, Dhurat R

Histopathological features of melasma, not yet well-comprehended, are essential to understand the pathogenesis of this relapsing condition. There is dearth of studies on histopathology of melasma till date. Novel insights into pathogenesis of melasma insinuate the presence of solar elastosis and role of mast cell, stem cell factor (SCF) and its receptor c-Kit (Tyrosine Kinase receptor). A study was conducted to appraise the histopathological characteristics of facial melasma lesional skin compared with adjacent normal perilesional skin using hematoxylin and eosin (H & E), Verhoeff-van Gieson, Masson's Fontana, Giemsa stains and Immunohistochemical stain (IHC) for c-kit. A total of 30 Indian patients with melasma were enrolled and 3 mm punch biopsies were taken from both melasma lesional skin and adjacent perilesional normal skin (within 1 cm). Both sections were stained using H&E, Fontana-Masson, Verhoeff-van Gieson, Giemsa stains and immunohistochemical stain for c-kit. Subsequent to light microscopic evaluation, data were documented on the variations in number of melanocytes in the basal layer, content and distribution of melanin pigment in the epidermis,

Cutaneous photoaging in which inflammatory cells and mast cells play a major role may afford microenvironment for progression of melasma

content and morphology of elastotic material in the dermis, number of mast cells in the dermis, presence of epidermal atrophy and lymphohistiocytic infiltrate, and area of epidermis stained for c-kit. Additional findings, if observed were also accounted. Computer assisted image analysis software Image J was utilized for measurements. The results divulged the following:

- Melasma lesions revealed an increased staining intensity and number of epidermal melanocytes
- Compared to normal skin, lesional skin demonstrated more distinct solar elastosis and increased c-kit level
- Further, mast cells revealed greater prominence in the elastotic regions of melasma skin
- Pendulous melanocytes were observed protruding from the basal layer into dermis in both lesional skins
- In addition, both lesional and perilesional skin revealed presence of dermal melanophages.

The researchers concluded that melasma is distinguished by epidermal hyperpigmentation, probably caused both by an enhanced number of melanocytes and increased melanin. Melasma might be a consequence of a cumulative sun exposure. Cutaneous photoaging in which inflammatory cells and mast cells play a major role may afford microenvironment for progression of melasma. Further, presence of dermal melanophages in both lesional and perilesional skin implies the non-existence of true dermal melasma. Of note, presence of pendulous melanocytes in basal layer of lesional skin may indicate an injury to basement membrane in the early melasma; dropping of these cells into dermis may lead to relapsing and refractory pigmentation.

Appraising the construct validity of acne quality of life instrument

Tan J, Frey M

Acne is one of the most frequent skin disorders having untoward physical and psychosocial impact. The Acne Quality of Life instrument (Acne-QoL) is one of the most meticulously developed and extensively employed acne-specific patient reported outcome (PRO) instruments. A study was conducted to appraise the construct validity of Acne-QoL using factor analytic strategies. Contending structural models for the Acne-QoL TM were analyzed through data from a cross-sectional survey of patients with acne. Afterward, prospective invariance of the Acne-QoL across acute and chronic acne samples was evaluated. The results divulged the following:

The Acne-QoL factor structure differed by duration of acne; those with chronic acne accounted higher quality of life and had increased severity of facial acne

- A 5-factor hierarchical model proved to be the best fitting model; however it only provided adequate model fit
- The aspects of the Acne-QoL were positively associated with self-reported depression

- It was observed that the Acne-QoL factor structure differed by duration of acne; those with chronic acne accounted higher quality of life and had increased severity of facial acne
- Further, the Acne-QoL total score and sub-dimensions had negative association with clinician assessed acne severity.

It was concluded that a 5-factor hierarchical model best represents the measurement model for the Acne-QoL TM; however this model did not convene the criteria for ideal model fit. The model differed by the duration of acne, such that the implication of the construct might differ by the chronicity of acne.

Favorable effect of using a facial moisturizer with SPF 30 on local tolerability of tretinoin cream 0.05%

Czernielewski J, Sidou F, Kerrouche N

Topical retinoids are recommended as first-line therapy for all cases of acne, except the very severe cases. Treatment outcome is frequently affected by the tolerability of the product that in turn influences patient adherence. In this context, a study was conducted to evaluate the adjunctive use of a moisturizer with SPF 30 (CDC) on the local tolerability of tretinoin cream 0.05% (TC). This 4-week randomized study enrolled individuals aged 18 years or above, with healthy skin and a Fitzpatrick skin type I to IV. They applied TC once a day in the evening on the entire face. Further, they were randomly assigned to apply CDC in the morning on only one side of the face, once daily. The parameters that were appraised at each visit included overall preference by the investigator and the study subject, local tolerability signs and symptoms, and adverse events (AE). The results divulged the following:

The adjunctive use of a moisturizer with SPF 30 to enhance local tolerability of tretinoin cream 0.05%

- A total of 35 individuals were enrolled in the study
- Considerably more individuals reported less irritation on the side treated with TC and CDC than the side with TC alone at weeks 1, 3 and 4
- Likewise, appreciable difference was accounted between the two sides depending on the inclusive preference of the investigator at weeks 3 and 4; a trend favored the side of TC plus CDC at weeks 1 and 2
- It was reported, throughout the study period, considerably few erythema, scaling and dryness for the side treated with TC plus CDC, compared to the side treated with TC alone
- A tendency was accounted of less stinging/burning on the side of concomitant therapy with TC and CDC, compared to TC alone
- No difference was observed in pruritus between the two sides of face

- Two individuals reported three related AEs on both sides of their face; two of them were mild.

The results were suggestive of the adjunctive use of a moisturizer with SPF 30 to enhance local tolerability of tretinoin cream 0.05%.

Evidence-based Canadian acne clinical practice guidelines

Tan J, Asai Y, Baibergenova A, Dutil M, Humphrey S, Hull P, Lynde C, Poulin Y, Shear N, Toole J, Zip C

Despite the fact that acne is a frequent and taxing disorder affecting almost 4.5 million Canadians, there are no earlier Canadian evidence-based acne clinical practice guidelines. This prompted a group of researchers to develop evidence-based acne clinical practice guidelines adapted to the Canadian health care environment. Quality appraisal of earlier existing evidence-based acne clinical practice guidelines was performed to recognize those of highest methodological quality and apposite to adaptation. Adaptation methodology was harmonious with pre-established recommendations. Rationalized systematic literature search and critical appraisal of studies satisfying selection criteria of prospective trials in acne was commenced for treatments available in Canada. Study grading and overall levels of evidence were ascertained by 2 independent raters. Recommendation levels for treatment were instituted by expert panel voting through an online Delphi process for comedonal, mild-moderate inflammatory and severe inflammatory acne. Eventually, the European S3 acne guidelines were used as the primary adaptation source. Systematic search results for this adaptation revealed 40 articles updating topical therapies, 67 were found to meet inclusion criteria. Of 10 articles on systemic therapies, 5 articles were considered suitable for inclusion. A search for alternative therapies such as diet led to 10 studies, of which 3 were incorporated; 7 of 14 articles on physical therapies were considered suitable. The highest recommendations could be summarized as: topical retinoids, benzoyl peroxide (BPO), fixed dose clindamycin/ BPO and adapalene/BPO for comedonal acne; fixed dose clindamycin/BPO and adapalene/BPO for mild-moderate papulopustular acne along with contemplation of systemic antibiotics and oral contraceptives for broader involvement; and oral isotretinoin monotherapy for severe acne.

The highest recommendations could be summarized as:
topical retinoids, benzoyl peroxide (BPO), fixed dose clindamycin/ BPO and adapalene/BPO for comedonal acne;
fixed dose clindamycin/ BPO and adapalene/ BPO for mild-moderate papulopustular acne along with contemplation of systemic antibiotics and oral contraceptives for broader involvement;
and oral isotretinoin monotherapy for severe acne

Aptness of Chilean grape seed antioxidants for acne prevention

Figueroa P

Antioxidants have been employed for various health conditions. Antioxidants from Chilean grape seed have revealed a potent anti-rosacea effect. A study was conducted to appraise the effectiveness of Chilean grape seed antioxidants for the prevention and treatment of acne. Twenty patients with acne were prescribed Chilean grape seed antioxidants (procyanidine and resveratrol) 500 mg two times a day, along with topical retinoids. A month follow-up ensued, followed by appraisal of the type and the quantity of lesions. The results divulged the following: More than 80% decrease in the type and quantity of lesions were noticed. Lesser irritation was observed with combination therapy than when the patients used the topical retinoids alone. Further, a distinct decrease was noticed by all the patients in the oiliness of their skin and hair. No untoward effects were accounted. It was concluded that Chilean grape seed antioxidants may complement acne treatments and decrease the oiliness of the skin.

Lesser irritation
was observed with
combination therapy
than when the patients used
the topical retinoids alone

The prevention and treatment of post-inflammatory hyperpigmentation in acne

Asai Y, Langley A, Baibergenova A

Post-inflammatory hyperpigmentation (PIH) in acne vulgaris is a matter of great distress. Although much study is available on acne treatment, there remains a dearth of research that particularly examines PIH. In this context, a study was conducted to evaluate the evidences available on the treatment and/or prevention of post-inflammatory hyperpigmentation in acne. A literature search was conducted of electronic databases such as PubMed, EMBASE, DARE, Web of Science, Cochrane CENTRAL, ProQuest, and Google Scholar with the terms "Acne AND Post-inflammatory hyperpigmentation". Results from the earliest available records to August 30, 2014 were included. Further, search terms for commonly used products and devices for treatment of PIH were also included. Unpublished data from companies providing acne care products were tried to acquire. Hand searches were accomplished for the 5 highest impact dermatology journals for the most recent 5 years (British Journal of Dermatology, JAMA Dermatology, Journal of the American Academy of Dermatology, Journal of Investigative Dermatology and Pigment Cell & Melanoma Research). Abstracts were appraised by two independent reviewers blinded to author and location.

A total of 186 articles
were acknowledged in
the literature search, of
which, 58 were included
on first pass criteria and
128 were rejected owing
to exclusion criteria

Inconsistencies, if encountered, were resolved with discussion. First pass criteria for inclusion in the study were randomized controlled trials (RCTs), systematic review, case-control studies, cohort studies, narrative reviews, case series and case reports. Articles, not about acne-induced PIH, were excluded from the study. Second pass criteria included RCTs and systematic reviews, with greater than 10 patients per arm, and a primary outcome of PIH assessment. Moreover, narrative reviews, observational studies, case series and case reports, and studies with a sample size less than 10 patients per arm were excluded. The results divulged the following:

- A total of 186 articles were acknowledged in the literature search, of which, 58 were included on first pass criteria and 128 were rejected owing to exclusion criteria
- Only 8 articles fulfilled the second pass criteria, as outlined in the protocol
- Criteria were then eased to include discussion of studies with PIH assessment as a secondary endpoint (7 articles), as well as uncontrolled studies with comparison to baseline (8 studies).

The results were suggestive of paucity of evidence available on PIH in acne, with an inconsistent quality of evidence, necessitating further research to appraise the best prevention and treatment of PIH.

Antimicrobial formulation with active system: A novel therapeutic option for the treatment of acne

Dasgupta A, Medepalli S, Iyer V, Nayak K, Vora S, Diao Y, Luo S, Du Y, Chakrabortty A, Shiloach A

The conventional treatment of acne comprises agents or topical products that act on keratinocyte turnover (salicylic acid), regulate hormonal levels (steroids), and have antimicrobial properties (benzoyl peroxide). Bringing forth a novel therapeutic strategy, a study was conducted to examine the efficacy of a proprietary active system of essential oils as an antimicrobial agent against *Propionibacterium acnes* (*P. acnes*) in vitro and in a clinical test. In-vitro kill-efficacies of various formulations were tested by growing strains of *P. acnes* (strain ATCC6919) to OD of 0.2. These were then exposed to the formulations for a particular time period and the reaction thereafter were ceased by adding a neutralizing solution. The samples were then plated on CY plates and kept for incubation at 37°C for 6 days. Double blind and placebo controlled clinical studies were conducted on approximately 60 healthy Chinese female adult volunteers aged 18-30 years. All the participants presented with moderate acne and were asked to use topical facial cleanser twice per day on whole face, for duration of 4 weeks. The subjects were evaluated at baseline, and on weeks 1, 2, and 4. The visual examination of acne lesions included counts of each type, size, and severity of inflammatory acne lesions.

The acne lesions reduced
by 25% on an average
with the use of the
formulation with the
active system

The results of the study showed:

- The in-vitro studies demonstrated that the presence of the actives at 0.35% was evidence of remarkable reduction in viable *P. acnes* count seen in as early as 30 seconds of exposure, consistent with low MIC numbers
- In accordance to in-vitro outcomes, subjects using formulation containing the active system showed noticeable reduction in acne lesions in comparison to the placebo
- Moreover, similar results were noted when the concentration of the active system was reduced from 0.35% to 0.1% while the contact time increased from 3 to 5 hours
- Insignificant decrease in the number of viable *P. acnes* was observed with the control formulation that did not have the active system
- The acne lesions reduced by 25% on an average with the use of the formulation with the active system, in contrast to placebo.

The conclusion drawn from the study indicates that the active system in the formulation exerts antimicrobial effects, assessed by reduction of acne lesions.

Evaluation of current perceptions about acne vulgaris in India

Gupta S

Acne vulgaris commonly affect individuals of adolescent age group and may even adversely affect their psychological status. However, patients may often lack the knowledge and understanding about their acne condition. A study was performed with an aim to assess the knowledge, beliefs, and perceptions of individuals with acne in context to acne pathogenesis, sources of information, treatment options, and expectations. The study was questionnaire based, taken up by 200 patients, with predominant population of males, graduates, and belonging to age group 16-21 years. The responses obtained were correlated with demographic and clinical information.

The results of the study revealed:

- Mild form of acne were diagnosed in nearly 60% of subjects with diet rule out as one of the most common causative factor
- Among the aggravating factors, the most common was fatty food
- Majority (97.5%) of the subjects favored using drugs/ointment prescribed by doctor. Moreover, topical formulations such as ointments or cream were believed to confer better response
- Acne-related information was mostly sought from friends or parents, 45.5% or 35%, respectively

Though the prevalence of acne is high, individuals lack awareness and represent false beliefs about acne, especially in context to use of steroids

- History of steroid use was common and most of them were males, students, and graduates. Use of steroid based ointment/cream was reported by 100 patients. Steroids were largely prescribed by the MBBS doctors or practitioner of alternate medicine
- Nearly 70 steroid users experienced an initial improvement, while 22% of those who could not appreciate any change initially suffered with subsequent flaring in the lesions
- Majority of the patients used steroids for a maximum duration of 6 months.

The authors of the study concluded that even though the prevalence of acne is high, individuals lack awareness and represent false beliefs about acne, especially in context to use of steroids. This raises an urgent need for education about etiopathogenesis, potential complications, and significance of effective anti-acne treatment. Appropriate therapy may significantly contribute to a balanced mental health of adolescents and adults.

Significance of total treatment approach for the management of mild to moderate acne in teenagers

Lynde C, Kraft J

Acne vulgaris is a commonly prevalent skin condition, with nearly 70% adolescents getting affected. Its therapy may encompass oral or topical measures, which may even be administered together. Topical therapeutic agents include benzoyl peroxide (BPO), retinoids, adapalene and tazarotene, that target the comedone formation. Antibiotics (such as clindamycin) primarily suppress *Propionibacterium acnes* (*P. acnes*), and when combined with retinoid, it may offer the best of both. In cases with mild to moderate acne, topical therapy has been proposed as the standard of care. Consideration of patient specific issues, such as adverse reactions to treatments, skin type, can add to the compliance. A 12-week study was conducted to examine the effectiveness of total treatment approach for mild to moderate acne in a group of teenagers. A total of 10 teenagers of either gender of age 12-20 years participated in the study. They presented with mild to moderate acne on the face. Subjects already on systemic/topical anti-acne medication within 14 days before the study entry were excluded from the study, since these could interfere with study assessments. The teenagers were asked to use the facial cleanser twice daily with a ceramide-containing foam cleanser, a topical antibiotic/BPO treatment to the affected area followed by application of a ceramide and niacinamide-containing facial moisturizing lotion for first 6 weeks. After 6 weeks, the subjects were randomized to one of the treatment groups, which comprised either the continuation of the same treatment regime (Group 1, n = 5) or discontinuation of foam cleanser and moisturizer and use of water to clean their face (Group 2, n = 5). The antibiotic/BPO treatment was continued for another 6 weeks. The results of the study showed improved Global Acne Assessment Scale in Group 1,

When treating acne, the elimination of lesions remains the primary goal. This could be achieved by reducing the activity of sebaceous glands, bacterial population, and inflammation

which was better than Group 2. This could be confirmed by the subjects in Group 1 reporting of better facial condition, with less dryness and irritation of their skin. The conclusion drawn from the study suggests that when treating acne, the elimination of lesions remains the primary goal. This could be achieved by reducing the activity of sebaceous glands, bacterial population, and inflammation. Therefore, the total acne treatment regimen may aid in achieving these goals.

Co-activity of adapalene and benzoyl peroxide on inflammatory acne lesions

Czernielewski J, Khammari A, Zuliani T, Dreno B

Acne is defined as a multifactorial disease of the pilosebaceous follicles of the skin. According to the Global Alliance acne treatment algorithm, retinoids are recommended for the management of acne. For instance, a combination of synthetic retinoid adapalene 0.1% with benzoyl peroxide (BPO) is recommended as a first line approach for acne treatment in many areas. The belief behind this approach is the accompaniment of mechanism of action of these two compounds with each other, making the treatment more effective when used concurrently than when used alone. The objective of this study was to determine the potential molecular mechanism of action for combination treatment with adapalene and BPO in acne inflamed skin. This was an ex-vivo study in which 5 punch biopsies were performed from the skin on the back of 8 male subjects (mean age 22.5 years): 4 from acne inflamed skin and 1 from uninvolved skin. All the samples including the test compounds were incubated for 24 hours, under the following conditions: noninflammatory skin with culture medium alone, inflammatory skin with culture medium alone, inflammatory skin with adapalene, inflammatory skin with BPO, and inflammatory skin with combination adapalene and BPO. An immunohistochemical (IHC) assessment of proliferation, maturation, and terminal biomarkers was performed. In addition, a ranking of the intensity of labeling for each biomarker on a scale of 0 (no expression) to 5 (very strong expression) was also performed. Results of the study revealed the following:

The over-expression of Ki-67, α 2, α 3, α 6 integrins, TLR-2, hBD4 and IL-8 biomarkers was noticed in inflammatory acne skin in comparison to uninvolved acne skin

- Ki-67, α 2, α 3, α 6 integrins, TLR-2, hBD4, and IL-8 were over-expressed in acne inflamed skin compared to the uninvolved skin
- The expression of Ki-67, TLR-2, and IL-8 was down regulated in the presence of adapalene with BPO
- The expression of TLR-2 in inflammatory skin was down regulated by adapalene 0.1%
- The Ki-67 expression was down regulated by BPO alone down regulated

It was thus concluded that a co-activity effect of adapalene combined with BPO was demonstrated in keratinocyte maturation markers and inflammatory biomarkers. The over-expression of Ki-67, α 2, α 3, α 6 integrins, TLR-2, hBD4 and IL-8 biomarkers was noticed in inflammatory acne skin in comparison to uninvolved acne skin.

Management of acne by modulating the main pathogenesis pathways: A global strategy

Baudouin C, Rocheteau J, Brédif S, Leclère-Bienfait S, Msika P

Acne is a chronic inflammatory disorder comprising hyper seborrhea and hyperkeratinization caused by the colonization of pilosebaceous glands with *Propionibacterium acnes* (*P. acnes*). This bacterial species contributes to the exacerbation of inflammation by activating TLR2 and consequently stimulates the production of inflammatory mediators. However, in the recent years, it has been shown that PAR-2 could be activated by proteases derived from *P. acnes*, leading to the release of inflammatory cytokines or MMPs. Moreover, 5-alpha-dihydrotestosterone (DHT), a potent androgen that regulates the sebaceous gland metabolism attributes to the development of hyper-seborrhea. However, the level of DHT depends on 5-alpha reductase activity that catalyzes the conversion of testosterone to DHT. A global acne skin care product has been developed with patented active ingredients including quinoa peptides, a natural modulator of PAR-2, and 5-alpha avocuta. The effects of these agents on inflammation and seborrhea have been evaluated in vitro.

The human keratinocytes (HaCaT) were stimulated both in the presence and absence of quinoa peptides, with the PAR-2 agonist peptide SLIGKV. ELISA was used to measure the secreted IL-8. The normal human epidermal keratinocytes were stimulated by the TLR2 ligand Pam3CSK4 in presence of 5-alpha avocuta. Moreover, the gene expression of TLR2 was evaluated by real-time RT-PCR and the normal human dermal fibroblasts were pre-incubated with 5-alpha avocuta before the addition of radio-labelled testosterone. DHT was measured using a radioactivity analyser after thin layer chromatography and its formation from testosterone was directly correlated to 5-alpha reductase activity.

The study results divulged that quinoa peptides counteract SLIGKV-induced PAR-2 activation by significantly limiting IL-8 overproduction (-39%). The gene expression of TLR2 induced in keratinocytes by a specific agonist was dose-dependently reduced by 5-alpha avocuta (-52%), suggesting a TLR2-antagonistic effect. Furthermore, 5-alpha reductase activity was significantly and dose-dependently inhibited by 5-alpha Avocuta (-49%).

It was thus concluded that quinoa peptides, via PAR-2, and 5-alpha avocuta, via TLR2, are able to modulate inflammation linked to *P. acnes*. Additionally, 5-alpha avocuta can reduce hyperseborrhea, via 5-alpha reductase inhibition. Consequently, associated to Capriloyl glycine (limiting *P. acnes* proliferation), Zinc gluconate (stimulating wound healing and modulating seborrhea) and long lasting alpha-hydroxy-acids derived molecules (regulating hyperkeratinisation), these natural active principles offer a specific and universal answer to acne skin.

Quinoa peptides, via
PAR-2, and 5-alpha
avocuta, via TLR2,
are able to modulate
inflammation linked to
Propionibacterium acnes

Soy isoflavone extract in the treatment of acne

Kuncoro Y, Himbauani M, Dewi P, Soejoto H, Kuntjoro T, Subakir H

Acne vulgaris is known to exert a huge impact on patients socially and psychologically. However, its treatment still remains a big problem due to its multifactorial pathogenesis. One of the major problems behind this is bacterial hypercolonization. Antibiotics are among the most common treatments for acne vulgaris. Despite, its long term use can increase the resistance risks to antibiotics.

A variety of medicinal plants have been studied as a substantial treatment for acne. Soy is a food plant that is a rich source of isoflavone. Isoflavone is a commonly used antioxidant, anticancer, anti-cholesterol, anti-allergic and anti-aging agent. In addition to this it also has some antibacterial effects.

This in vitro study was performed to determine the antibacterial effect of soy isoflavone against acne bacteria. Samples for the study were collected from 44 patients. Standard media was used for culture in both anaerobic and aerobic conditions. Isoflavone was extracted using ethanol and dilution method was used for the antibacterial test. Results depicted that there are 5 types of bacteria in acne which is *Propionibacterium acnes*, *Staphylococcus epidermidis*, *Staphylococcus aureus*, Gram-positive and negative rods. The Isoflavone's Minimal Bactericidal Concentration (MIC) was 38.4 mg/ml.

In view of the results it was concluded that isoflavone has an antibacterial effect on *Propionibacterium acnes* and *Staphylococcus epidermidis* but is not effective on *Staphylococcus aureus*, Gram-positive and negative rods.

Isoflavone has an
antibacterial effect on
Propionibacterium acnes
and *Staphylococcus
epidermidis*



73rd Annual Meeting, American Academy of Dermatology, San Francisco Calif, March 20-24, 2015

Higher incidence of cardiovascular disease in patients with eczema

Silverberg J, Zhang BS, Greenland P

Eczema is coupled with higher rates of disturbed sleep patterns and reduction in quality of life, which might be a risk factor for cardiovascular disease. Meta-analysis of the entire dermatology literature along with the data from 4 US population-based studies including >70,000 adults, and 10 US population-based studies including >250,000 children; was used to determine, whether children and adults with eczema have increased risk of cardiovascular disease. It was seen that higher rates of obesity and systolic hypertension were there in children suffering from eczema. In adults, it was found that eczema was associated with increased chances of smoking and alcohol intake and decreased physical activity as compared to adults without a history of

Adult eczema had a correlation with higher body mass index, increased obesity, increased chances of hypertension, prediabetes, diabetes and hyperlipidemia which contribute to the risk of cardiovascular disease

eczema. Adult eczema had a correlation with higher body mass index, increased obesity, chances of hypertension, prediabetes, diabetes and hyperlipidemia which contribute to the risk of cardiovascular disease. It can be concluded that eczema is a risk marker for cardiovascular disease, thereby emphasizes the need for interventions to control the eczema.

Importance of the Global Burden of Disease study

Dunnick C, Dellavalle R, Karimkhani C, Boyers L, Armstrong A, Weinstock M, Hay R, Coffeng L, Ferrari A, Erskine H, Vos T

The Global Burden of Disease (GBD) study was conducted to appraise the global disease burden and disability. Disease burden was assessed using disability-adjusted life years (DALYs) that combine disease morbidity and mortality; one DALY is described as one year of healthy life lost. Disability was quantified in years lived with disease (YLDs). In 2013, skin diseases were estimated to consist of 1.7% of the global disease burden and 5.1% of all disease disability. Further, skin conditions from maximum to minimum disability were (all age total DALYs in thousands; age standardized rate per 100,000): dermatitis (9278; 128.7), acne vulgaris (7181; 96.7), psoriasis (4727; 66.8), urticaria (4721; 67.0), viral skin diseases (3955; 54.7), fungal skin diseases (3847; 54.0), scabies (1705; 23.5), malignant skin melanoma (1556; 23.2), pyoderma (1142; 16.6), cellulitis (1065; 15.5), non-melanoma skin cancer (817; 12.9), decubitus ulcer (661; 10.8), and alopecia areata (292; 4.2). The combined category of all other skin and subcutaneous disorders comprised 3,024 thousand DALYs for all ages. Variations in estimates of these skin disease category disabilities of the GBD study in 2013 and that in 2010 was largest for psoriasis (which increased almost four-time) and alopecia areata (which reduced about four-time). These data regarding the relative burden and disability of skin disorders may be valuable for health policy and resource prioritization.

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Appraising the expediency of topical human epidermal growth factor in cosmetic dermatology

Seidel R

Collagen deficiency is one of the causes of various cosmetic skin concerns. So far, the most effective therapeutic modalities mete out tissue injury to stimulate neocollagenesis that in turn may lead to untoward effects and distress. Three single-centre trials were conducted to independently appraise the effect of topical human epidermal growth factor (EGF) in treating under-eye bags, atrophic acne scars, and senile purpura. Eighteen individuals with under-eye bags, nine with atrophic acne scars and six with purpura participated in the trials. Individuals with acne scar and under-eye bags were prescribed EGF serum twice-daily for 12 weeks, whereas

those with senile purpura followed the same regimen for six weeks. Clinical photography and Investigator's Global Assessments (IGAs) were used to appraise all individuals. Acne scars and under-eye bags were graded using standardized scales. Further, ultrasonography was used to quantify purpuric lesions and measure skin thickness. The results divulged the following:

- IGAs, in all trials were remarkably enhanced compared to baseline.
- Mean severity grades for acne scars and under-eye bags were decreased.
- A considerable increase in skin thickness was observed among patients with senile purpura, along with a decrease in mean number of lesions.
- Moreover, patient feedback was immensely positive in all trials.

The results were suggestive of topical EGF in considerably decreasing the appearance of under-eye bags, atrophic acne scars and senile purpura.

A considerable increase in skin thickness was observed among patients with senile purpura, along with a decrease in mean number of lesions



7th European Dermatology Congress, Alicante, Spain, June 13-14, 2016

Effectiveness of a combined therapy with medical devices CE class III in various baldness patterns

Ranneva E

Hair loss is the most commonly encountered problem among males and females, which motivates them to visit the dermatologist. Baldness patterns differ clinically, statistically and diagnostically between males and females. Combined therapy including medical device CE Class III, cosmetic spray, and transdermal solution provide essential nutrients and growth factors for regenerating and strengthening of capillaries. A multi-center pilot study was conducted to determine the efficacy of combined therapy. The study enrolled 47 patients (average age 34 years) who visited the doctor with a problem of hair loss or alopecia since 5 years. Results were evaluated after 3 and 6 months. Best results were achieved preeminently in females after pregnancy, stress, and starvation. However, in male pattern baldness, although the results were satisfactory, but there is a need for further studies. It was found that, after 12 weeks, 60% of the patients were satisfied with the outcomes of the treatment of androgenic alopecia. Activation of hair follicle was seen following mesotherapy injections and cosmetic spray. This therapy increased the duration of anagen phase and shortened the telogen phase, thereby decreasing hair loss and encouraging hair growth.

This therapy increased the duration of anagen phase and shortened the telogen phase, thereby decreasing hair loss and encouraging hair growth



22nd Regional Conference of Dermatology (Asia Australian), Singapore, April 21-24, 2016

The prevalence of tinea capitis in the pediatric population: Evidence-based study

Xuan CT, Wah AF, Liew HM, Aan MK

Tinea capitis is a common dermatological disorder with a global prevalence. Inflammatory variants of tinea capitis, such as kerion and favus, are poorly appreciated which therefore, lead to a delayed diagnosis and poor outcomes. Considering this, Xuan et al collectively examined a cohort of children aged 16 years and younger with tinea capitis, as confirmed by positive fungal culture identified over a 10-year period via microbiological laboratory reports. Patients' case records were analyzed and data including demographics, comorbidities, exposure history, clinical presentation, investigation results, treatments and outcomes were noted.

Overall, 7 patients were identified (5 females and 2 male) during the study period. The mean age of initial presentation was 5 years and 7 months. No other comorbidities or risk factors were noted. Clinical assessment revealed boggy plaques in 2 patients, multiple lumps

Clinical assessment revealed boggy plaques in 2 patients, multiple lumps in 1, erythematous patches in 2 others and 2 with pustular blistering lesions

in 1, erythematous patches in 2 others and 2 with pustular blistering lesions. Fungal culture was positive for Microsporum in 4 patients and Trichosporon in 3 cases. The total recruited population then was treated with topical and oral antifungals. All the cases showed significant improvement post-treatment with oral anti-fungal therapy.

Hence, the study demonstrated increased incidence of tinea capitis in children; however large-scale studies are still warranted to determine the more commonly occurring dermatophytes and characterize the clinical presentation of tinea capitis in this population.

Myths and controversies in the treatment of childhood eczema in the East-Asian societies

Hon KL

Childhood eczema is a prevalent atopic disease associated with chronicity and a high relapse rate. This disorder, in many cases, involves the airways. There are many myths, fallacies and controversies in its treatment, especially in some typical countries (East Asian Societies). Disputes regarding the ideal emollient usage, steroid phobia and its usage, allergy tests, allergen avoidance, complementary and alternative medicine usage are common. Moisturizer and emollient use is although the primary step, but many individuals jilt conventional moisturizers and apply miscellaneous expensive creams with no proven efficacy. Several approaches with time have been devised in the successful management of this disease. One aspect in the treatment is to recognize the underlying allergen(s) with the belief that their avoidance will prevent its occurrence, and cure the disease or at least prevent its future severity. In many affluent Asian cities where myths and fallacies abound, food avoidance and dietary supplementation has become all the more a vogue.

It is observed that most children do not acquire genuine multi-food allergy, and also only few common food allergens are involved in the pathogenesis. In some countries, parents generally think doctors do not advocate food avoidance and believe that their atopic children have multiple food allergies. Further, in infancy, many parents believe that cow's milk protein is the principal food allergen. Hence anxious non-breastfeeding mothers alter the milk formula from one brand or type to another within very short time span, which eventually results in avoidance of milk due to no visual benefits. In toddlers and older children, parents commonly request for skin and blood tests in order to identify the elusive food allergens.

Childhood eczema is a prevalent atopic disease associated with chronicity and a high relapse rate

Lately, food specific IgG testing has become popular. Commercial ELISA kits that identify several ethnic-specific food items with tiny amounts of blood are employed to confirm the diagnosis. The results are often positive for multiple foods. Based on these outcomes, more food items are being avoided on top of the already long list of food that these parents will customarily avoid, albeit without any appreciable beneficial effects. Testing of IgG4 to foods is considered as irrelevant for the laboratory work-up of food allergy or intolerance and should not be carried

out in case of food-related issues. Parallel to the practice of multiple food avoidance, many parents commonly give expensive dietary supplementation to their children who are affected with eczema. Multivitamins, evening primrose oil supplements and various mineral and natural products are used without parents knowing the exact indication for the same. Considering this, a multidisciplinary approach for its treatment is highly necessitated.

Management generally involves patient education, avoidance of triggers, and regular use of emollient and appropriate use of topical corticosteroids (CS). The CSs are considered as the first-line agents during disease flare. Steroid phobia (SP), however, has largely restricted its usefulness and efficacy. Due to myths and controversies associated with this therapy, many parents find alternatives and folklore treatment of unproven efficacy. Nevertheless, topical or systemic CSs are a very important class of immunomodulating and anti-inflammatory medication. Steroids are inexpensive and efficacious armamentariums. Therefore, healthcare professionals should be aware of the evidence of its efficacy and adverse effects in order to provide correct knowledge to the confused and often misinformed parents and caregivers for the management of this complex entity.

Cosmeceuticals and skin rejuvenation

Cheong WK

Cosmeceuticals is a branch of dermatology which focuses on skin care and deals with the products that improve the visual outlook of the skin. It manages the skin disorders like acne, wrinkles, and redness. Nowadays, due to advancements in technology and improved understanding of skin physiology, a wide range of cosmeceutical products are available, which are routinely prescribed by the dermatologist in their clinical practice. These cosmeceutical products particularly target skin ageing, collagen turnover rate, antioxidant effect, and any kind of pigmentation on skin. However, many dermatologists are still in a confused state regarding the efficacy of these products, and whether these products deliver results as claimed by their manufacturing companies for skin rejuvenation.

These cosmeceutical products particularly target skin ageing, collagen turnover rate, antioxidant effect, and any kind of pigmentation on skin

Persistent adult acne: A new paradigm is needed

Rademaker M

Acne vulgaris most commonly occurs in young persons. In women with persistent acne, intervention is required in about 30%, 20%, 10% and 5% of women in their 3rd, 4th, 5th and 6th decade of life, respectively. The management for acne has been mostly designed for adolescents and young adults. However, most of the treatment protocols for persistent acne are ineffective. Moreover, very few trials have been done for the specific treatment of persisting acne, especially

in adults. It is time to develop specific guidelines for the management of persistent adult acne. Topical retinoids and benzyl peroxide have been found to be effective in persistent acne but only for a short duration. Their compliance decreases after 6-months of therapy. In females, hormonal therapy is effective but it should not be prescribed for more than 1-2 years. Antibiotics too cannot be considered safe for a long duration. A study was done to assess the long term effectiveness of isotretinoin for a duration of 8 months in patients with persistent acne. A total of 60 patients with persistent acne were studied. The patients were in the age group of 25-55 years who were prescribed isotretinoin at a dose of 5 mg/day for a duration of 8 months. It was seen that the lesions resolved from 11.3 ± 8.1 to 1.3 ± 3.1 by 32-weeks of treatment. There was a median remission of 24 months. Most patients with relapse were restarted with isotretinoin at 5-10 mg per week. Significant adverse effects were not observed. Thus, it can be concluded that isotretinoin (5mg/day) is safe and effective for persistent acne. It should be considered as the first-line therapy for persistent acne, specially in adults. However, contraindications like pregnancy should be borne in mind.

Isotretinoin (5mg/day) is safe and effective for persistent acne. It should be considered as the first-line therapy for persistent acne, specially in adults

Antibiotic sensitivity of propionibacterium species isolated from acne patients in India

Khanna N, Chaudhary R, Hassan F, Sharma N, Khan R

Propionibacterium acnes (*P. acnes*) is one of the main organisms responsible for causing acne. Although antibiotics are available, this organism has developed resistance to antibiotics. However, there is not much data regarding the antibiotic sensitivity of *P. acnes* as well as other species of Propionibacterium involved in the pathogenesis of acne. A study was done to determine the antibiotic sensitivity of *P. acnes* and other Propionibacterium species isolated from patients with acne and to correlate this with the previous use of antibiotics. The minimum inhibitory concentration (MIC) of different strains of Propionibacterium species was determined against clindamycin, erythromycin, tetracycline, azithromycin, doxycycline and minocycline. Amongst these, there were 61 strains for *P. granulosum*, 56 for *P. acnes*, 5 for *P. propionicus* and 2 for *P. avidum*. All these organisms were isolated from patients with acne using Epsilometer test. The resistant breakpoints were based on EUCAST guidelines. Of these 124 strains of Propionibacterium species, 38 (30.7%) were resistant to at least one of the antibiotics tested,

About 1/3rd of Propionibacterium species isolated from acne patients in India are resistant to at least one of the commonly used antibiotics

27 strains (21.8%) were resistant to more than one antibiotic, 33 (26.6%) were resistant to clindamycin, 21/75 (28%) to erythromycin and 9/49 (18.4%) to azithromycin. Resistance was more common with *P. granulosum* than with *P. acnes*, but there was a significant statistical difference for azithromycin. Resistance to clindamycin could be correlated with its previous antibiotic use. Thus, it can be concluded that about 1/3rd of *Propionibacterium* species isolated from acne patients in India are resistant to at least one of the commonly used antibiotics. However, this study was conducted at a tertiary care centre and may not reflect the sensitivity pattern in the community.

Appraising the efficacy and safety of benzoyl peroxide 2.5% gel in the treatment of moderate acne vulgaris in Fitzpatrick skin type IV-V

Virgayanti PS, Sitohang IB, Yusharyahya SN

Acne vulgaris is one of the most frequent disorders for which patients resort to dermatologic treatment. Antibiotic, retinoic acid, with or without benzoyl peroxide (BPO) are the Global alliance recommendation for moderate acne treatment. However, drug resistance becomes the most usual concern due to long-term use of antibiotic in acne management. This problem may be overcome by combination of antibiotic and BPO. Most of Indonesian population has skin type IV-V. The fact that post acne hyperpigmentation is one of the problems in skin type IV-V deters the dermatologists from prescribing BPO. A study was conducted to appraise the efficacy, safety and post inflammatory hyperpigmentation index of BPO 2.5% gel as part of first line therapy regimen in patients with moderate acne vulgaris having Fitzpatrick skin type IV-V. The study enrolled 50 patients with moderate acne vulgaris and were prescribed first line therapy regimen (Doxycycline 100 mg twice daily, retinoic acid cream 0.05%) for eight weeks. In addition, BPO 2.5% gel twice daily was required to be applied on half face and placebo to be applied on the other half-face. The results divulged the following:

The results were suggestive of benzoyl peroxide to be more effective as a part of first line therapy regimen for moderate acne

- Decrease in total lesions on week 2,4,6,8 were 51.47%, 71%, 75%, 82.84%, respectively in BPO group and 30%, 53.75%, 62.28%, 71%, respectively in placebo group.
- A considerable difference was observed in reduction of total lesions between BPO group and placebo.

The results were suggestive of BPO to be more effective as a part of first line therapy regimen for moderate acne, with no increase of side effect or post inflammatory hyperpigmentation index compared to placebo.

Duration of sebum suppression, and not cumulative dose may be considered when using isotretinoin for acne

Rademaker M

There are certain guidelines that recommend isotretinoin in cumulative doses of 120-140 mg/kg. It was based on a mathematical calculation of the daily dose (1 mg/kg/day), taken for fixed 16-weeks duration. Indeed, this time period was a bargain in an endeavor to minimize the teratogenic exposure to women, and not based on any specific science. Of note, much lower dosages of isotretinoin (eg. 0.05 mg/kg/day) are equi-efficacious, both in swiftness of response and total clearance of acne. Nonetheless, patients treated with very-low daily dosages for only 16-weeks, may see a relapse, unduly interpreted as being a reflection of cumulative dose. It is now acknowledged that larger dose isotretinoin (0.5-1.0 mg/kg/day) has an extended effect on sebum suppression, mediated through apoptosis of both sebaceous gland cells and, more notably, their stem cells; the effect endures for 4-8 months after discontinuation of isotretinoin. On the other hand, this effect on stem cells is not observed with very-low dose isotretinoin (0.05-0.1 mg/kg/day), so the sebum suppression only persists for another 4-8 weeks after termination. An appraisal of 1453 patients with acne treated with isotretinoin revealed a relapse in 22.4% patients necessitating a second course of treatment. Relapse was observed more frequently in women than in men (61% v 47%). Further, patients experiencing a relapse had received a higher daily dose (0.71 mg/kg/day v 0.58 mg/kg/day) and/or a larger cumulative dose (126 mg/kg v 101 mg/kg). It was concluded that relapse of acne is influenced neither by daily dose nor by cumulative dose. More important is the duration of sebum suppression that should be continued for 8-12 months to maximize long term decline.

More important is the duration of sebum suppression that should be continued for 8-12 months to maximize long term decline

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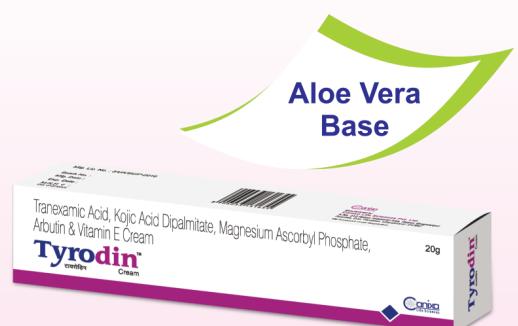
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