

Azelaic acid for mild acne



This transversal, cohort study of 230 people with acne looked at individualising acne treatment according to the clinical form and grade of acne which we do in our everyday practice. It doesn't tell us anything new regarding treatment of acne, such as comedone reduction is most effective with a topical retinoid or that inflammatory acne can be treated with doxycycline plus a topical retinoid plus benzoyl peroxide. However it does remind us that for papular pustular lesions, azelaic acid can be used.

Jorgaqi E, Savo I, Koraqi A, et al. Efficacy of acne vulgaris treatment protocols according to its clinical forms. *Dermatol Ther.* 2020 May.



Many of us forget this option. Azelaic acid is an extremely safe topical treatment that is easily accessible with very few side effects.

Future acne therapies



Looking at the need for new therapies for recalcitrant or relapsing acne, this paper found candidates include targeting the cutaneous loss of diversity of Cutibacterium (formerly Propionibacterium) acnes phylotypes and the insulin-like growth factor-1 signalling pathway.

New data about the loss of diversity of C. acnes in acne provides the rationale for the potential use of oral or topical probiotics. Another therapeutic approach could be the use of a topical formulation of C. acnes bacteriophages to target specifically the pathogenic 'acnegenic' C. acnes subgroups.

Insulin-sensitising agents such as metformin, myo-inositol and d-chiro-inositol represent promising agents to disrupt the insulin-like growth factor 1 signalling pathway.

Dessinioti C, Dreno B. Acne treatments: Future trajectories. *Clin Exp Dermatol.* 2020 May.



Not only are new therapeutic mechanisms considered but the need for a more holistic approach for patients with acne. Both internal and external contributing factors should be considered including pollution, stress, smoking and diet.

Glycolic acid at low concentrations



Glycolic acid is an alpha hydroxy acid used to treat acne vulgaris often in concentrations of 20-50% in chemical peels. This study looks at its role and the concentration required to inhibit Cutibacterium acnes.

The authors found that glycolic acid exhibits pH-dependent antibacterial activity against C. acnes especially in the non-ionic form and that the greatest degree of antibacterial activity was observed at pH 3-4.5. This study showed that glycolic acid kills C. acnes cells by disrupting bacterial cell membranes.

While most conventional treatments involve high concentrations of glycolic acid (>20%), findings support the potential of developing anti-acne formulations with glycolic acid concentrations as low as 0.2% and with pH conditions that are suitable for over-the-counter applications. Another potential topical treatment that can be easy to use with minimal risk.

Valle-González ER, Jackman JA, Yoon BK, et al. pH-dependent antibacterial activity of glycolic acid: Implications for anti-acne formulations. *Sci Rep.* 2020 May 4; 10(1):7491.

Cochrane looking at long-term antibiotic use in acne



This Cochrane study is being conducted to address the question: What is the existing evidence that long-term oral antibiotics used to treat acne in those over eight years of age contribute towards antibiotic treatment failure or other outcomes suggestive of the impact of antimicrobial resistance?

We know how commonly antibiotics are used in the treatment of acne and that they can sometimes be prescribed for long periods of time. We look forward to this Cochrane!

Bhate K, Lin LY, Barbieri J, et al. Is there an association between long-term antibiotics for acne and subsequent infection sequelae and antimicrobial resistance? A systematic review protocol *BMJ Open.* 2020 Jul 2;10(7).



Frogs, bacteria and liposomes

Researchers are exploring some unusual ways of treating acne.

Esc-1GN is a substance identified from the skin of the frog *Hylarana guentheri*. It has anti-inflammatory and antimicrobial properties that may make it a promising candidate drug for treatment of acne vulgaris.

Ye T, Wu J, Xu Z, et al. Esc-1GN shows therapeutic potentials for acne vulgaris and inflammatory pain. *Pept Sci.* 2020 Aug;26(8).

Lactic acid bacteria (LAB) are a group of microorganisms classified by their ability to produce lactic acid through fermentation. *Lactobacillus paraplantarum* THG-G10, which has anti-bacterial activity against C. acnes (possibly by interrupting the cell membrane) was isolated from traditional kimchi in the Republic of Korea and may have potential as an acne vulgaris treatment.

Cha H, Kim SK, Kook M, Yi TH. *Lactobacillus paraplantarum* THG-G10 as a potential anti-acne agent with anti-bacterial and anti-inflammatory activities. *Anaerobe.* 2020 Jul 23;102243.

This study looks at major shortcomings in acne treatment such as why current therapies are lacking in giving the desired therapeutic results. The authors propose that new drug delivery strategies can play a crucial role in the enhancement of topical delivery of anti-acne agents by improving their dermal localisation and reducing their adverse effects. The review highlights the potential of various novel drug delivery approaches like liposomes, niosomes, ethosomes, transfersomes etc. in enhancing the topical delivery of anti-acne agents.

Singh N, Singh A, Pandey K, Nimisha. Current insights for the management of acne in the modern era. *Recent Pat Antiinfect Drug Discov.* 2020 July.

all about
acne

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Reviewing the new topical minocycline foam 4%



The new topical minocycline foam 4% (Amzeeq™) has just been approved in the USA for the treatment of inflammatory lesions of non-nodular, moderate to severe acne vulgaris in patients aged ≥ 9 years.

Developed to minimise systemic minocycline absorption and toxicity, the new foam shows a favourable in vitro resistance profile in *C. acnes* isolates as well as improvement of acne lesions relative to vehicle in the 12 week, phase III clinical trials. Extension trial data indicated it continued to be effective for up to 52 weeks therapy and was generally well tolerated in patients.

Paik J. Topical minocycline foam 4%: A review in acne vulgaris. Am J Clin Dermatol. 2020 21(3):449-456.



Watch this space for when it becomes available in Australia...but do we really need a new topical antibiotic when there have been many attempts to minimise the use of antibiotics both topically and orally?

QoL and oral isotretinoin



This was a longitudinal, retrospective case series study of Skindex-16 data collected at monthly visits from 57 consecutive acne patients who received oral isotretinoin. The data was collected and evaluated between November 2016 and January 2019.

Baseline Skindex-16 scores were similar by sex but worse with increasing age. Emotional impact was more bothersome to patients than either symptoms or functioning. Improvements of greater than 50% in overall and emotional domain scores were seen by month two of receiving isotretinoin treatment.

It has been recommended by an international task force that we consider routine use of quality of life measures for clinic visits however this is not done in the real world. The good news in this small study is that patients receiving isotretinoin treatment achieve greater than a 50% improvement in quality of life by month two and can expect approximately 4-5-fold improvements from baseline with a full course of isotretinoin.

Secrest AM, Hopkins ZH, Frost ZE, et al. Quality of life assessed using Skindex-16 scores among patients with acne receiving isotretinoin treatment. JAMA Dermatol. 2020 July.



Maybe we can remember this statistic when counselling anxious patients and their parents!

Review and meta-analysis of green tea



Green tea extract (GTE) has been studied as an acne treatment based on its anti-inflammatory and antioxidant properties. This systematic review and meta-analysis showed that topical green tea extract significantly reduced the number of inflammatory acne lesions whereas oral GTE intake showed minimal effect. Another potential therapy with few side effects!

Kim S, Park TH, Kim WI, et al. The effects of green tea on acne vulgaris: A systematic review and meta-analysis of randomized clinical trials. Phytother Res. 2020 Aug.

Linking diet with adult acne



This cross-sectional study is part of the NutriNet-Santé study, an ongoing observational, web-based French cohort study. From November 2018 to July 2019, 24,452 participants completed an online self-questionnaire to categorise their acne status in an attempt to assess the association between dietary behaviour and adult acne. A significant association between current adult acne and the consumption of fatty and sugary products, sugary beverages and milk was found.

Penso L, Touvier M, Deschasaux M, et al. Association between adult acne and dietary behaviours: Findings from the nutriNet-santé prospective cohort study. JAMA Dermatol. 2020 June 156(8):854-862.



Arguably two of the hottest topics in acne - adult acne and diet. Further large-scale studies are warranted to investigate this association more closely before we can make any recommendations. It's particularly important that patients, especially teens and young adults, do not eliminate milk from their diet given the nutrients it provides.

Fish and probiotics



This review discusses the current evidence regarding the diets of US patients with acne. While discussing a low glycaemic diet and dairy it also discusses the effects of omega-3 fatty acid and γ -linoleic acid consumption in individuals with acne. It shows benefit from diets consisting of fish and healthy oils, thereby increasing omega-3 and omega-6 fatty acid intake. Recent research into probiotic usage in acne patients show promising results and further studies are needed.

Baldwin H, Tan J. Effects of diet on acne and its response to treatment. Am J Clin Dermatol. 2020 Aug.

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BACK ACNE &
BALANCING THE
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This issue has been authored by Dr JoAnn See

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