Acne-

It's Causes, Discussion of

"over the counter treatments," and what you can do to maximize your improvement

Dermatology Associates of Plymouth Meeting

Number 2, 2009

The root cause of why some people get acne and some do not is not fully known. It is known to be partly hereditary. Several factors are known to be linked to acne:

- Family/Genetic history. The tendency to develop acne runs in families. For example, school-age boys with acne often have other members in their family with acne as well. A family history of acne is associated with an earlier occurrence of acne and an increased number of retentional acne lesions.
- Hormonal activity, such as menstrual cycles and puberty. During puberty, an increase in male sex hormones called androgens cause the glands to get larger and make more sebum.
- Inflammation, skin irritation or scratching of any sort will activate inflammation. Anti-inflammatories are known to improve acne.
- Stress, through increased output of hormones from the adrenal (stress) glands, although modern tests have said otherwise and point to this not being a cause.
- Hyperactive sebaceous glands, secondary to the three hormone sources above.
- Accumulation of dead skin cells that block or cover pores.
- Bacteria in the pores. Propionibacterium acnes (P. acnes) is the anaerobic bacterium that causes acne. In-vitro resistance of P. acnes to commonly used antibiotics has been increasing.
- Use of anabolic steroids.
- Any medication containing lithium, barbiturates or androgens
- Exposure to certain chemical compounds. Chloracne is particularly linked to toxic exposure to dioxins, namely Chlorinated dioxins.
- Exposure to halogens. Halogen acne is linked to exposure to halogens (e.g. iodides, chlorides, bromides, fluorides].
- Chronic use of amphetamines.

Several hormones have been linked to acne: the androgens testosterone, dihydrotestosterone (DHT) and dehydroepiandrosterone sulfate (DHEAS), as well as insulin-like growth factor 1 (IGF-I). In addition, acne-prone skin has been shown to be insulin resistant.

Development of acne vulgaris in later years is uncommon, although this is the age group for Rosacea which may have similar appearances. True acne vulgaris in adult women may be a feature of an underlying condition such as pregnancy and disorders such as polycystic ovary syndrome or the rare Cushing's syndrome. Menopause-associated acne occurs as production of the natural anti-acne ovarian hormone estradiol fails at menopause. The lack of estradiol also causes thinning hair, hot flashes, thin skin, wrinkles, vaginal dryness, and predisposes to osteopenia and osteoporosis as well as triggering acne (known as acne climacterica in this situation).

Diet

Many patients hold the belief that their acne is influenced by dietary factors, while in previous decades, doctors thought that diet had little influence on acne.[15] There is surprisingly little good scientific evidence to support or refute diet as a factor influencing acne. Most dermatologists are awaiting confirmatory research linking diet and acne but some support the idea that acne sufferers should experiment with their diets, and refrain from consuming such fare if they find such food affects the severity of their acne. This also applies to the belief that eating chocolate directly causes acne.

Milk

Recently, three epidemiological studies from the same group of scientists found an association between acne and consumption of partially skimmed milk, instant breakfast drink, sherbet, cottage cheese, and cream cheese. The researchers hypothesize that the association may be caused by hormones (such as several sex hormones and bovine insulin-like growth factor 1 (IGF-1)) or even iodine[21] present in cow milk. Some but not all of these products survive digestion and could have biological effects in humans. Though there is evidence of an association between milk and acne, the exact cause remains unclear.

Carbohydrates

The long-held belief that there is no link between diets high in refined sugars and processed foods and acne has recently been challenged. The previous belief was based on earlier studies (some using chocolate and Coca Cola) that were methodologically flawed. The recent low glycemic-load hypothesis postulates that rapidly digested carbohydrate foods (such as soft drinks, sweets, white bread) produce an overload in blood glucose (hyperglycemia) that stimulates the secretion of insulin, which in turn triggers the release of IGF-1. IGF-1 has direct effects on the pilosebaceous unit (and insulin at high concentrations can also bind to the IGF-1 receptor)and has been shown to stimulate hyperkeratosis and epidermal hyperplasia.These events facilitate acne formation. Sugar consumption might also influence the activity of androgens via a decrease in sex hormone-binding globulin concentration.

In support of this hypothesis, a randomized controlled trial of a low glycemic-load diet improved acne and reduced weight, androgen activity and levels of insulin-like growth factor binding protein-1.High IGF-1 levels and mild insulin resistance (which causes higher levels of insulin) had previously been observed in patients with acne High levels of insulin and acne are also both features of polycystic ovarian syndrome.

According to this hypothesis, the absence of acne in some non-Westernized societies could be explained by the low glycemic index of these cultures' diets. It is possible that genetic reasons account for there being no acne in these populations, although similar populations (such as South American Indians or Pacific Islanders) do develop acne. Note also that the populations studied consumed no milk or other dairy products.

Further research is necessary to establish whether a reduced consumption of high-glycemic foods, or treatment that results in increased insulin sensitivity (like metformin) can significantly alleviate acne, though consumption of high-glycemic foods should in any case be kept to a minimum, for general health reasons.Avoidance of "junk food" with its high fat and sugar content is also recommended.

Hygiene

Blackheads removed from a nose by a pore cleansing strip.

Acne is not caused by dirt. This misconception probably comes from the fact that blackheads look like dirt stuck in the openings of pores. The black color is not dirt but simply oxidised keratin. In fact, the blockages of keratin that cause acne occur deep within the narrow follicle channel, where it is impossible to wash them away. These plugs are formed by the failure of the cells lining the duct to separate and flow to the surface in the sebum created there by the body. Built-up oil of the skin can block the passages of these pores, so standard washing of the face could wash off old oil and help unblock the pores

“Over the Counter Therapies”

There are many products available for the treatment of acne, many of which are without any scientifically-proven effects. Generally speaking, successful treatments show little improvement within the first two weeks, instead taking a period of approximately three months to improve the situation. Many treatments that promise big improvements within two weeks are likely to be largely disappointing. However, short bursts of cortisone can give very quick results, and other treatments can rapidly improve some active spots.

Treatments are believed to work in at least 4 different ways:

- normalizing shedding of cells into a pore opening to prevent blockage
- killing bacteria
- anti-inflammatory effects
- hormonal manipulation

A combination of treatments can greatly reduce the amount and severity of acne in many cases. Those treatments that are most effective tend to have greater potential for side effects and need a greater degree of monitoring, so a step-wise approach is often taken.

Although acne does not physically impair patients, it can lead to social, psychological and emotional concerns. A myriad of over the counter treatment options ranging from washes to oral agents, to lasers, exist.

Young adults frequently seek over the counter remedies for their acne. Given the presence of OTC acne medications on televisions, the internet and store shelves, it is important to be aware of these remedies.

Effective over the Counter Acne Treatments—Look at the Label!

Benzyl Peroxide:

Widely available OTC bactericidal products containing benzyol peroxide may be used in mild to moderate acne. The gel or cream containing benzoyl peroxide is rubbed, twice daily, into the pores over the affected region. Bar soaps or washes may also be used and vary from 2 to 10% in strength. In addition to its therapeutic effect as a keratolytic (a chemical that dissolves the keratin plugging the pores) benzoyl peroxide also prevents new acne lesions by killing P. acnes*, the bacteria that overgrows in acne*. Benzoyl peroxide has also been shown to reduce resistant bacterial populations that often arise in patients being treated for acne, making it a very useful therapy for controlling antibiotic resistance in patients receiving antibiotics.

In one study, roughly 70% of participants using a 10% benzoyl peroxide solution experienced a reduction in acne lesions after 6 weeks. Unlike antibiotics, benzoyl peroxide has the advantage of being a strong oxidizer (essentially a mild bleach) and thus does not appear to generate bacterial resistance. However, it routinely causes dryness, local irritation and redness. A sensible regimen may include the daily use of low-concentration (2.5%) benzoyl peroxide preparations, combined with suitable non comedogenic moisturisers to help avoid overdrying the skin.

Care must be taken when using benzoyl peroxide, as it can very easily bleach any fabric or hair it comes in contact with.

Other OTC antibacterials that have been used include triclosan, or chlorexidine gluconate. Though these treatments are often less effective, they also have fewer side-effects.

Prescription-strength benzoyl peroxide preparations do not necessarily differ with regard to the maximum concentration of the active ingredient (10%), but the drug is made available dissolved in a vehicle that more deeply penetrates the pores of the skin.

The sale of OTC BPO far exceeds that of other OTC acne therapies. Prescription and OTC products contain anywhere from 2.5-10% of benzyl peroxide (BPO). Regarding BPO strength more is not necessarily better. Improvement does not appear to increase with concentration, but rather, side effects do. Irritation is the most common side effect experienced with BPO use.

Salicylic Acid:

SA is used when patients cannot tolerate topical BP or a retinoid because of irritation. It also is used as adjunctive therapy. It is chemically similar to the active component of aspirin and functions by dissolving cement holding cells of the top layer of the skin together thereby leading to exfoliation. It is fat soluble and able to penetrate the oil glands therapy breaking up clogged units. The maximum strength of SA permitted in OTC acne products in the United States is 2%.

BPO and SA may best be used in combination as part of a complete skin care regimen as they have two different mechanisms of action that appear to complement one another in the treatment of acne.

Sulfur

Sulfur has been used to treat acne for decades. The precise mechanism of action is unknown. It is thought that sulfur is metabolized into a chemical capable of breaking down cells, causing exfoliation. Used in combination with products such as BPO and Salicylic acid, efficacy improves greatly.

Sodium Sulfacetamide

This chemical inhibits bacterial growth on the skin. In combination with sulfur, both inflammatory lesions and white heads/black heads are improved.

Alpha Hydroxy Acids

At low concentrations, AHAs decrease cellular connections in the top layer of the skin causing exfoliation. They also stimulate the second layer of the skin and

can lead to increased collagen synthesis and dispersion of pigment. They can play a role in acne prevention as well as treatment of post inflammatory hyperpigmentation. AHAs in combination with retinaldehyde preparations can help greatly with lightening of the skin.

Zinc

Zinc fights against bacterial on the skin and manipulates the immune system. There are some reports that oral zinc supplementation improves acne in zinc deficient patients. However, daily use of oral zinc has not been scientifically shown to be of benefit in normal people. Since zinc directly affects copper absorption. Copper supplementation may be recommended with long term zinc therapy. Limited efficacy and poor compliance limit zincs usefulness with supplemental therapy.

Vitamin A

The naturally occurring form of vitamin A is also known as retinol. Retinol is transformed into numerous metabolites including retinoic acid (aka retin A). Retinol oxidizes very quickly by the sun and in inactivated. Therefore OTC preparations may demonstrate a wide range of activity. Topical retinol is touted to diminish the appearance of fine wrinkles but there is little published data showing anti acne effects. Oral vitamin A has been shown to be of benefit.

WORD of interest:

Many questions arise about the Proactive kit system for acne. This is a multistep system whose main active ingredient is 2.5% BP and glycolic acid. It was the first acne system available to consumers providing a complete skin care regimen for acne prone skin. Proactive solution is delivered in vehicles specially designed to be cosmetically elegant and minimally irritating. All the ingredients in Proactive are non prescription and it should not be considered a medically directed treatment regimen for acne.

CONCLUSIONS

BPO AND SA are the most common ingredients in OTC acne products. SA shows moderate activity against both inflammatory and noninflammatory lesions. BPO is considered to be the most effective OTC for reducing inflammatory lesions and it shows moderate activity against noninflammatory lesions. In combination, these agents are the most active ingredients found in OTC acne therapies.

12 Ways to Get Better Results from Acne Treatment

Effective Acne Treatment Often Requires More Than Medication

Do you wish that your acne medication left you with clearer skin? Better results may not come from trying the latest acne treatment or a stronger acne-fighting cream — but from making some simple changes.

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1. **Use your acne treatments exactly as prescribed.** Acne only clears when the treatment targets everything that is causing the acne. Since most acne medications target only 1 or 2 causes, 2 or 3 products are often necessary. To see clearer skin, these products must be used as prescribed.

2. **Stop using acne treatments not prescribed by your dermatologist.** Using acne products that are not part of the treatment plan prescribed by your dermatologist can irritate your skin. Irritated skin usually leads to more breakouts. For best results, dermatologists recommend using only the acne-fighting products and medications in your treatment plan.

3. **Speak up.** Dermatologists do not want patients to feel confused about acne treatment. If you do not understand something, ask about it. If an acne treatment option not prescribed by your dermatologist interests you, be sure to mention it. Asking questions is often the answer to effective acne treatment.

4. **Never pop, squeeze, or pick acne.** Popping and squeezing pimples, whiteheads, blackheads, and cysts tends to make acne worse. All this does is make the acne last longer. This can make it difficult to see clearer skin no matter what treatment you are using. Trying to get rid of a pimple by popping or picking also can lead to scarring, which can be permanent.

5. **Avoid abrasive soap, facial scrub, toner, astringent, and masks.** These can irritate the skin, and irritated skin is more likely to break out. Irritated skin also makes it more difficult to tolerate acne medication. A mild cleanser used twice a day to wash the skin is actually more effective for controlling acne and preventing breakouts.

6. **Do not scrub your skin clean.** While scrubbing away oil and grime may seem like a good idea, scrubbing actually irritates acne-prone skin. Irritating the skin generally leads to breakouts.

   When washing the skin, use lukewarm (not hot) water and gently apply a mild cleanser with your fingertips. Washcloths and puffs tend to be too abrasive. Limiting washing to twice a day can help reduce irritation

and dryness.

7. **Wait 5 to 15 minutes to apply acne medication.** Applying acne medication right after you shower or wash your face can irritate the skin and lead to breakouts. Wet skin is most absorbent. To avoid irritation, dermatologists recommend waiting 5 to 15 minutes before applying acne medication.

8. **Use only oil-free skincare and hair care products.** Makeup, hair gel, and other products used by people with acne-prone skin should not contain oil. Oil tends to clog pores and lead to breakouts. Look for products that are labeled “oil free,” “nonacnegenic,” or “noncomedogenic.” This means the product does not clog pores.

9. **Apply acne medication before makeup.** Wearing an oil-free makeup is fine, but make sure it does not prevent the acne medication from working. Makeup should always be applied after topical acne medication.

10. **Continue using the medication when skin clears.** To keep skin blemish free, most people with acne need to continue using at least 1 acne medication. If you have been using an over-the-counter product, you may be able to taper your use to a few times a week.

11. **Gently cleanse skin after sweating.** Sweating, especially under a hat or helmet, can aggravate acne-prone skin. Gently cleansing the skin as quickly as possible afterwards can help prevent breakouts. When cleansing the skin, avoid the temptation to rub or scrub sweat from the skin. This can irritate the skin and cause breakouts.

12. **Give acne-fighting products enough time to work.** As a rule of thumb, it takes 6 to 8 weeks before you begin to see an improvement. Improvement does not mean blemish-free skin, but a noticeable difference. It generally takes about 6 months to see clear skin.

Effective Treatment Possible

Tremendous gains have been made in acne treatment. Today, virtually every case of acne can be improved.