Original Article

A Review On Acne Vulgaris Is An Usual Dermatological Disorders Which Bothers People In Their Adolescence

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Abstract

Acne vulgaris is an usual dermatological disorders which bothers people in their adolescence. *Acne vulgaris* or commonly called as acne, is a kind of human skin disease associated withswith seborrhea, comedones, papules, nodules, pimples and scarring. Acne vulgaris is a disease characterized by the formation of open and closed comedones, papules, pustules, nodules and cysts. Acne can affect skin which has deep sebaceous follicles areas like face, chest and back. Acne is not fatal but serious acne can cause problem in psychological status and social activities. The present review focuses on a pathogenesis, etiology, types, treatment, of acne. Varioustreatment mostly includes topical and some oral treatment like Retinoids ,AlphaHydroxy Acids, Silicon Gel and Onion Extract, Cryotherapy, Iontophoresis ,Anti-androgen Treatment.

Keywords: Acne, retinoids, silicon gel, cryotherapy, iontophoresis, anti-androgen treatment.

INTRODUCTION

Acne scars are the areas of fibrous tissue which replaces normal tissues after any injury or any kind of disease. It is a common process of wound healing. There are two kinds of wound healing processes that are regeneration and repair. The epidermis of the skin gets heal by regeneration, i.e. multiplication of cells to restore to its original structure and function. This type of healing will leave no scars. The dermis of the skin, gets heal by repair, i.e. deposition of fibrous tissue, in order to maintain flow of tissues. This process of repair will lead to the formation of scar. Scar formation can be associated with loss of tissue, or exaggeration with excess tissue.

Phases of Acne Occurrence

Acne is an inflammation that leads into the dermis, hence scarring occurs. In the non-inflammatory phase, when there are only comedowns so, there is no scarring. Once the non-inflammatory lesion develops into an inflammatory lesion, the processes of wound healing are activated. If the inflammation is substantial and deep, extending into the deep down the dermis and continues untreated, result in scar. Several types of scars in acne are due to extent, depth and degree of inflammation that is followed by repair. A study has compared the histopathological and immune histochemical features of acne lesions which were prone to scarring versus those that did not scar [1].

It was established that a basically specific immune response was present in patients those who prone to scarring, which were at first smaller and ineffective, but was also elevated and activated in resolving lesions. Too much inflammation in the healing tissue was favorable for scarring. Contrasted to, lesions which did not show scar showed a large and active nonspecific inflammatory response (few memory T cells) in early lesions, which subsided quickly when the lesion was resolving. Hence controlling inflammation in the early stage is probably the key to prevent or reduce scarring in acne.

Pathogenesis of Acne[2, 3]

Acne is an extremely complex ailment with an interplay of multiple path genetic factors that involve abnormalities in epidermal keratinization, androgen secretion, elevated sensitivity to circulating androgens, sebaceous function, bacterial growth, inflammation, and immunity. There are several mechanisms which is involved in the pathogenesis of acne vulgaris:

1. Hyperkeratinization of the sebaceous duct.
2. Colonization with *Propionibacterium acne* (*P. acne*).

3. Increased sensitivity to circulating androgens.
4. Inflammation.

Acne begins in the pilosebaceous follicle that has a small pilary structure and a large sebaceous gland. The follicular canal is comprised of two portions, the superficial upper section, the acroinfundibulum which is structurally similar to the epidermis and the lower infrainfundibulum. The first event is the formation of the microcomedo, which is clinically unseen, but bring out to inflammatory acne. Faulty desquamation of the infrainfundibular part of the follicular lining will result in the epithelium coming off in sheets instead of shedding as fine particles. These are incapable of exiting through the follicular orifice. This will result in a plug of keratinous material which swells the sebaceous follicle, and forms a comedone. Comedogenesis is therefore the accumulation of corneocytes in pilosebaceous duct. This could be because of the fact of either hyperproliferation of ductal keratinocytes or due to inadequate separation of the ductal corneocytes (increased stickiness) or a combination of both factors. Androgens also play a role in comedogenesis. The enzyme named as 5 alpha-reductase (type 1) is available in the infrainfundibulum part of the duct and the sebaceous gland. Antiandrogen therapy results in decreased comedogenesis.[4]

The microcomedo might stay as it is and may resolve spontaneously with the cycle of the hair , enlarges into a close or open comedone or it may become an inflamed acne lesion, from which scarring is more likely. The trigger for the inflammation of the microcomedo is the Propionibacterium acnes (P. acne), which stays in the microcomedo and which activates the inflammatory and the immune responses. Greater the immunity, the more is the inflammatory response and higher chances of scarring. Inflammation plays a vital role in the development of lesions and in the acne scarring. In fact there is evidence which is emerging that subclinical inflammation do occur before comedo formation and acne is basically a chronic inflammatory ailment. Recent reports have shown that P. acne activate the toll-like receptor 2 on monocytes and neutrophils, which leads to the production of multiple proinflammatory cytokines, including IL-12, IL-8, and tumor necrosis factor.[5] The procedure of inflammation will lead to a rupture of the follicular wall, with inflammation expanded into the dermis. Acne scar begins when non-inflammatory comedone got converted into inflammatory lesion and begins the process of wound healing in the dermis.

ETIOLOGY

Environmental Factors

Factors like High moisture in the air, Sweating for long time will increase thehydration in skin, exposure to dust or cooking oil which is vapourized or some chemicals of petroleum derivatives. Drug Use Drugs like Isoniazid ,Phenytoin, Lithium , Phenobarbital, Azathioprine , Ethionamide, Steroids, Quinine and Rifampin can result acne [6].

Hormonal

Menstrual cycles in females and puberty also causes acne. During adolesence, increase in level of androgens results in the enlargement of follicular glands and increase in the sebum production [7, 8]. Anabolic has got similar effect [9]. Some of the hormones are linked with acne like the androgens testosterone,dehydroepiandrosterone,dihydrotestosterone, insulin and sulfate like growth factor 1 (IGF -I). . Acne vulgaris in women are may be because of underlying condition such as Cushing's syndrome, pregnancy, hirsutism or PCOD,PCOS. Acne climactericameans menopause related to acne, occurs because of the synthesis of the anti-acne ovarian hormones estradiol and progesterone causing the acnegenic hormone testosterone to continuously show its effects.

Genetic

Genetics of acne exposure is polygenic because the disease do not follow classic Mendelian inheritance pattern. There are multiple patients suffering from gene related acne problem which has polymorphisms in Tumor necrosis factor-alpha, Interleukin-1 alpha, CYP1A1 [10].

Psychological

Studies have showed that increase in the stress level is also associated with increase in the acne severity [11]. The National Institutes of Health (USA) reports that increase in stress can cause acne flare [12]. In Singapore, studies have found adolescents have observed positive correlationin betweenacne severity and stress levels[13].

Infectious

Propionibacterium acnes are an anaerobic bacterium that causes acne. *Staphylococcus aureus* were found to play an important role as normal poresareonly colonized by Propionibacterium acnes [14]. Specified clonal sub strains of P. acnes are also associated with normal skin health and acute problems. These strains have severe capability of changing, keep going or adapting to the cycle of inflammation, oil production and poor sloughing activities of acne pores. For almost centennial, one strain of virulent known as*Propionibacterium acnes* has been found around Europe [15]. Antibiotics resistance is continuously increasing to P. acnes in vitro in this case[16].

Diet

The correlation between acne and food is not that clear although diet rich in high sugar content is associated with seriousness of acne [17,18,19]. But there is a positive relation between the milk consumption and increase of acne [18, 20, 21].

Reports show that eating chocolate and salt are not at all related with the development of acne [18]. Chocolate has a large amount of sugar that will cause lead in high sugar load. There a chance remains that acne is related to obesity and metabolism of insulin[22].

Parasitic

Acne is connected with a mite called Demodex but it is unclear fact that whether it is Demodexor Demodex associated with bacteria shows the effects [23,24,25].

TYPES OF ACNE

Acne scars are classified into various types, depending on the color, depth, contour and surface texture [4].

Macular scars

In this, the inflammation occurs only the superficial dermis and the epidermis which leads to a insistent change in color. At first, scars appear like erythematous, where the older scars appear to be hyperpigmented because of postinflammatory hyperpigmentation. The inflammatory mediators provoke melanogenesis and these scars can be insistent, especially in dark skin individuals.

Ice pick scars

In this, serious inflammation of the dermis can cause to necrosis of the whole follicle with sloughing of the follicle, producing a focal ice pick scar. Ice pick scars are narrow, punctiform, and deep. They are so named because these scars appear as if the skin has been pierced by an ice pick .They are sharply marginated epithelial tracts that extend vertically into the deeper part of the dermis or subcutaneous tissue.. Often there are remainder of inflammation even in old scars of this type.

Rolling scars

In this, inflammation goes afar the hair follicle, into the neighbouring to the subcuticular area, the sweat glands and across with the vascular channels, it causes severe and deeper scarring, and results into the rolling scars. Rolling scars are because of the tethering of epidermis and dermis to the underlying subcutaneous tissue. The surface has a normal texture.

Boxcar scars

These are round, oval and have irregular depressions with sharp vertical edges. They are broader at the surface than the ice pick scars and don’t taper to a point. They appear to be punched out and might show shallow or deep.

Linear scars

These occur when there is severe dermal inflammation. They seem to be as linear atrophic, hypopigmented lines, which is relatively normal skin in between. They are narrow linear scars, where they appears to be thin lines or broad linear scars, appearing as linear dermal depressions.

Bridging scars

Bridging scars occur and inflammation reoccurs in a particular area, which results in multichannel tracts. And results in foul smelling sebum and epithelial cause’s debris collect in the tracts.

Perifollicular or papular scars

These scars are hypopigmented or in the skin colored scars that result from demolition of collagen and elastin fibers in the dermal tissues around the hair follicles. Which are most seen on trunk, chin and nose.

Lipoatrophic scars

Lipoatrophic scars occur when there is broad inflammation as seen in cystic acne, the inflammatory mediators destructs the facial fat.

Cystic lesions

The cystic lesions are also space occupying and their eventual complexes leaves a void that does not filled by the atrophied subcutaneous tissues so, alternatively the tissues are drawn from the surface layers, leads to severe depression, and might affect gets worse by the contracture of the tissues which surrounds these cysts .This cystic involution and ageing followed by fibrosis as likely defines the incongruous worses patient’s appearance which is occasionally seen after treatment of cystic acne, especially by isotretinoin. This kind of scarring becomes worse as the patient ages[3].

Hypertrophic scars

Hypertrophic scars occur because of excess collagen accumulation and reduced collagenase activity. They appear pink or skin colored, firm and raised, commonly seen on the mandibular area, shoulders, chest and back .There are thick hyalinized collagen bundles similar to that of other dermal scars. Keloids appears to be reddish-purple papules and nodules that extend afar the borders of the initial acne lesion which may be itchy or painful. Histologically, they can be identified by thick bundles of hyalinized acellular collagen arranged in whorls.

TREATMENT OF ACNE

Topical Applications

Sunscreens

Broad spectrum sunscreens are recommended after any procedure done for acne scar treatment to prevent postinflammatory hyperpigmentation. They should also be used as a part of the priming regimens before doing the peel for acne scars.[26] The sunscreen should be noncomedogenic and preferably be gel based.

Retinoids

Topical retinoic acid is reported as to be useful in the treating keloids and hypertrophic scars. Regular application of retinoic acid will lead to intractable hypertrophic scars was been lead to cause scar softening, reduce in pruritus and the size of scars. Topical retinoic acid also has proven roles in the treatment of fine acne scarring.[4]

Alpha Hydroxy Acids

Glycolic acid is an alpha hydroxy acid, which is soluble in alcohol, arises from fruit and milk sugars, which react by thinning the stratum corneum, increasing epidermolysis and dispersing basal layer of melanin. It elevates skin hyaluronic acid and collagen gene expression by elevating secretion of IL-6. [5] Application on the skin by topical preparations which has 6 percent and 12 percent glycolic acid as well as formulations combined with kojic acid and hydroquinone are available. Topical application is helpful for treating the hyperpigmented scars. They can be used between chemical peels or with any resurfacing modalitity to reduce the incidence of postinflammatory hyperpigmentation. They can also be used as maintenance therapy in the time and after procedures. Mandelic acid is one more alpha hydroxy acid that is present as a topical formulation. It is essential if the patient has active acne lesions.

It is abide as an adjunctive treatment and patient compliance is great. Contraindications are like contact dermatitis, pregnancy, and glycolate hypersensitivity. Side effects includes temporary hyperpigmentation or irritation, are not very notable [27]. Pyruvic acid is an alpha-ketoacid, with a noticable antimicrobial effect. It seems to promote synthesis of collagen and formation of elastic fibers. The usage of 40 to 70 percent pyruvic acid has been put forward for the treatment of moderate acne scars, but its effects giant in active papular-pustular acne and rosacea. Side effects are like exfoliation, smearing, intense stinging, and a burn during treatment. Pyruvic acid has pricky and annoying vapors for the upper respiratory mucosa, and has a requirement of enough ventilation during application. [28,29,30]

Silicon Gel and Onion Extract

These are topical formulation are used for hypertrophic scars and, they are less effective, also for keloids. There is changeable support to the silicone itself, with results more likely attributable to occlusion or hydration. Pressure is also one supported mechanism along with other rationales that include temperature, increased oxygen tension, electrostatic properties, or immunologic effects. There are controversial reports of its efficacy. One study concluded improved pruritus, pain, and pliability but it was found there is no improvement in pigmentation, or in the elevation of scars.[31] A separate review of effects, efficacy, and safety determined that ‘‘although the mechanism of action of silicone elastomer sheeting has not been completely elucidated, it appears to be an effective means of treating and preventing hypertrophic and keloid scars and can be used with little risk of serious adverse effects [32] Rarely, side effects include pruritus, contact dermatitis, maceration, skin breakdown, xerosis, and odors.

Cryotherapy

Cryotherapy is the controlled demolition of tissue by the used of a freezing agent called cryogen, that causes death of cell. Liquid nitrogen is the extensively used cryogen. Others are solid carbon dioxide and nitrous oxide. Cryopeeling is favoured for acne and superficial post acne scars. In this procedure, a cryoroller soak in liquid nitrogen is rapidly rotated over the face for 2 to 4 seconds after cleansing the face with acetone. One part is covered at one time brgining from the forehead. Alternatively, gauze is dunked and passed lightly on the skin. The base of the scar can also be pressed lightly with a cotton swab dipped in liquid nitrogen. Compressed solid carbon dioxide mixed with acetone may also be used, if liquid nitrogen is unavailable. Erythema and light edema of the skin is seen which might last for 24 hours. Lite topical steroids can be used after the procedure. The procedure has to repeat every 2 to 3 weeks unless and until a satisfactory response is seen. It should be done lightly as hypo- or hyperpigmentation may happen.

Iontophoresis

Stratum corneum is chief barrier for the transdermal delivery of the drugs. Iontophoresis is a noninvasive method to enhance 48 Step by Step Treatment of Acne Scars transdermal drug delivery using small electric current applied by an iontophoretic chamber containing similarly charged active agent and its vehicle. Tretinoin iontophoresis has been used as a noninvasive treatment for atrophic acne scars[26,33]. Studies were done where, tretinoin 0.025 percent gel was used for 20 minutes two times a week over upto 3 months. Clinical improvement of reduction in scar depth foumd in around 94 percent of the patients. Collagenogenesis was induced by tretinoin can explain the clinical efficacy in these patients. Side effects of the following technique was found to be minimal in the form of erythematic, stinging and flaring of the acne lesions.

A technique which usesestriol iontophoresis and is a safe, non invasive way of treating of atrophic acne scars. Photographic and clinical follow-up of skin and blood from veins were taken as sample for testing serum levels of prolactin and estradiol and were obtained monthly. After the treatment, it was observed that improvement of acne scars 100 percent of women who were treated with estriol iontophoresis. Side effects or any kind of hormonal changes were not found with estriol treatment.

Anti-androgen Treatment

In females acne can be treated with the use of combined oral contraceptives [34]. Third or fourth generation progestins such as norgestimate, desogestrel or drospirenone combination product may be more beneficial [35]. Oestrogenic oral contraceptive is an effective for acne [36]. Due to androgenic properties of oral contraceptive norethisterone is contradicted in acne [37]. Anti-androgen cyproterone combined with 50 µg of ethinylestradiol is available as Dianette® which is most effective hormonal intervention [38]. A combination of ethinylestradiol with drospirenone available as Yasmin® has been found to be effective [39]. Spironolactone has been shown to be effective for older women [40].

Plants Involved in Acne treatment-

Raspberry: -

Plant Profile-
Scientific name- Rubusideaus
Common name – Raspbery
Family- Rosaceae
Raspberry name has been derived fromraspise, from the Anglo-Latinvinumraspeys, or from raspoie. The name may have been influenced by its appearance as having a rough surface, related to Old English rasp.

Description-

Raspberries can be classified under rose (Rubus) family and are similar to strawberries, apples, and plums. It was thought that they may have originated in Asian landsand had travelled worldwide via Europe.
Raspberries are very easy to cultivate in small spaces, which donot require full sun, and can grow upright. This berry is prudent to cultivate at home as they are highly putrefiable, thus having a short shelf life at the grocery store. Brambles, raspberries and blackberries are now well-known as cane berries as they develop into long thin woody stems. Breeders blends its varieties to generate hybrids such as boysenberries and loganberries.
There are various varities of these which includes red, black, gold, and purple varieties:
• Red and black raspberries are often cultivated the most
• Purple raspberries is an amalgamated version of the red and black varieties.
• Yellow raspberries are a proof of natural mutation

Red raspberriescan tolerate cooler temperatures which is as low as -20°F. Black raspberries well-known as blackcaps tolerates slight warmer temperatures than red raspberries and can tolerate low temperature as less as -50°F. These berries have smaller-sized berries, are seedy by nature, and are more piquant than their red counterparts.

Fig- Raspberry fruit and leaves

Phytochemicals-

Raspberries contain phytochemicals, such as anthocyanin pigments, ellagicacid, ellagitannins, quercetin, gallicacid, cyanidins, pelargonidins, catechins, kaempferol and salicylic acid. Yellow raspberries and other pale-colouredfruits have low anthocyanin content.Both yellow and red raspberries have carotenoids, majorly lutein esters, which are concealed by anthocyanins in red ones. The potency of the raspberry compounds on humans are yet to be discovered.

Plants provide most of the time not only the required nutrient but also active phytochemicals that help in prevention against many diseases. The red raspberry are consists of majorly two polyphenols, that is anthocyanin and ellagitannins. Presence of gallotannins and flavonols in free and coalesced form e.g. Quercetin and kaempferol. Besides polyphenols, other

phenolic compounds present are inthe form simple phenolic acids such as hydroxycinnamic acids e.g. Caffeic, p-coumaric acid and ferulic acid and hydroxybenzoic acids e.g. Ellagic acids and p-hydroxybenzoic acids to complex polyphenols (condensed and hydrolysable tannins). The polyphenols in red ones are differentiated by their anthocyanins and ellagitannins contents. The ellagic acid derivative in these present in three varitiesas ellagitannins in which hexahydroxydiphenic acid forms esters with sugars as free ellagic acid and as ellagicacid glycosides Sanguiin H-10 and lambertianin are the main ellagitannin present in raspberries Anthocyanins have structures of C6-C3-C6 which contributes for red color of raspberries. The main anthocyanins present in raspberries are cyanidin-3-sophoroside, cyaniding-3, 5-diglucoside, cyaniding-3(2Gglucosylrutinoside), cyaniding-3-glucoside, cyaniding-3-rutinoside, pelargonidin-3-sophorside, pelargonidin-3-(2G glucosylrutnoside), pelargonidine-3-glucoside and pelargonidine-3- rutinoside. The antioxidant property of anthocyanins thus assures health benefits of redraspberry.[43,44]

Nutrition-

Raw raspberries have got 86% water, 12% carbohydrates, and 1%of protein and fat. In 100-gm, raspberries supply 53 calories and 6.5 gmsdietary fiber. Raspberries are a rich source of vitamin C (32% daily value), manganese (32% daily value) and dietary fiber (26% daily value), but otherwise have low content of micronutrients (table). Raspberrieshave got a low-glycemic food index, havingtotal sugar content of near about 4%, with no starch. The aggregate fruit structure contributes to raspberry's nutritional value, as it increases the proportion of dietary fiber, which is among the highest known in whole foods, up to 6% fiber per total weight.

Red Raspberries Health Benefits-

The vividly visiblepolyphenols of raspberries contain hydrolysable tannin such asellagitannins and anthocyanins. Most ofthe polyphenols have been found reducing the risk of some chronic diseases like diabetesmellatius, obesity, cardiovascular disease, cancer, etc. The antioxidant actions of berries are well known, and they top the list with highest AOC (Antioxidant Capacity). AOC affirms the indication of existence of beneficial bioactive components in food items. The anti-oxidant properties of red raspberry have a vivid therapeutic activity against many diseases. The next few paragraphs review the research and review articles published over the past few years that show the biological benefits of red raspberry.

Other than acne treatment, it can be used in-

Cardiovascular Disease

Cardio-vascular disease is becoming one of the main killer diseases across the world. The anti-oxidant property of red raspberry had an effective role in treatment of cardio-vascular diseases, apart from this the beneficial health factor of red raspberry also contribute in prevention against the disease. Some factors responsible for the cardiac disease are oxidative stress, inflammation, endothelial dysfunction and its participation in development of atherosclerosis and regulation of blood pressure. The anthocyanin's in raspberry help in improvement of endothelial function by its protective action on endothelial cells with less oxidative stress.

Diabetes Mellitus and Raspberries

The metabolic disorder caused by improper insulin secretion and defective insulin action results in causing diabetes mellitus which is becoming major global issue currently. Diabetes mellitus give rise to various diseases like peripheral vascular diseases, cardio vascular diseases, chronic kidney diseases, diabetic foot ulcers, retinopathy The polyphenols as anthocyanin's in red raspberry and ellagic acid stimulates insulin secretion in Animals. Also, cyaniding-3-glucoside helps in reducing fasting glucose and increased insulin response in diabetic animal models. Obesity

Obesity is one of the major health problem around the globe. Obesity leads to other serious health problems such as elevated blood pressure, type 2 diabetes, sleep disorders, CVDs, some type of cancer, brain stroke, osteoarthritis, non-alcoholic liver disease. Obesity increases oxidative stress through mechanism like peroxisomal fatty acid oxidation, disarray in mitochondrial oxidation, defilemented antioxidant defense system and elevated utilization of oxygen. Red raspberry's anthocyanins act as an anti- obesity agent by changing lipid metabolism as by enhancing lipolysis in adipocytes.

Cancer

DNA damage is the major cause for cancer. Cancer multiplies uncontrollablyaffecting normal tissues and other body organs and in the meantime spreads all over the whole body. Polyphenols of raspberry protects against cancer, especially in colon and intestine cancer. The distinctive phytochemical format of raspberry has beneficial antioxidant action which helps in free radical scavenging activity. Ellagitanninsand anthocyanins as a main antioxidant phytochemical of raspberry also present tumor proliferation inhibitory properties.

Alzheimer Disease

Alzheimer is the most familiar kind of dementia. The symptoms of this disorder is related with memory loss, doltishness in cognitive function, leading to early death. Factors like elevated blood pressure, misbalanced glucose and insulin metabolism, obesity, hyperlipidemia and raised systemic inflammation linked to cognitive depletion, dementia and growth of Alzheimer disease. The major neurological factors of this disordercomprises of intracellular neurofibrillary coils that comprising of phosphorylated τ protein, extracellular plaques that contain amyloid-β protein and conspicuous impairment

and reduction of neurons and synapses in cortex and hippocampus. In order to avoid the possibility of Alzheimer condition, there is a need to abolish the probable symptoms of this condition. Then polyphenols of these helps in reduction oxidative stress, inflammation and also improves insulin signaling, which can be used for the treatment for Alzheimer disease.

CELERY: -

Plant profile-

Celery (Apiumgraveolens L) belongs from apiaceae family. For the growth of this plant needs high levels of moisture and lower temperature. The parts that are used in this plant include seeds, leaves, and essential oils. The phytochemical compounds of celery containcarbohydrates, phenols such as flavonoids, alkaloids, and steroids. Compounds like limonene, selinene, frocoumarin glycosides, flavonoids, and vitamins A and C are the main reason for celery being most widely used traditional medicinal.

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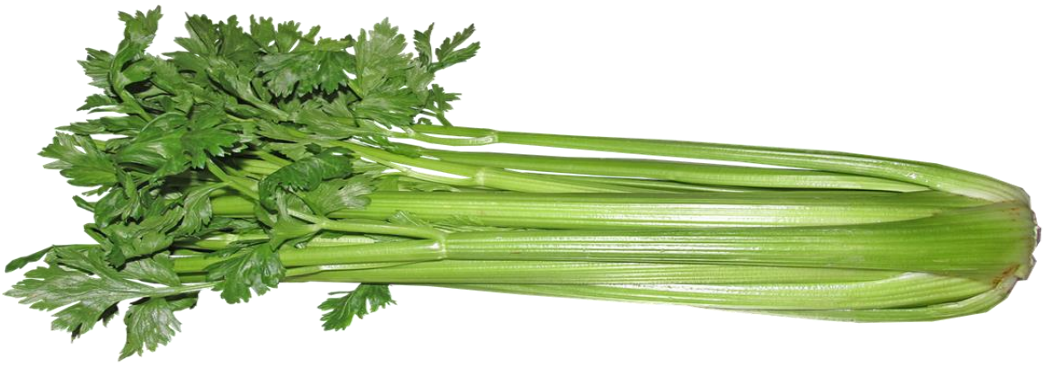

Fig: Celery

Raw celery contains 95% water, 3% carbohydrates, 0.7% protein and negligible fat. A 100-gram (3+1⁄2-ounce) reference serving provides 16 calories of food energy, and is a rich source of vitamin K, providing 28% of the Daily Value, with no other micronutrients in significant content.[43]

Other than treatment of acne, it is also used in-

Allergies-

For people with celery allergy, might lead to potential fatal anaphylactic shock. Cases of allergic reaction caused due to ingestion of celery root was also noted in pollen-sensitive individuals which results in gastrointestinal disorders and other symptoms, though in major cases, celery sensitivity is not considered clinically significant. Celery has noted to cause skin rashes and cross-reactions with carrots and ragweed.

Chemistry-

The chemicals that are responsible for aroma and taste of celery are due to butylphthalide and sedanolide.

ROSEMARY: -

Plant Profile-

Salvia rosmarinus, also known as rosemary, is an example of shrub containing fragrant, evergreen, needle-like leaves and white, pink, purple, or blue flowers, which majorly originates in the Mediterranean region. It belongs to the family of Lamiaceae.

Though it is native to Mediterranean and Asian region, it can tolerate cooler climates upto−20 °C during winters and it can easily survive through droughts.

Fig: Rosemary

It has a potent anti-microbial property, thus can give a potent therapeutic effectivity in treatment of acne.

Phytochemical-

Rosemary contains a number of phytochemicals, including rosmarinic acid, camphor, caffeic acid, ursolic acid, betulinic acid, carnosic acid, and carnosol. Rosemary essential oil contains 10–20% camphor. [43]

DISCUSSION

The methodic analysis and amalgm of qualitative research accentuated four different investigative concepts has impact on treatment commencement and cohesiveness. People often overviewed acne as a momentary condition ensuing in imputation for self-management, specifically challenges to long-term treatment adhesiveness. [41]

CONCLUSION

An escalated amount of corroboration from various countries and regions across globally reinforces the reckoned high prevalence of acne globally, majorly during teenage, and early puberty years. Moreover, the probability for a prolonged course of acne along with increased potential for psychosocial, psychiatric and physical sequelae increases the burden of disease.

Epizootical lookover of both populations having acne and without have provided an intuition into a potent mechanism for the pathogenesis. Future inspections in order to estimate the potent mechanism of acne in such wide populations might be informative for comprehending the adaptabilityof innate immunity, diet, hormones and the cutaneous microbiome in acne. Through the long course of more than a decade in the research of acne, several layered gradation scales have been used as consequence measures. Moreover, the continual use of a number of diversified measures hinders the compiled and modified estimation of the results of the research. At present, an association of researchers is working on the development and validation both clinical and patient-reported consequences in the clinical trials for acne.

As part of this effort, the corroborated consequences in the epizootical field of research of acne might also be recognized to prop up future ingenuity. [42]

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