Introduction

Acne is medically known as Acne Vulgaris. It is a skin disease that involves the oil glands situated at the base of hair follicles. It is very common and affects almost all adolescents and also the adults in their lives. It is not responsible for impairment of overall health but it is not trivial disease. It affects the patient by producing cutaneous and emotional scars which may last for lifetime. It also results in varied number of psychological problems and may result in decreased employability [1]. Some of the previous studies imply that some people have many wrong beliefs about acne. A French study was carried out on acne in adolescents with a conclusion that many people thought that there was no influence of factors such as gender, eating dairy products, physical activity and excess weight on acne. They also believed that the condition can be improved by frequently washing the face. About 80.8% people believed that acne is a normal phase of adolescence and not a disease. Even though acne is a common disease; its awareness among the people is very low [2].

Acne is a disease of the hair follicles of the skin which are associated with oil glands. The clinical symptoms of acne are inflammatory lesions, non inflammatory lesions, various degrees of scarring and seborrhea. Acne mostly affects the body parts having maximum density of the pilosebaceous units, such as, face, neck, shoulders, upper chest and back [3]. It affects people with many physical symptoms such as itching, pain, soreness etc. Apart from this, it has a deep impact on the patient’s quality of life. Cross-sectional and case control studies were assessed to observe the imprint of acne on the psychological health of the patient. A variety of abnormalities were observed which includes suicidal ideation, depression, psychosomatic symptoms, anxiety, shame, social inhibition and embarrassment. Effective treatment can improve the condition [4, 5].

Almost all people aging from 15 to 17 years are affected by acne. Even though acne is perceived as a teenage disease, it persists into adulthood as well. A population study carried out in Germany reported that 64% of age group 20-29 years and 43% of age group 30-39 years were having visible acne [6]. Approximately 20% of young population is affected by moderate to severe acne condition. Its severity is dependent on pubertal maturity. The association of ethnicity with acne is unclear. The effect of post inflammatory hyperpigmentation is more on black individuals. The chances of acne inheritance in first degree relatives are about 80%. Acne develops at an early age and more severely in people
having positive family history. People suffering from severe acne have higher suicidal tendencies as compared to those with mild acne condition \cite{7}.

There is no clear association of genes and risk factor with the prognosis of acne and its treatment. A great importance of genetic factors has been observed in severe scarring acne. The risk of developing acne doubles with its positive family history. The development if acne in girls is earlier as compared to boys. Some studies reported a correlation between acne and smoking. In polycystic ovary syndrome there is high serum dehydroepiandrosterone and increased insulin resistance. This explanation may be appropriate for the presence of acne in the patients suffering from PCOS \cite{8, 9}. Monomorphic acne may be precipitated by antiepileptic drugs. Anti-cancer drugs (for example gefitinib) may produce acniform eruptions \cite{10}. Anabolic steroids which are used for increasing the muscle bulk may also lead to development of severe acne forms \cite{11}. Atmospheric conditions also affect the acne conditions. Hot and humid climate increases the chances for acne development \cite{12}. Sunlight, diet and skin hygiene also play a role in acne but very few evidences are reported in its support. A study reported that dairy products, especially milk, increase the risk for acne \cite{13}.

Acne has a complex pathogenesis. It is dependent on four important factors. These factors are follicular hyperkeratinization leading to comedones, stimulation of sebaceous gland activity mediated by androgen, inflammatory mediators released into the skin, and follicular colonization of bacterium Propionibacterium acnes. P. acnes are an anaerobic bacterium and is a normal constituent of skin microbial flora. It gets proliferated in the pilosebaceous ducts due to the high level of sebum which is elicited by androgen. This proliferation activates the inflammatory response of the host. Thus interleukin- 1b (IL-1b), IL-8, proinflammatory cytokines, tumor necrosis factor α (TNF- α), granulocyte macrophage colony stimulating factor (GM-CSF) and complement factors are discharged \cite{14}. Macrophages and CD4+ lymphocytes are involved in immune-mediated inflammatory processes. These inflammatory cells cause the stimulation of pilosebaceous vasculature and follicular hyperkeratinization \cite{15}. This activity leads to the formation of comedo with the help of androgens and some changes in sebum lipids that cause secretion of interleukin 1 (IL1) \cite{16}. Sebaceous glands are significant part of innate immune system. It produces a diversity of bacteriostatic lipids, Neuropeptides and antimicrobial peptides. Sebaceous glands function similar to endocrine organ which is influenced by corticotrophin-releasing hormone. This forms the link between stress and exacerbation of acne \cite{17}. Sebum production is also regulated by vitamin D. Also,
insulin-like growth factor 1 activated a sterol-response-element-binding protein which increases sebum production [18]. Proliferation of keratinocytes and some other inflammatory responses which are mediated by proinflammatory leukotrienes B4 may be stimulated by oxidized lipids such as Squalene [19]. Studies have also shown that matrix metalloproteinases in sebum play a significant role in cell proliferation, inflammation, treatment responsiveness and dermal matrix degradation [20].

Many drugs are available in the market for the management of acne vulgaris. Some of these formulations are benzoyl peroxide, topical retinoid preparations, topical antibiotics etc. But these formulations have many side effects. Benzoyl peroxide has side effects such as skin irritation and contact dermatitis. It causes the release of oxygen from carboxyl group. This oxygen is responsible for creating an aerobic oxidizing environment for anaerobic bacteria which is proved to be toxic. Side effects of topical retinoid preparations are desquamation, erythema, increased sensitivity of skin to sunlight and hyper or hypopigmentation. P. acnes develop antibiotic resistance and hence this limits the use of antibiotics. It is easy to eliminate such side effects with herbal preparations. Hence use of herbal formulations is more convenient to treat acne vulgaris [21].