Low Glycemic Diet and Improvement of Acne Vulgaris Symptoms: Systemic Review

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ABSTRACT

Introduction: Acne Vulgaris is a widespread condition that affects around 85% of young people. This spread of the disease among adolescent has allowed linking the disease with distinct factors one of which is diet. Our focus is to see the effect of low glycemic regimens in acne vulgaris.

Method: Different databases were searched for related reviews, and these include PubMed, Medline, EMBASE, Cochrane and Google Scholar from January 1, 2010, until December 31, 2016. We used a filter paper to exclude all unrelated titles then un related abstracts which left us with a total of 57 articles but only 39 articles were chosen, other articles were rejected because they were irrelevant to the study objectives. Each article was carefully read by the main author.

Discussion: Many studies have found that dietary habits, fat, sugar, and fast food consumption were positively correlated with acne prevalence. These articles suggest that the increased dietary glycemic load may augment the biological activity of sex hormones and IGF-1 that may aggravate potential factors involved in acne development, whereas a low glycemic load is associated with increased insulin sensitivity and higher levels of IGFBH-1 and IGFBH-3, which may reduce the factors involved in the pathogenesis of acne. In conclusion, these studies suggest high glycemic load diets and dairy products were positively associated with acne vulgaris development.

Keywords: Acne, Vulgaris, Treatment, Glycemic Diet.

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INTRODUCTION

Acne Vulgaris (common acne) a chronic cutaneous disease affecting the pilosebaceous unit of the skin. The condition manifest into a variety of lesions ranging from non-inflammatory comedones and inflammatory papulopustular and nodules or cyst.¹ The development of acne vulgaris is multifactorial with genetic susceptibility being a key eliminate.² There are four major pathogenic factors: Inappropriate follicular keratinization in which the cornocyte of the stratum corneum increase in proliferation leading to blocking the sebum drainage and formation of comedones. A hormonal factor is contributing to the increased production of sebum mainly through androgen production especially during puberty. A normal inhabitant of the flora is the gram +ve Propionibacterium acnes (P. acnes) which is an anaerobic rod found in higher concentration in acne patients as it normally cleaves the lipids of the sebum through lipase action and releases fatty acids and proinflammatory mediators. Finally, production of inflammatory cytokines from CD4⁺ T cells and activation of inflammatory cascades around the follicles has been contributed into the pathogenesis of acne.³⁴ Acne Vulgaris is a widespread condition epidemiological wise it affects around 85% of young people.⁵ This vast spread of the disease among adolescent has allowed the emergence of many articles to link the disease with distinct factors one of which is diet. Our focus is the effect of low glycemic regimens in acne vulgaris. We’re aiming to pull out all the published research in this regard and tries to draw out a scientific conclusion on the matter to see if a recommendation of carbohydrate modification as a main stray of treatment is warranted or not.

METHODOLOGY

Different databases were searched for related reviews, and these include PubMed, Medline, EMBASE, Cochrane and Google Scholar.
Scholar from January 1, 2010, until December 31, 2016, using the keywords: Acne, vulgaris, treatment, glycemic diet. We used a filter paper to exclude all unrelated titles then unrelated abstracts which left us with a total of 57 articles but only 39 articles were chosen, other articles were rejected because they were irrelevant to the study objectives. Each article was carefully read.

**DISCUSSION**

Acne vulgaris is a common skin disease affecting 85% of the world’s population aged between eleven to thirty years 5. It affects all races, although is less intense in Asians and Blacks.6

**Ecologic Studies**

It is believed that diet could affect acne. This belief impacted behavior, as the majority had changed their diets in order to improve their acne.7 many studies found that dietary habits. Fat, sugar and fast food consumption were found to be positively correlated with acne prevalence. also, Stress is perceived to be a major trigger factor in exacerbating acne vulgaris, and this has been supported by early retrospective studies.8

**Pathophysiology**

The dietary glycemic load is a measure of the blood glucose- and insulin-increasing potential, as it represents both the rate of carbohydrate absorption (the GI) and the quantity of carbohydrate consumed.9 Previous research revealed that a high glycemic load diet could initiate a signaling cascade resulting in significant increase in insulin and insulin-like growth factor 1 (IGF-1) activity and decreased IGF-binding protein 3 (IGFBP-3) activity. Decreased IGFBP-3 effectively increases the bioavailability of IGF-1, compounding its direct activation. IGF-1 is known to stimulate key factors of acne pathogenesis, including keratinocyte proliferation, sebocyte proliferation, and lipogenesis.10-13

**Treatment**

Treatments for the disease are typically topical: benzoyl peroxide or retinoids; antibacterial: macrolides (topical) or tetracyclines (oral); hormonal: oral contraceptives or androgen receptor blockers; or systemic: isotretinoin. Each treatment option can be tailored to the patient based on his or her clinical presentation.

**Acne and Dairy Products**

Researchers hypothesized that the hormones found in milk have a role in acne risk. A study from 2005 showed that components of milk, other than lipids, have insulin-stimulating abilities.14 Another hypothesis is suggesting that iodine content of milk might also have a role in the development of acne.15

**High Glycemic Index Foods**

studies suggest that increased dietary glycemic load such as may augment the biological activity of sex hormones and IGF-1 that may aggravate potential factors involved in acne development, whereas a low glycemic load is associated with increased insulin sensitivity and higher levels of IGFBH-1 and IGFBH-3, which may reduce the factors involved in the pathogenesis of acne.16

**CONCLUSION**

In conclusion, these studies suggest high glycemic load diets and dairy products were positively associated with acne vulgaris development, a further requirement of studies and investigation to recommend certain foods or supplements for some promising effect that might help acne, a dermatologist must be able to counsel patients appropriately and give dietary change recommendations.

**REFERENCES**


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