



Milk consumption among patients with acne vulgaris

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Abstract

Background: Milk is one of the dietary products containing hormones which stimulate the production of insulin-like growth factor 1 that affects the skin and leading to acne development. The objective of this study was to explore the relationship between acne vulgaris and the intake of dairy milk (full fat, low fat, skim). **Methods:** This study conducted on patients complaining from acne from Al-Karama teaching hospitals during the period between 1st May till the end of June 2019. The selected age group was from 10-45 years old. Data were collected using a semi-structured questionnaire adopted by a dermatologist and public health specialist for that purpose and analyzed by SPSS version 21 using frequency and percentages. **Results:** The result of this study was obtained by the analysis of 40 patients. Females represented 72.5% and those patients with age groups (21-35) years were represented 52.5% followed by 37.5% for those with within the age group (16-20) years old. About 60% of patients have acne in their faces. All of them mentioned milk-drinking especially skimmed type in 60% of them and 37.5% drank milk daily and at least one cup in (90%). 57.5% noticed an improvement in acne when leaving milk drinking for a while. **Conclusion:** Milk products was associated with increased acne in individuals especially in young age females.

Keywords: acne vulgaris, milk products, insulin-like growth factor 1

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INTRODUCTION

Acne is one of the inflammatory diseases that affect the skin chronically around the world. (Bhate and Williams, 2013; Lynn et al. 2016) and the most affected age groups were the adolescent, in about (50% -95%). (Degitz and Ochsendorf, 2017). Acne pathogenesis is a complex and a lot of factors have a role in its development like gen, gonadal hormones, stress, the surrounding natural conditions. Diet is considering as one of the main factors involving in acne generation and numerous studies were conducted to evaluate the effect of some types of food like chocolate, milk, and fatty diet. Milk in special was a determinant for acne in many types of research that identified an association between all types of milk with acne development (Adebamowo et al. 2005 Adebamowo et al. 2008) because of the presence of many bioactive materials and hormones (Adebamowo et al. 2005). One of these researches was done in 2012 which found a positive relationship between drinking and acne development (OR=1.78) (Di Landro et al. 2012). While other researches have done later found the drinking of skimmed milk and high-fat milk was higher in patients complaining from acne in relative to other patients (LaRosa et al. 2016; Ulvestad et al. 2017).

All studies were interesting in the assurance of whether the milk has a comedogenic effect. The milk

contains hormones that stimulate the pilosebaceous unit to produce insulin-like growth factor 1 (IGF-1) which thought to be a cause of acne (Danby, 2005). IGF-1 level is also elevated in growing human being during puberty and its receptors are found in the skin epidermis. Insulin-like growth factor 1 can stimulate the adrenal and sexual glands to produce 5 α -reductase and androgen, which lead to sebocytes multiplication and lipogenesis Arora (Yadav and Saini 2011). Women were the most vulnerable group to increase of IGF-1 and so more liable to acne (Yadav and Saini 2011; Melnik, 2009) in addition to increasing IGF-1 level with drinking milk (Melnik, 2009). As the IGF-1 affect the gonadal glands to stimulate androgen synthesis, on the other hand, it leads to stopping sex hormones binding globulin (SHBG) production, which leads to more bioavailability of androgens hormones. So the most determinant of acne development represented by sebum which is mainly stimulated by IGF-1 and androgens (Bowe, 2010). The current study aims to find how patients with acne vulgaris consume milk products and if it has a relation to their conditions.

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Table 1. Socio-demographic features of patients with acne in AL-Karamha teaching hospital

Variables	Frequency	Percentage	
Age group	10-15	2	5.0
	16-20	15	37.5
	21-35	21	52.5
	36-45	2	5.0
Gender	Male	11	27.5
	Female	29	72.5
Lesion site	Face	24	60.0
	Shoulder	1	2.5
	Chest	1	2.5
	Back	5	12.5
	upper arm	1	2.5
	more than one site	8	20.0

MATERIALS AND METHODS

Study design and setting: This is a descriptive cross-sectional study conducted by the researchers on a sample of patients complaining from acne vulgaris and visiting AL-Karamah Teaching Hospital/ dermatological consultation unit during the period from 1st May till the end of June 2019.

Data collection tool: Data were collected by a semi-structured questionnaire prepared by dermatologist and community medicine specialist for that purpose. The questionnaire was pretested on 5 patients to confirm its clearness and validity, then those patients were excluded from the result of the study. The questionnaire consisted of two parts and 17 questions, the first part related to gender and age in addition to the site of acne presentation while the second part is containing questions related to personal habit in drinking milk and the type of milk preferred.

Study sample: A convenient sample of 40 patients who attended the dermatological consultation unit in the mentioned hospital was met during the recognized period for data collection. Any patients complained from

acne and aged (10-45) years old were included in the study and only exclude women previously diagnosed with polycystic ovarian syndrome and those on hormonal therapy.

Ethical approval: A formal approval was obtained from the College of Medicine to start data collection, in addition to acceptance from the defined hospital management office. All patients were informed about the aim of the study and verbal consent was also taken.

Statistical analysis: Statistical analysis was done using SPSS version 21. The socio-demographic characteristics and other collected data related to milk consumption were represented by frequency and percentages.

RESULTS

The result of this study depended on the analysis of data obtained from 40 patients who were attending AL-Karamah Teaching Hospital in Wasit.

Table 1 shows that is the most age groups affected by acne are those between (21-35) years old who represent about 52.5% from the whole sample, followed by age group (16-20) years with about 37.5%. The result also shows that female patients are representing the highest percentage (72.5%) and the remaining 27.5% are males. more common than male patient. The face was the commonest place for acne in 60% of the sample while 12.5% were suffering from acne in the back.

Only 16 out of 40 patients mentioned drinking high-fat milk while the remaining 60% drinking skimmed and low-fat milk as it appears in **Fig. 1**.

When asked the patients about the number of times they drink milk per week, 37.5% of them mentioned drinking milk every day and only 5% consumed it less than one time/week.

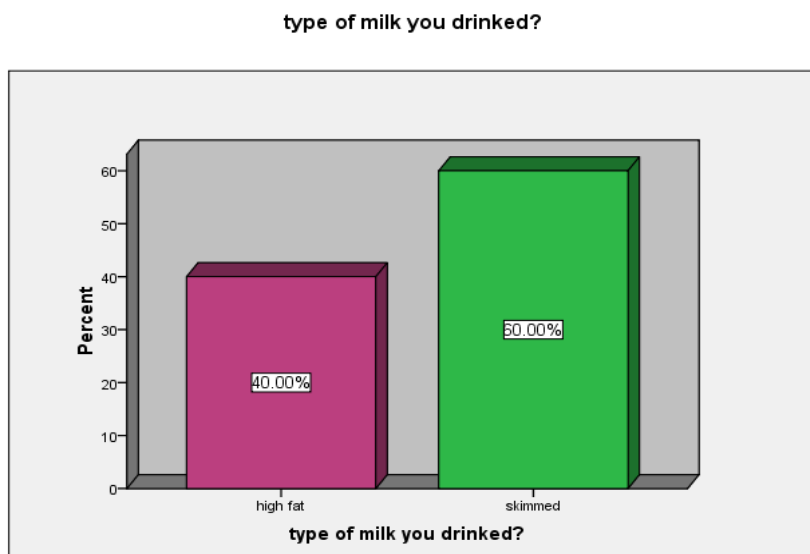


Fig. 1. Distribution of patients according to the type of milk consumed

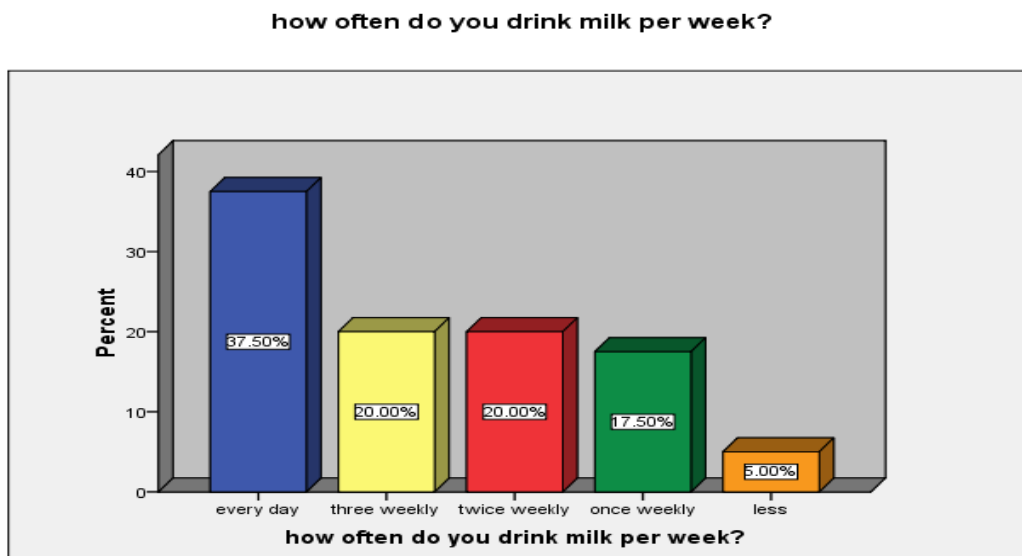


Fig. 2. Frequency distribution of time of drinking milk per week

Table 2. Number of milk cups consumed by patients per day

Variables	Frequency	Percentage
Number of milk cups/day	One	36 90.0
	Two	3 7.5
	Three	1 2.5

The daily consumption of milk during a day was represented in **Table 2** and it shows 90% of patients drinking one cup each day.

The result also shows that more than half of the patients (57.5%) notice improvement in acne when stop milk drinking for a while especially who drink skimmed/low-fat milk while 42.5% never get any improvement when stop drinking milk.

DISCUSSION

The diet which is eaten by a human can tell a lot about his health, so one of these important dietary products helping human to get good health and it is full of minerals and vitamins is milk. Although, it may cause some health problems in a special population or circumstances because it contains some hormones that transmitted from cows during pregnancy.

The highest percentage of patients in this study was in the age group between 21- 35 years old followed by those age ranging from 16-20 years. Even that acne vulgaris was proved to affect any age group, but it is more occurring in puberty due to an increase in IGF-1 resulting from the effect of growth hormones (Kucharska et al. 2016).

The increasing in IGF-1 is also found in females rather than males which can explain the highest percentage of females suffering from acne vulgaris in the sample of this study. Other study conducted in

Kabul, Afghanistan found that 54.1% of patients were males (Aalemi et al. 2019).

This study also found the main affected place of the body by acne was the face followed by back, which was similar to what was found by other researchers (Landro et al. 2012; Aalemi et al 2019).

In this paper, more than half of the patients mentioned drinking milk every day with 90% drinking one cup per day.

Drinking milk is one of the factors that cause an increase in IGF-1 production and induce the production and multiplication of sebocytes, which enhance acne appearance. Both the whole and skimmed milk were found to be associated with acne in a study conducted among Afghanistan people by Aalemi (2019) and the related that to the amino acids found in the milk which help in secretion of insulin and synthesis of IGF- (Aalemi et al. 2019).

Our sample consumed more skimmed milk (60%) than whole fat milk (40%). The skimmed milk containing lower estrogen level which is the hormone responsible for reducing acne production. So skim milk more likely associated with acne.

More than half of patients (57.5%) mentioned improving the symptoms of acne appearance when stop drinking milk which supports the Bradford criteria of causality in removing the causative agent to remove the effect

CONCLUSION

Patients with acne especially young age females were reported higher consumption of milk nearly every day. The skim milk was more consumed by the Patients.

This study recommends a decrease amount of milk and dairy product consumption among younger age groups and adolescents. In addition to the need for further studies that concentrate on other types of food might affect acne development.

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