

Epidemiology of Dandruff and Effectiveness of Treatment among Tikrit Medical College Students

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ABSTRACT

Dandruff is a most common chronic scalp problem assigned by flaking of the skin of the scalp. Although dandruff isn't contagious and not serious it may be embarrassing and treatment of it difficult. The goal of this project is to assess epidemiology and effectiveness of dandruff treatment among medical students. A cohort study (retrospective) was conducted Tikrit university college of medicine from 28th November 2018 to 1st April 2019. sample size was 72 cases are selected randomly (simple random). The data was collected by using a questionnaire which was administered by interviewers. Among the dandruff survey most of them were females and from 2012-23 year, there is a strong association between dandruff and family history which represent (62.5%) of cases. (68%) of cases were rural residence. Absolutely there was no refuse for treatment. Regarding to ketoconazole response, (41.66%) were responded in the first week, while (38.88%) were non responded to the ketoconazole this may belong to poor compliance and/or other medical conditions. In relation

to seasonal incidence (84.72%) occur in winter, while there is no incidence in autumn.

Conclusions: The oily scalp was the main type that affected by dandruff (65.3%). Also there was no relationship between number of showering and development of dandruff. Other than ketoconazole (56.94%) of cases were responded to cosmetics.

Keywords: Dandruff, ketoconazole, chronic scalp condition, poor compliance

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INTRODUCTION

Dandruff is the exfoliation of dead skin cells from the scalp. (1) when skin cells die, a small amount of flaking is normal; about 487,000 cells/cm² get released normally after shampoo treatment. Some persons, sometime, have large amount of flaking may be as a chronic condition or due to another cause, up to 800,000 cells/cm², also be redness and irritation can also occur. (2)

Dandruff is a frequent scalp problem that affect about half of the population at the post-pubertal age and of any sex and ethnicity. It may lead to itching. It has been founded that keratinocytes play a major role in the determine and occurrence of immunological reactions when dandruff formed. The dandruff severity may affected by the season as it often increased in winter. Dandruff is rare to occur before puberty, peaks in the teens and early twenties, and declines with age thereafter. Dandruff cases can be easily treated with specialized shampoos. However, there is no true cure. (3) Dandruff can cause social or self-esteem problems, so that treatment for both psychological and physiological problem are needed. (1,3)

Signs and symptoms: The signs and symptoms of dandruff are mainly itching and flakiness in scalp area. Another symptoms of dandruff include greasy red patches of skin and feeling tingly on the skin.

Causes of dandruff: several causes can lead to dandruff occurrence which including the following, dry skin, seborrheic dermatitis, not cleaning/scrubbing often enough, shampooing too much, psoriasis, eczema, allergy to hair care products, or a yeast-like fungus. The most common cause of flaking dandruff is dry skin. (4)

Epidermal layer replaces itself continually, cells are pushed up where they finally die and flake off. These flakes of skin are very small to be seen. Sometime, there are many conditions make the cell turnover to be rapid, mainly in the scalp. It is believed that in the people with dandruff, skin cells could grow and mature and shed in two–seven days, in compare to peoples without dandruff around a month. (5)

In one study, dandruff may be the result of one of the three following factors:

1. oily Skin commonly referred to as sebum or sebaceous secretions.
2. The metabolic by-products of skin micro-organisms (most specifically *Malassezia* yeasts)
3. person susceptibility, allergy and sensitivity.

Older studies consider the fungus *Malassezia furfur* (which previously known as *Pityrosporum ovale*) as the dandruff main cause. Really this type of fungus does occur naturally on the skin surface of both healthy people and those with dandruff. In 2007 it was founded that the causative agent is a scalp specific fungus, *Malassezia globosa*, that metabolizes triglycerides present in sebum by the expression of lipase, resulting in a lipid byproduct oleic acid (OA). In case of dandruff, the levels of *Malassezia* raised by 1.5 to 2 times more than its normal level. Penetration by OA of the top layer of the epidermis, the stratum corneum, results in an inflammatory response in susceptible persons which disturbs homeostasis and results in erratic cleavage of stratum corneum cells. (4,5)

Seborrheic dermatitis

Redness and itching in seborrheic dermatitis mostly occur around the folds of the nose and eyebrow areas, not only the scalp. Dry, thick, well-demarcated lesions consisting of large, silvery scales may be traced to the less common affliction of the scalp psoriasis. (5)

Inflammation and extension of scaling outside the scalp exclude the diagnosis of dandruff from seborrheic dermatitis. However, many reports suggest a clear link between the two clinical entities - the mildest form of the clinical presentation of seborrheic dermatitis as dandruff, where the inflammation is minimal and remain subclinical. Seborrheic dermatitis affect by seasonal changes, stress, and immunosuppression. (6)

Antifungal ketoconazole, zinc pyrithione and selenium disulfide. Ketoconazole as a shampoo appears to be the most effective.

Ketoconazole is a broad spectrum, antimycotic agent that is active against *Candida*. Of all the imidazoles, ketoconazole has become the leading contender among treatment options because of its effectiveness in treating seborrheic dermatitis as well.

Ciclopirox is widely used as an anti-dandruff agent in most preparations

Other route for treatment: Coal tar, Egg oil

AIM OF STUDY

The aim of study to assess epidemiology of dandruff and effectiveness of treatment among medical college students.

OBJECTIVES

The objectives of this study are:

- 1- Identify the frequency of dandruff among medical college students.
- 2- Identify the demographic factors (age, gender, residence) of medical student who had dandruff.
- 3- Identify the relationship between dandruff and type of skin, family history, frequency of showering, season, and use of shampoo and soap.
- 4- Clarify the responsiveness of dandruff to the medical treatment (ketoconazole shampoo).

PATIENTS AND METHOD

Ethical and Approval Consideration

Permission was taken from patients to fill the information required and they were assured regarding the confidentiality of their responses. The aim of the study was explained and only those who agreed to participate are included in the study.

Study Population

The study was performed among medical college student, working occurs in the Tikrit medical college and male and female dormitory.

Study design

The current study is cohort study (retro prospective) type was carried out in Tikrit medical college from 28th of November 2018 to the 1st of April 2019.

The study design was by simple random sampling by which we were choosing the sample randomly, from students who complain from dandruff problem.

Sample size and sample procedure

The sample size was 72 cases. trained very well to interview the questionnaire carefully and in scientific way to avoid any bias in the assessment of dandruff presence and effectiveness of dandruff treatment among medical students. Respondents were assured that the information obtained would be confidential and used only for statistical purposes.

Questionnaire and Interview

The questionnaire used for data collection was designated in English language. It included demographic characteristics of dandruff followed by items related to dandruff. Its administered by interviewers and it includes mainly closed questions.

Data Analysis and Presentation

All data management and analysis was done by using manual statistical methods. Data have been represented by suitable tables and figures.

RESULT

Table 1: The frequency of dandruff according to age groups of medical students

age	≤18	18.1-19	19.1-20	20.1-23	≥24
%	13.88	9.72	16.66	34.72	25

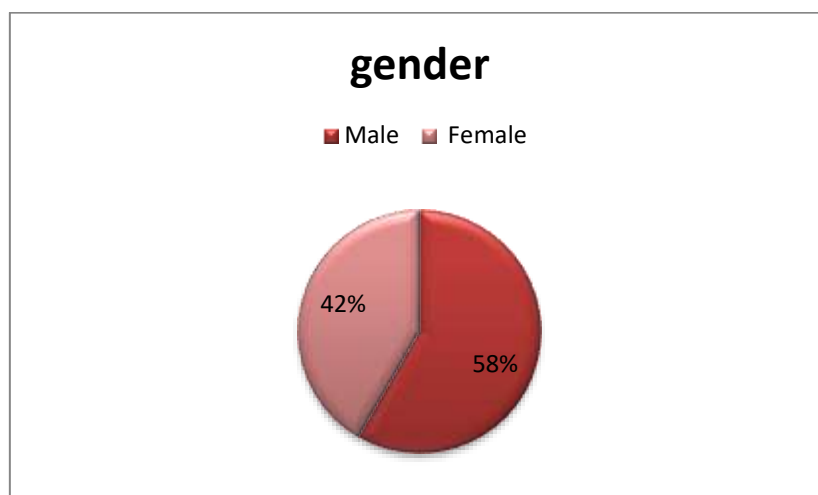


Fig 1: Frequency of dandruff according to gender of medical students

Regarding the demographic features of dandruff we found that the highly affected age group was (20.1-23 yrs.) which had (34.73 %). While the lowest one was (18.1 – 19yrs.) which had (9.7%).as shown in fig 2

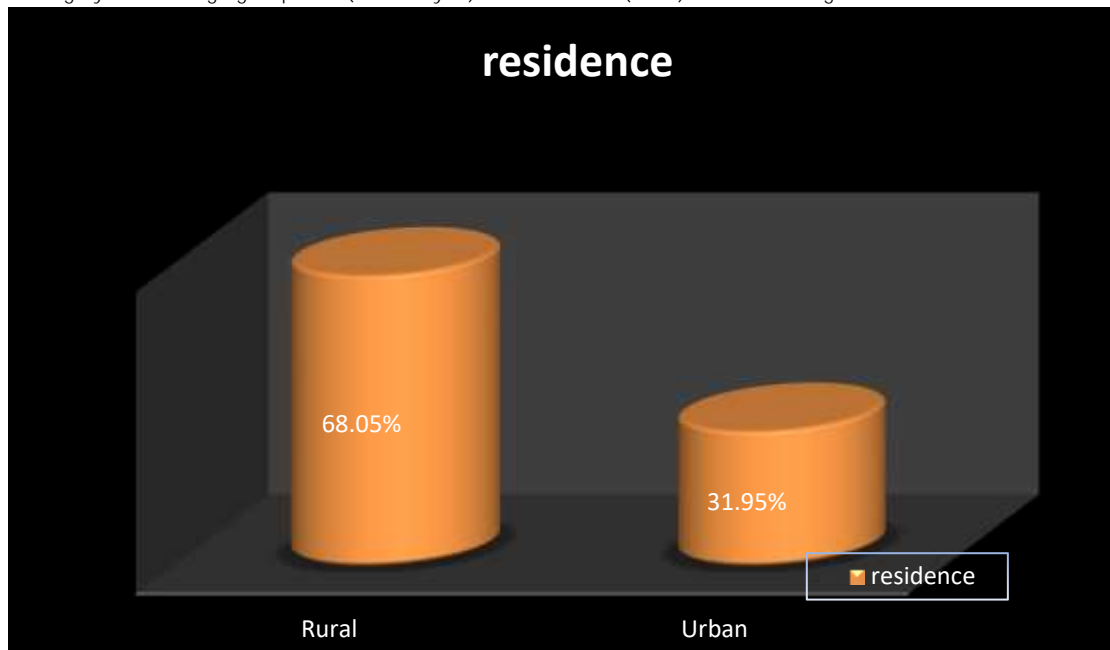


Fig 2: The relation between residence and dandruff

Table 2: appearance of dandruff according to the season

season	winter	summer	spring	autumn	Summer + winter
%	84.72	12.5	1.39	0	1.39

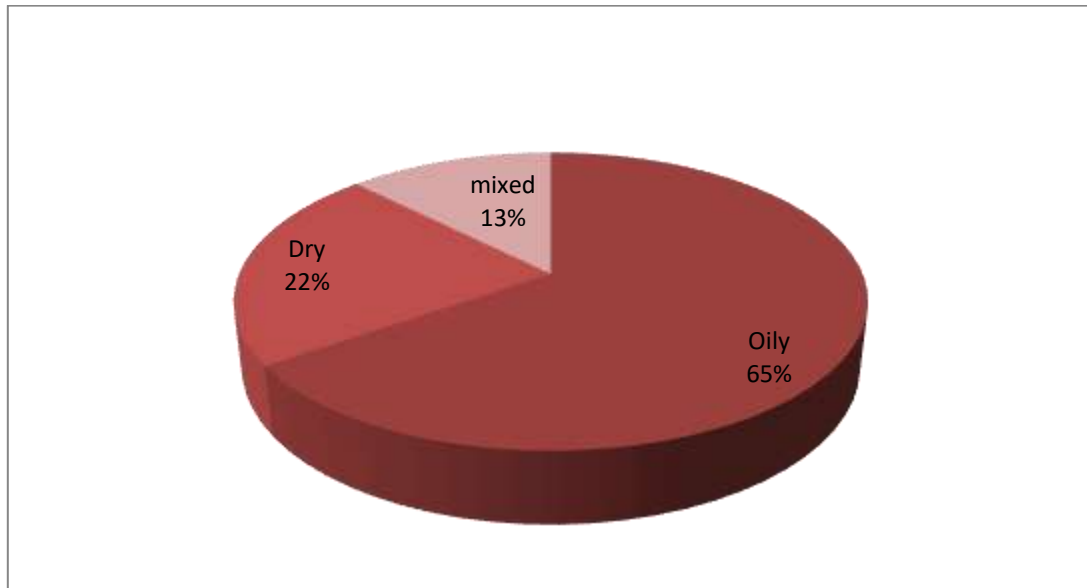


Fig 3: Type of skin of medical student who had dandruff

Table 3: number of showering before using ketoconazole per week

week	once	twice	Three	Four	five	six	seven
%	0	11.11	54.16	11.11	11.11	5.56	6.95



Fig 4: Effect of soap and shampoo on dandruff

Table 3: response to ketoconazole according to time

Time of response	1 st week	2 nd week	3 rd week	No response
%	41.66	15.27	4.16	38.88

DISCUSSION

Regarding the demographic features of dandruff we found that the highly affected age group was (20.1-23 yrs.) which had (34.73 %). While the lowest one was (18.1 – 19yrs.) which had (9.7%). This mean that dandruff mostly affect adult age group this agree with study done in 2016 by Luis J. Borda and Tongyu C. Wikramanayake as they found that dandruff starts at puberty, reaches peak incidence and severity at the age of about 20 years, and becomes less prevalent among people over 50.⁽⁷⁾In relation to the gender ,the incidence of dandruff was slightly more in females than males which represents (58.3%) this not agree with study done in 2016 by Luis J. Borda and Tongyu C. Wikramanayake as they found more prevalent in males than females⁽⁷⁾. The family history is an important factor because its positive in (62.5%) of the samples. Regarding the residence, its higher in rural which represents (68.05%).it probably related to hygiene. Also there are no individuals who were refused treatment. Absolutely there was no refuse for treatment.

Concerning to the response, the respondents mainly in the first week (41.6%), while the non-respondents represent (38.8%), the percentage of non-respondent is relatively high and may be due to poor compliance, bad shampoo, and may be associated with other medical conditions. And the majority of dandruff occurrences in the winter season which represented (84.7%) this probably due to decrease the number of showering per week and may be due to the tough environmental condition.⁽⁸⁾

While there is no incidence in the autumn season (0%). Regarding the type of scalp of dandruff's sample the most was oily type which represented (65.3%).this may be related to the increase of scaling of scalp. According to our data we are

collected ,we saw that there was no relationship between development of dandruff and the number of showering regardless the usage of ketoconazole.Regarding the uses of soap and shampoo except ketoconazole we found that the dandruff's sample who responded to these cosmetics were higher which represented (56.95 %) while the non-respondent to these cosmetic material were(43.05 %).this may be attributed to the cause of dandruff is not medical or the dandruff was transient in attack.^(9,10,11)

CONCLUSION

- 1-Most of dandruff cases were in age between 20.1_23 years about 34.72%.
- 2-frequent cases of dandruff cases were females.
- 3-Exceedingly dandruff's cases have family history.
- 4-Mostly were rural in residence.
- 5-absolutely there was no refuse for treatment.
- 6-Most of respondents to ketoconazole were in the first week, but unfortunately the non-respondents were high% about 38, 88%.
- 7-Increased occurrence of cases were in winter season.
- 8-Oily skin of cases was the predominant.
- 9-There was no relationship between number of showering and development of dandruff.
- 10-Most of cases were responded to soap and shampoo other than ketoconazole.

RECOMMENDATION

- 1-Recommend for those with positive family history, should take care and avoid factors that exacerbating dandruff.
- 2-For those who living in rural areas, we recommending them to promote their hygiene.

3-Concerning the treatment, we recommending for compliance, and if no response should see the consultant.

4-For those using the cosmetics only without consult, we recommending them to visit the consultant to seek the real cause of dandruff.

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ETHICAL CLEARANCE

From research ethic committee in Tikrit university/college of medicine

SOURCE OF FUNDING

Self

CONFLICT OF INTEREST

Nil

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