

# Evaluation of the Relationship between Pityriasis Versicolor and Consumption of Oral Contraceptives

Authors:

Zari Javidi\*

Associate Professor, Dermatology Dept, Imam Reza Hospital, MUMS

Masoud Maleki

Associate Professor, Dermatology Dept, Imam Reza Hospital, MUMS

Abdolmajid Fata

Professor, Laboratory Sciences Dept, Imam-Reza Hospital, MUMS

Yalda Nahidi

Assistant Professor of Dermatology, Imam Reza Hospital, MUMS

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## ارتباط پیتیریازیس ورسیکالر با مصرف ضدبارداریهای خوراکی

### خلاصه

مقدمه: با توجه به برنامه های کشوری کنترل جمعیت ، مصرف قرص های ضد بارداری خوراکی در میان خانم های سنین باروری رواج پیدا نموده است . علی رغم بی خطر بودن این قرص ها در قریب به اکثریت موارد، عوارض نادری به دنبال مصرف آنها گزارش شده و حتی در تعدادی از بیماری ها منع مصرف دارند از جمله بیماری هایی که مصرف قرص های ضدبارداری به عنوان عامل مساعد کننده ایجاد آنها مطرح شده اند پیتیریازیس ورسیکالر می باشد که علی رغم ذکر این رابطه هیچ مطالعه جامعی در این رابطه انجام نشده است. لذا بر آن شدیدم تا رابطه بین مصرف OCP را با این بیماری بررسی نمایم.

روش کار: در این مطالعه مورد شاهدهی از میان زنان مراجعه کننده به درمانگاه پوست بیمارستان امام رضا (ع) مشهد از مهر ۱۳۸۳ تا مهر ۱۳۸۴ ، ۶۲ نفر مبتلا به پیتیریازیس ورسیکالر و ۱۲۴ نفر از همان گروه سنی به عنوان کنترل مورد بررسی قرار گرفتند . تشخیص بیماری بر اساس بالینی و اسمیر مستقیم و لامپ وود بود ، اطلاعات حاصله توسط پرسشنامه هایی جمع آوری شدند و نتایج با کمک نرم افزار اماری SPSS و آزمون های آماری مورد تجزیه و تحلیل قرار گرفتند .

نتایج: شایع ترین گروه سنی ۲۹-۲۰ سال بود (۶۷/۲٪) ، ۹۰/۳٪ مبتلایان ساکن شهر و شغل اکثر آنها خانه داری بود . رابطه ای بین محل سکونت و شغل بیمار با ابتلاء به پیتیریازیس ورسیکالر به دست نیامد (P=0.59) . شایع ترین فرم بالینی ضایعه نوع هیپرپیگمانته و بیشتر در قسمت فوقانی بدن بود . ۴۱/۶٪ بیماران در مقابل ۷/۳٪ گروه کنترل سابقه خانوادگی مثبت این بیماری را داشتند . ۲۴/۲٪ گروه مورد و ۲۴/۲٪ گروه کنترل OCP مصرف می کردند که با توجه به  $PV=1$  رابطه معنی داری بین مصرف OCP و ابتلا به بیماری پیتیریازیس ورسیکالر به دست نیامد . تمام موارد قرص ضد بارداری از نوع LD مصرف می کردند.

نتیجه گیری: به نظر نمی رسد OCP عامل خطری برای ابتلاء به پیتیریازیس ورسیکالر باشد به منظور کنترل این بیماری ضرورتی برای قطع OCP یا تعویض روش جلوگیری از بارداری بیمار وجود ندارد . حتی ممکن است OCP با مکانیسم کاهش ترشح سبوم نقش محافظتی هم در برابر این بیماری داشته باشد .

کلمات کلیدی: پیتیریازیس ورسیکالر ، مالاسزیا ، کنتراسپتیو خوراکی

### Address:

Department of dermatology, Imam-Reza medical center, Mashhad University of Medical Sciences

(MUMS), Mashhad, Iran.

Tel: +98 511 8525312

Email: zari\_javidi@yahoo.com

## Introduction

Following national family planning programs in Iran, oral contraceptive pills (OCPs), especially considering their ease of use and efficacy, have been widely used by women in reproductive ages. Although OCPs are considered safe in many cases, some complications are rarely reported and its prescription is contraindicated in some disorders. OCPs side effects include skin disorders, mainly chloasma and other complications such as acne, seborrhoea, hirsutism, hair loss, stria, telangiectasia, allergic reactions, SLE and porphyria exacerbation, erythema nodosum, gestational herpes and skin malignancies e.g. malignant melanoma (1,2).

OCP is one of the probable predisposing factors mentioned for pityriasis versicolor in most references (3-6). Pityriasis versicolor is a chronic superficial fungal infection of the skin due to transmission of fermentative *Malassezia* to its mycelial form under several internal and external factors. Different references suggest heat, humidity, malnutrition, Cushing's disease, hereditary factors, immune deficiency, pregnancy and OCPs as probable predisposing factors for this transmission (3-6). Its clinical presentation with hyperpigmented patches on neck, upper trunk and axillary in young women and its resistance to strong antifungal treatments can produce degrees of stress in patients. Since there are no studies indicating a definite relation between OCP and Pityriasis versicolor, this study was conducted to compare consumption of OCP between women with and without pityriasis versicolor. Finding a proved significant relationship may be helpful in recalcitrant cases to change their contraception methods.

## Material and Methods

A case-control study was carried out, from October 2004 to October 2005, on samples of female patients referring to Dermatology Clinic of Imam Reza Hospital in Mashhad. Of these samples, 62 were pityriasis

versicolor cases group and 124 were the control group. The recruited patients had the same age and occupation. The patients were identified through a simple and total sampling. Inclusion criteria were women in reproductive ages, married and in good general health condition. Being in nonproductive ages, virginity, use of non-oral contraceptives, immune deficiency, consumption of steroid and other drugs were exclusion criteria. A questionnaire was used as a profile seeking of demographic information, description and localization of lesions, OCP consumption and its duration. The diagnosis was based on clinical manifestations and direct smear of the lesions and Wood lamp findings.

Statistical analysis was performed by SPSS version 11.5 software using Chi square test, T student test and logistic regression (Confidence Interval= 95%,  $\alpha= 0.05$ ).

## Results

A total of 186 women (62 as a case group and 124 as a control group) were included in the study. Most of the samples (46.2%) were 20-29 years old, with the mean of 27.93 (SD= 8.61) and 59.7% of case group were housewives. The majority of case (91.9%) and control (89.5%) groups, included rural population ( $P=0.59$ ).

Positive family history was recorded in 41.6% of cases, while 7.3% in controls, indicating its higher prevalence in the case group. ( $p= 0.0$ )

Of cases, 62.9% had localized, and 37.1% had diffused lesions. Upper trunk was the most common localization (75.8%). Lesion characteristics were as follows: 88.7% hyperpigmented, 6.5% hypopigmented, 3.2% erythematous, and 1.6% both hypo and hyperpigmented.

Of patients 61.3% were asymptomatic. In symptomatic cases (18.7%), pruritus was the chief complaint (35.5% of all samples and 91.7% of symptomatics).

Of cases 15 (24.2%) and 30 of controls (24.2%) consumed OCP, indicating no

significant relationship between OCP consumption and pityriasis versicolor ( $p=1.00$ ). Interestingly, most of the patients

with pityriasis versicolor didn't consume OCP. (75.8%) . (Table -1)

Table 1: Frequency of OCP consumption in the case and control groups, referring to Imam Reza Hospital during 2004-2005

| OCP consumption     | Case group |            | Control group              |            | Total     |            |
|---------------------|------------|------------|----------------------------|------------|-----------|------------|
|                     | Frequency  | percentage | Frequency                  | percentage | Frequency | percentage |
| Yes                 | 15         | 24.2       | 0                          | 24.2       | 45        | 24.2       |
| No                  | 47         | 75.8       | 94                         | 75.8       | 141       | 75.8       |
| Total               | 2          | 100        | 124                        | 100        | 186       | 100        |
| <b>Test Result:</b> |            |            | <b>Chi-Square= 0, p= 1</b> |            |           |            |

The mean duration of OCP consumption was  $21.06 \pm 15.8$  months in the case group and  $40.6 \pm 93.3$  months in the control group. All OCP users used LD pills.

### Discussion

OCPs are a combination of estrogens and progesterons or progestins alone. Nowadays, regarding to national program of family planning, these pills have been used widely by women in reproductive ages. But pathologic and physiologic changes may occur due to its hormonal effects. Skin and mucosal surfaces are one of the systems influenced by these pills. Chloasma is their most common dermatologic complication (7). The androgenic characteristics of some progestins causes are, an increase in sebum, acne, hirsutism and hair loss. On the other hand, multi-phasic OCPs and also estrogens alone, reduce sebum and therefore can be effective on acne treatment. Other skin complications include stria (8), telangiectasia, vaginal candidiasis, allergic reactions (purpura, weal, eczema, allergic vasculitis), porphyria cutanea tarda and SLE exacerbation, erythema nodosum, gestational herpes, and predisposing skin neoplasias such as malignant melanoma (1, 2, 9).

OCP is also one of the probable predisposing factors mentioned for Pityriasis versicolor (3,

4, 5, 6). Pityriasis versicolor is a chronic superficial fungal infection of the skin due to lipophilus *Malassezia* which is normal flora of the skin (10). *Malassezia globosa* is the most common subtype (11, 12). This disorder is due to the transmission of fermentative *Malassezia* to its mycelial form under several internal and external factors. Different references suggest heat, humidity, Cushing's disease, hereditary factors, immune deficiency, organ transplantation, (13) hyperhidrosis, malnutrition, steroids (14, 15) pregnancy, and OCPs as probable predisposing factors for this transmission (3, 4, 5, 6). Its clinical presentation is hyper or hypopigmented patches on upper trunk (3, 16). Due to lipophilic properties of the organism, teenagers and young adults are mostly at risk.

In this study, most cases were patients between 20 and 29 years old and 75.8% presented with superior trunk lesions, confirmed in literatures (17, 18). The most common clinical manifestations in the patients were hyperpigmented lesions (88.7%), mostly asymptomatic. In those having symptoms, pruritus was the most popular complaint (91.7%). A similar study in Venezuela also mentioned pruritus as the most common clinical symptom in patients (92.9%) (19).

Of cases 89.5% and 91.9% of controls lived in Mashhad, also indicating no significant relation between rural or urban localizations and pityriasis versicolor ( $p= 0.59$ ). A similar study in 1991 also showed no relationship between occupation, localization and pityriasis versicolor (18). Positive family history was reported in 41.9% of cases and 7.3% of controls, demonstrating a significant correlation with positive family history, in particular first line relatives, and pityriasis versicolor ( $p < 0.001$ ). Other reports support these findings (3).

This organism is pathogen only under suitable exogen and endogen conditions. Since it is a normal flora of the skin, relapse periods are common in patients. Recurrent unpleasant lesions in the upper trunk may produce psychosocial stresses in young patients. Therefore, unless predisposing factors are eradicated no definite treatment can be promised.

The present case-control study was carried out, Since some studies mention OCPs as predisposing factor for this disorder and yet no studies indicate a definite relation between OCP and pityriasis versicolor. There was no significant relation between case (24.2%) and control (24.2%) groups in the previous LD consumption ( $p > 0.05$ ). Regarding the longer consumption of OCP in the control group

(mean= 40.6 months in comparison with 21.6 months in the case group), and its probable bias, a logistic regression analysis was conducted to check this variable, however, no relationship was confirmed. These findings demonstrate that OCP, can not be a predisposing factor for pityriasis versicolor. OCPs are a combination of estrogens and progestin with low androgenic properties that reduce sebum secretion and superficial lipids of the skin. Malassezia has lipophilic characteristics and its colonization on the skin starts in puberty ages following sebum secretion from pilosebaceous units. Therefore, OCPs may even have a protective effect on pityriasis versicolor. Race, climate and malassezia species may be the cause of difference between this study and the texts.

Based on the present findings, it seems that a change in contraception method, to control the pityriasis versicolor may be unnecessary. Further research with more samples and precise control on other predisposing factors, considering different OCPs and their pharmacologic combinations are suggested.

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## Abstract

**Introduction:** Following national family planning programs in Iran, oral contraceptive pills (OCPs) have been widely used by women in reproductive ages. Although OCPs considered safe in many cases, some complications are rarely reported and its prescription is contraindicated in some disorders. In most references OCP is one of the probable predisposing factors mentioned for pityriasis versicolor. Since there are no studies supporting a definite relation between OCP and Pityriasis versicolor, the present study was conducted to confirm this theory.

**Methods and Material:** A case-control study was carried out, from oct 2004 to oct 2005, on samples of female patients (n=186) referring to Dermatology clinic of Imam Reza Hospital in Mashhad. Of these patients, 62 were pityriasis versicolor case group and 124 were the control group. A questionnaire was used as a profile seeking information. The diagnosis was based on clinical manifestations and direct smear of the lesions and Wood lamp findings. Data were analysed by SPSS and statistical tests.

**Results:** Most of the patients (46.2%) were 20-29 years old. The majority of patients were housewives, mostly rural population (90.3%). There was no considerable association, between rural or urban localizations and pityriasis versicolor ( $p=0.59$ ). The most common form of the lesions was hyperpigmented and localized ones in upper trunk. Positive family history was recorded in 41.6% of cases, and 7.3% in controls. Cases, 24.2% consumed OCP, indicating that there was no significant relationship between OCP consumption and pityriasis versicolor ( $p=1.00$ ). All OCP users used LD (Low Dose) pills.

**Conclusion:** According to this study OCPs do seem to be a predisposing factor for pityriasis versicolor. OCPs may even have a protective effect on pityriasis versicolor by decreasing the sebum secretion. Therefore a change in contraception method for eradication of Pityriasis versicolor in OCP users is unnecessary.

**Keywords:** Pityriasis versicolor, Malassezia, Oral contraceptive

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