

**“CAROL DAVILA” UNIVERSITY OF MEDICINE AND PHARMACY
BUCHAREST
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MEDICINE**



***CORRELATIONS BETWEEN ETIOPATHOGENIC FACTORS AND
PERSISTENCE ON BIOLOGICAL THERAPIES IN PATIENTS WITH
SEVERE PSORIASIS VULGARIS FROM ROMANIA***

PHD THESIS SUMMARY

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Introduction

„This skin is me, I can't get out.”

John Updike

The skin is the most exposed border with the outside world, therefore, it separates the complexity of the body from environmental factors. Skin conditions are often visible to others, which is why our fellow sufferers have to deal with both their own disease and the negative reaction triggered by the stigma traditionally associated with these types of pathologies. Instead, the skin has a unique accessibility for tissue biopsy and thus allows the study of cellular and molecular determinants of skin conditions in more detail compared to other diseases, thus facilitating the development of effective targeted therapies.

Psoriasis is a chronic, non-communicable, disfiguring and disabling disease for which there is no curative treatment and a major negative impact on patients' quality of life. It can occur at any age, but a higher prevalence has been observed between the ages of 50 and 69 [1]. The overall reported prevalence of psoriasis ranges from 0.09% to 11.4%, making psoriasis a significant public health problem [2,3].

The etiology of psoriasis is not yet fully understood, although there is evidence for genetic predisposition [4]. The role of the immune system in determining the onset of psoriasis is also a major topic of research. Although there is a suggestion that psoriasis may be an autoimmune disease, no autoantigen has been defined as responsible. Psoriasis can also be caused by external and internal triggers, including minor trauma, sunburn, infections, systemic therapy or stress [5].

Between 6% and 42% of people with psoriasis develop chronic inflammatory arthritis (psoriatic arthritis) which leads to joint deformities and disability [6–14]. The prevalence of psoriatic arthritis increases with the severity of psoriasis [11,14,15] and with its longer duration, however, the severity of the skin condition is weakly associated with the severity of joint disease [6]. Between 4.2% and 69% of all psoriasis patients develop nail changes [14,16,17]. People with psoriasis also have an increased risk of developing other serious clinical conditions, such as cardiovascular disease and other noncommunicable diseases [5,18,19].

Psoriasis causes a great physical, emotional and social burden [20–22], significantly

affecting the quality of life [23–25]. Skin and systemic changes and marked loss of productivity are common challenges for people with psoriasis. There is also a significant cost to mental well-being, such as higher rates of depression, which has a negative impact on individuals and society [26,27]. Social rejection and exclusion, discrimination and stigma are psychologically devastating for people with psoriasis and their families.

Psoriasis treatment is still based on symptom control. Conventional topical and systemic therapies as well as biologic therapies are available. In practice, a combination of these methods is often used. The treatment is usually performed throughout life and aims at remission. To date, there is no hope for a complete treatment for psoriasis. In addition, the care of patients with psoriasis requires not only the treatment of skin lesions, but also the identification and management of existing or future comorbidities.

Persistence on a particular therapy is a comprehensive outcome that covers the efficacy, safety, and preferences of patients and physicians. Therefore, it is important to identify high-survival treatments as well as ways to prolong this persistence.

In this paper we describe in detail all these notions mentioned above and present the results of research on the correlation between psoriatic disease and etiopathogenic factors, comorbidities and diseases associated with this pathology.

The first part of this doctoral thesis is dedicated to the presentation of theoretical notions, known today everywhere, notions necessary to understand psoriasis, etiopathogenic factors, comorbidities and associated diseases and the correlations between them. The special part presents the studies carried out within the doctoral research, with the objectives, results and conclusions specific to each study.

We hope that the results of the studies in this paper will provide important information and thus improve the general knowledge about psoriasis with an effect on increasing the quality of life of our patients.

Working hypothesis and general objectives

As healthcare costs increase, as do pharmaceutical options, healthcare professionals are constantly looking for better and more comprehensive ways to evaluate treatments. Our goal is to provide an overview of the principles, goals, and pitfalls of persistent analysis of different biologic therapies to better understand, guide physicians in reading, interpreting results, and treating patients in a relevant and informed manner.

Persistence on a particular therapy is a comprehensive outcome that covers the efficacy, safety, and preferences of patients and physicians. Therefore, it is important to identify high-survival treatments as well as ways to prolong this persistence. Deepening the knowledge about the drug survival is especially suitable for chronic diseases that require long-term therapy, for example in psoriasis.

The first main objective of this thesis is to study in depth the persistence on biological therapies of patients suffering from psoriasis vulgaris or psoriatic arthritis, and this analysis is reflected in **Study 1 - Persistence of biological therapies in psoriatic disease** and **Study 4 - Correlations between etiopathogenic factors and the persistence of anti-IL-17 biological therapies in patients with severe psoriasis**.

It is not fully known what causes the immune system to malfunction in psoriasis, but it is well known that genetics and environmental factors play an important role. Although genetics play an indisputable role and can predispose to psoriasis for the condition to develop, scientists believe that a trigger is needed, especially an environmental factor that activates this disease. The most well-known predictive factors include drugs, trauma, alcohol, obesity, smoking, stress, and infections. All of these factors have been linked to psoriasis, but the current understanding of this process is still rudimentary.

Another main objective of this thesis is to study, understand and correlate these known predictive factors of psoriasis with the persistence of patients with biological therapies available to date. In this regard, we will focus mainly on the study of mental impairment in psoriasis in **Study 2 - Psychological stress and depression in patients with psoriasis - a dermatologist's perspective** and the study of smoking as a predictor of psoriasis in **Study 3 – The impact of smoking on psoriasis patients with biological therapies**.

As secondary objectives, we aim to study some aspects of known predictive factors that

may trigger psoriasis and what correlations have resulted between these factors and the persistence on anti-IL17 biologic therapies (ixekizumab and secukinumab) in **Study 4 - Correlations between etiopathogenic factors and the persistence of anti-IL-17 biological therapies in patients with severe psoriasis**. We also analyzed the evolution of Covid-19 infection in patients with psoriasis under biological therapies and identified the factors associated with their hospitalization in **Study 5 - The course of Covid-19 infection in psoriasis patients with biological therapies**.

Through **Study 1 - Persistence of biological therapies in psoriatic disease** we aim to systematically review the literature on the persistence of patients with psoriasis or psoriatic arthritis on existing biologic therapies and also to correlate predictors of psoriasis disease with the persistence of these patients on biological therapies available to date.

Knowing the negative effects of psoriasis on the quality of life and mental state of patients suffering from this condition, through **Study 2 - Psychological stress and depression in patients with psoriasis – a dermatologist’s perspective**, we aim to present a review of the scientific literature on the psychological impact on the well-being, quality of life of individuals and the subsequent correlation with the severity of psoriasis.

The objectives of **Study 3 - The impact of smoking on psoriasis patients with biological therapies** were to determine the percentage of patients who achieved a PASI 100 response (complete remission) in different groups after one year of biological therapy, to study quality of life among patients enrolled after one year of biological therapy and also to assess the impact of smoking on the effects of biological treatment.

Through **Study 4 - Correlations between etiopathogenic factors and the persistence of anti-IL-17 biological therapies in patients with severe psoriasis**, we analyzed our experience in an observational, non-interventional, retrospective study of real-life evidence of anti-IL-17A biological therapies and identification of factors that may affect patients with severe psoriasis.

We also intended to report our own experience in **Study 5 - The course of Covid-19 infection in psoriasis patients with biological therapies**, in which we will present the evolution of 8 patients with generalized psoriasis from the 2nd Department of Dermatology of Colentina Clinical Hospital, undergoing biological immunosuppressive therapy, who contracted SARS-CoV-2 infection, and also the findings of these case reports.

General research methodology

Study 1 - Persistence of biological therapies in psoriatic disease and **Study 2 - Psychological stress and depression in patients with psoriasis – a dermatologist's perspective** are review studies. For these, a thorough review of the literature was conducted based on evidence-based research and practice, using PubMed as a search engine. Specific English keywords were used for each search. The search was conducted between February and April 2021 for Study 1 and April-June 2019 for Study 2, respectively, and was limited to articles in English. No filter was applied for release date. All types of articles were evaluated, such as case reports, clinical trials, meta-analyzes, reviews, and systematic reviews.

The study selection process was based on Preferred Reporting Items for Systematic Reviews and Meta-Analyzes (PRISMA) [28]. First, we evaluated the titles and abstracts of the articles. Articles that were not listed among the study objectives and articles that did not discuss the outcome of interest for this research were excluded and relevant papers were selected. In the second stage, the full texts of the articles were read and examined in terms of inclusion and exclusion criteria.

Study 3 - The impact of smoking on psoriasis patients with biological therapies and **Study 4 - Correlations between etiopathogenic factors and the persistence of anti-IL-17 biological therapies in patients with severe psoriasis** are observational cohort studies conducted in the 2nd Department of Dermatology of Colentina Clinical Hospital in which the specific objectives of the research were to investigate the efficacy, safety and persistence of biological therapies and the correlations between etiopathogenic factors and psoriasis-associated diseases with these biological therapies in a group of psoriasis patients in Romania.

The studies were approved by the Ethics Committee of the "Carol Davila" University of Medicine and Pharmacy, no. 5753/05.03.2021 for Study 3 (Appendix 6) and no. 3122/04.02.2022 for Study 4 (Appendix 7). All procedures were in line with the Helsinki Declaration on Ethical Principles for Medical Research Involving Human Subjects. The patient's consent was obtained by completing the informed consent for Study 3 and Study 4 (Appendix 8).

The patients in the two studies were enrolled in terms of both inclusion and exclusion criteria specific to each study.

Study 5 - The course of Covid-19 infection in psoriasis patients with biological therapies consisted of a series of cases of patients with generalized psoriasis on various biological therapies from the 2nd Department of Dermatology of the Colentina Clinical Hospital, who contracted SARS-CoV-2 infection. We focused on this analysis to find out what happens to these patients in the context of the 2021 pandemic and we analyzed the evolution of these patients in these simultaneous conditions, drawing conclusions from these case reports.

Given that information on the impact of the new coronavirus on patients receiving long-term immunosuppressive therapy is still limited, the objectives of the case reports were to characterize the course of COVID-19 infection in biologically treated psoriasis patients and to identify factors associated with hospitalization and also the synthesis of key information that is currently known about the relationship between psoriasis, biological treatments and COVID-19. Last but not least, this study provides a clinical perspective for dermatologists and their patients in this particular epidemiological context.

Conclusions and personal contributions

1. Study 1 - Persistence of biological therapies in psoriatic disease

Persistence is a marker of therapeutic success, fully encompassing the elements of efficacy and safety of treatment, as ineffective or poorly tolerated therapy will most likely be discontinued [29,30]. In addition, the continuation of a treatment may be directly influenced by the country of origin, the characteristics of the patient and the specific treatments used for the treatment, the cost, the flexibility, the quality of life, the dose or the affordability of that treatment [31].

Factors that may predict discontinuation of treatment include female gender, smoking, obesity, axial involvement, recent onset of the disease, and increased experience with the use of biological treatment [32,33]. The association of psoriatic arthritis may also predict long-term treatment (a predictor of drug persistence) [34–37].

Another important finding was that lack of response and efficacy were the most commonly observed reason for discontinuation of biological treatment. Biological therapies are more effective than conventional treatments, administered systemically to patients with moderate to severe psoriasis, and of these, ustekinumab is associated with the best persistence of therapy among all biologically naive subjects and also the most common therapy least associated with discontinuation due to loss of efficacy, and etanercept was associated with the lowest rate of persistence of therapy [38].

Biologically naive patients appear to have a longer persistence than those with biological experience, with the exception of certolizumab pegol and ixekizumab. There is sufficient information to show that for bio-naive or bio-experienced patients treated with anti-interleukin therapies, there is no difference in efficacy or rapid onset of efficacy.

The progress of personalized therapies and the introduction of new biological molecules in the last decade have facilitated a significant paradigm shift in psoriasis and psoriatic arthritis.

Maintaining the long-term clinical efficacy of different classes of biological agents is vital in such chronic conditions, and the persistence of therapy is a marker for the durability of treatment.

Long-term therapy with biological agents for psoriasis can be significantly affected by the

gradual loss of their effectiveness, and treatment discontinuation can occur at any time and should be anticipated as part of effective management.

The persistence of these therapies is in these conditions an essential attribute for the full therapeutic success for the benefit of the patient.

2. Study 2 - Psychological stress and depression in patients with psoriasis – a dermatologist’s perspective

Depression and stress are proven factors that lower the quality of life. In patients with psoriasis, quality of life is directly associated with the severity of the disease, family status, occupational status and stigma.

The therapeutic success of psoriasis lesions is related to the psychological well-being of the individual. It has been suggested that cognitive-behavioral therapy and the management of these psoriasis patients be introduced in combination with effective therapy of the main disease that has led to a reduction in symptoms of psychological stress and depression, while skin lesions are diminished in terms of body surface involvement. [39].

In addition, patients with or without psychiatric or psychological involvement should be examined continuously and regularly by dermatologists [40], which requires additional training, recognition, research and testing so that dermatologists can more effectively detect those psychologically negative symptoms [41].

Negative psychological emotions, without an underlying causal condition, lead to significant morbidity, taking into account all social, economic and emotional aspects. Skin conditions such as psoriasis add a modified appearance to the affected individual, exacerbate or become a source of depression and stress, and perpetuate a vicious circle.

Given the systemic evolution of the disease, all affected individuals should be treated in a multidisciplinary and patient-centered manner. Dermatologists are the mainstay of all subsequent treatment attitudes, they should observe, report and then refer patients to psychiatrists or psychologists who can help those affected in any psychological deviation from a satisfactory well-being.

Research should lead to more studies that can deepen the understanding of the connection between skin and psychology and can generate earlier, easier and faster ways to quantify psychological stress and depression for both the patient and the dermatologist.

3. Study 3 - The impact of smoking on psoriasis patients with biological therapies

In this observational study we evaluated the effects of smoking on a group of patients in our ward. Data from a cohort analysis of 109 patients show that smoking status does not affect the response to biological therapy in patients with moderate and severe psoriasis.

Regardless of how smoking influences the therapeutic response of patients with biologic therapy, it is clear that smoking is involved in the pathogenesis of psoriasis, both as a trigger of the disease and as an aggravating factor. Thus, doctors have a duty to advise and encourage patients to reduce the number of cigarettes or to quit smoking, which is an essential step in the management of the disease.

This result obtained in our study is supported by numerous studies in the literature. However, more studies with as many patients as possible are needed to reach a unanimous final conclusion.

4. Study 4 - Correlations between etiopathogenic factors and the persistence of anti-IL-17 biological therapies in patients with severe psoriasis

The persistence of biological therapies represents long-term efficacy and safety in real life and is a useful reference for clinical practice. This study helps to understand the persistence of anti-IL-17 biological therapies in psoriasis and the factors that may influence it.

Our results provide an unbiased and real analysis of the outcome and persistence of anti-IL-17A agents. The present study found that ixekizumab showed a longer persistence than secukinumab in psoriasis patients in the study groups, as did many other studies in the literature [42,43]. Although the reasons remain unclear, differences in their binding affinity for IL-17 may at least partially explain these findings. Stronger binding affinity is generally associated with a lower dissociation of antibodies [44]. Also, with regard to secukinumab therapy, it is unclear whether the dose frequency should be increased due to insufficient standard dose responses. The high loading dose can lead to a quick and convincing response; however, over time, the maintenance dose may be too low, leading to recurrence at a certain threshold [45,46].

Following the association of psoriasis with multiple comorbidities, the need for comprehensive screening and treatment must be recognized and addressed. Biological therapies

prescribed in psoriasis can exacerbate comorbidities, which in turn can influence psoriasis. Therefore, proper management of psoriasis must involve an integrated approach [47].

Thus, various factors interact with each other and can directly and / or indirectly affect the pathogenesis of psoriasis. For example, obesity, female gender, or the existence of psoriatic arthritis are associated with the course of psoriasis and also depend on the patient's age, lifestyle, and concomitant illness. Risk factors for psoriasis are not fully understood, and future studies should establish preventive approaches to psoriasis.

Patients' biological experience also affects the persistence rates of biologic therapies, and this can help both patients and clinicians make treatment decisions.

It may be relevant for physicians to opt for a specific biological treatment based on the prognostic factors that are present in a particular patient. This can guide doctors in choosing the right biologic for each patient. It should be noted that a direct causal relationship between these prognostic factors and the persistence of therapies cannot be estimated from such observational studies. This should be an important topic for future etiological research.

Although we presented data over several years on both therapies, it remains unclear whether the performance and persistence of these biological therapies will continue in a linear trend beyond the data presented in this study, therefore future persistence studies should include persistence analyzes over time to provide an accurate picture of current treatments.

The holistic approach of the psoriasis patient and placing him at the center of our concerns as therapists are generally valid and always current goals in trying to reduce the burden of psoriasis.

5. Study 5 - The course of Covid-19 infection in psoriasis patients with biological therapies

After reviewing a number of patients in our clinic, we found that our patients with generalized psoriasis under biological immunosuppressive therapy and SARS-CoV-2 infection did not develop a more severe form of COVID-19 than the general population. One in eight patients required hospitalization, with a more severe form of SARS-CoV-2 infection and multiple associated comorbidities.

A possible explanation for the favorable outcome in patients with psoriasis and

immunosuppressive therapy is the inhibition of proinflammatory cytokines by biological immunosuppressive therapy, thus protecting patients from the occurrence of extrapulmonary manifestations or even death. The increase in proinflammatory cytokines is recorded in the pathogenesis of psoriasis vulgaris, as well as in the hyperinflammatory phase of SARS-CoV-2 infection, so that their inhibition is beneficial in both cases.

Moreover, another explanation would be the decrease of the expression of ACE2, the main receptor of SARS-CoV-2, by the immunosuppressive treatment with IL-17 inhibitors.

There are few relevant studies on psoriasis during the pandemic, and current evidence, such as this study, has some limitations.

Management of patients with psoriasis during COVID-19 should be individualized. The severity of psoriasis, associated comorbidities, the feasibility of safer appropriate treatment options, pandemics, and the ability to maintain safety are all factors that need to be considered, and therefore more studies with higher levels of evidence are needed to support clinical decisions [48–50].

“Focus on me, not my skin”
(WHO report campaign)

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List of published scientific papers

A. Articles published in specialized journals

ISI indexed journals, with impact factor

1. Prevalence and Characteristics of Psoriasis in Romania—First Study in Overall Population

Alin Codruț Nicolescu, **Ștefana Bucur**, Călin Giurcăneanu, Laura Gheucă-Solovăstru, Traian Constantin, Florentina Furtunescu, Ioan Ancuța, Maria Magdalena Constantin

Journal of Personalized Medicine 2021, 11(6), 523; <https://doi.org/10.3390/jpm11060523> iunie 2021 (*ISI, IF 4.433*); ISSN: 2075-4426 – award-winning article

2. The Impact of Smoking on Psoriasis Patients with Biological Therapies in a Bucharest Hospital

Maria-Magdalena Constantin, **Ștefana Bucur**, Costina-Cristiana Mutu, Elena Poenaru, Rodica Olteanu, Răzvan Adrian Ionescu, Alin Codruț Nicolescu, Florentina Furtunescu, Traian Constantin

Journal of Personalized Medicine 2021, 11(8), 752; <https://doi.org/10.3390/jpm11080752> July 2021 (*ISI, IF 4.945*); ISSN: 2075-4426 – award-winning article

3. Psoriasis beyond the skin: Ophthalmological changes (Review)

Maria-Magdalena Constantin, Maria-Diana Ciurduc, **Ștefana Bucur**, Rodica Olteanu, Răzvan Adrian Ionescu, Traian Constantin, Florentina Furtunescu

Experimental and Therapeutic Medicine 22: 981, 2021; <https://doi.org/10.3892/etm.2021.10413> July 2021 (*ISI, IF 2.447*)

Spandidos Publisher, Print ISSN: 1792-0981, Online ISSN:1792-1015

4. Psoriatic arthritis: A permanent new challenge for dermatologists (Review)

Alina Dinu, **Ștefana Bucur**, Rodica Olteanu, Traian Constantin, Anca Răducan, Mara Băetu, Maria-Magdalena Constantin

Experimental and Therapeutic Medicine, 20(1): 47-51, 2020, July 2020
<https://doi.org/10.3892/etm.2019.8322> (*ISI, IF 2.447*)

Spandidos Publisher, Print ISSN: 1792-0981, Online ISSN:1792-1015

5. Therapeutic management with biological anti-TNF- α agent in severe psoriasis associated with chronic hepatitis B: A case report

Anca Raducan, Ștefana Bucur, Constantin Cărunțu, Traian Constantin, Iuliana Elena Niță, Nicuța Manolache, Maria-Magdalena Constantin

Experimental and Therapeutic Medicine, 2019, pg. 895-899,

doi.org/10.3892/etm.2019.7567 (ISI, IF 1,448); Spandidos Publisher, ISSN:1792-1015

6. Biosimilars in dermatology: The wind of change (Review)

Maria Magdalena Constantin, Cristina Mihaela Cristea, Tatiana Țăranu, Ștefana Bucur, Traian Constantin, Alina Dinu, Mariana Jinga, Iuliana Elena Niță

Experimental and Therapeutic Medicine, 2019, pg. 911-915,

doi.org/10.3892/etm.2019.7505 (ISI, IF 1,448); Spandidos Publisher, ISSN:1792-1015

ISI indexed journals, no impact factor

1. The outcome of Covid-19 in patients receiving biologics for the treatment of psoriasis

Rodica Olteanu, Ana M. Cuciumita, Maria M. Constantin, Ștefana Bucur, Daniel O. Costache, Traian Constantin

Romanian Journal of Military Medicine Vol. CXXIV • No. 4/2021 • November

2. Treatment persistence of biologics in psoriatic disease

Ștefana Bucur, Maria D. Ciurduc, Maria M. Constantin, Alin C. Nicolescu, Florica Șandru, Traian Constantin

Romanian Journal of Military Medicine Vol. CXXIV • No. 4/2021 • November

BDI indexed journals

1. Prevention and treatment of cutaneous lesions among healthcare workers in the context of coronavirus pandemic 2020

Rodica Olteanu, Ștefana Bucur, Maria Magdalena Constantin

DermatoVenerol. (Buc.), 2020, 65: vol 2, 33-35, ISSN 1220/3734

2. Psychological Stress and Depression in Psoriasis Patients - a Dermatologist's Perspective.

Rigas HM, Bucur S, Ciurduc DM, Nita IE, Constantin MM.

Maedica (Buchar). 2019 Sep;14(3):287-291. doi: 10.26574/maedica.2019.14.3.287.

PMID:31798747

Abstracts of papers presented at specialized international conferences, published in ISI-listed journals

1. How important is the speed of response to biological therapy?

A. Savu, C. Mutu, E.D. Serban, M. Ciurduc, **S. Bucur**, M. Constantin
Journal of Investigative Dermatology, Vol 141, Issue 10, Supplement Oct 2021, Page S151,
ISSN 0022-202X, (*ISI IF 8.551*), <https://doi.org/10.1016/j.jid.2021.08.016>

2. Therapeutic conduct in multiple bio-experienced psoriatic patient

R. Olteanu, A. Cuciumita, **S. Bucur**, T. Constantin, M. Constantin
Journal of Investigative Dermatology, Vol 141, Issue 10, Supplement oct 2021, Page S164,
ISSN 0022-202X, (*ISI IF 8.551*), <https://doi.org/10.1016/j.jid.2021.08.097>

3. Our experience regarding the impact of chronic active hepatitis B virus infection in the management of a patient treated for severe psoriasis with anti-TNF monoclonal antibodies

Iuliana Elena Niță, **Ștefana Bucur**, Cristina Mihaela Cristea, Maria-Magdalena Constantin
American Academy of Dermatology Annual Meeting, 16-20 Feb 2018, San Diego, California,
ID7989

A. Papers presented at national and international scientific events

1. The impact of smoking on psoriasis patients with biological therapies

Costina-Cristiana Mutu, **Ștefana Bucur**, Traian Constantin, Maria-Diana Ciurduc, Elena-Daniela Serban, Alexandra Petruta Savu, Maria Magdalena Constantin
20th National Congress of Dermatology, ONLINE edition, 2021, co
DermatoVenerol. (Buc.), vol. 66, Supplement, page 39, ISSN 1220/3734

2. The course of Covid-19 infection in psoriasis patients with biological therapies

Ana Maria Cuciumita, Rodica Olteanu, Traian Constantin, **Ștefana Bucur**, Maria Magdalena Constantin
20th National Congress of Dermatology, ONLINE edition, 2021, co
DermatoVenerol. (Buc.), vol. 66, Supplement, page 40, ISSN 1220/3734

3. Correlations between etiopathogenic factors and persistence on anti-IL-17A therapies

Ștefana Bucur, Alexandra-Petruta Savu, Maria-Diana Ciurduc, Elena-Daniela Serban, Traian Constantin, Costina Cristiana Mutu, Maria Magdalena Constantin

*20th National Congress of Dermatology, ONLINE edition, 2021, co
DermatoVenerol. (Buc.), vol. 66, Supplement, page 41, ISSN 1220/3734*

4. Metabolic syndrome - the silent killer associated with psoriasis

Elena-Daniela Șerban, **Ștefana Bucur**, Maria-Diana Ciurduc, Costina-Cristiana Mutu, Traian Constantin, Alexandra-Petruța Savu, Maria Magdalena Constantin

*20th National Congress of Dermatology, ONLINE edition, 2021, co
DermatoVenerol. (Buc.), vol. 66, Supplement, page 43, ISSN 1220/3734*

5. The patient with psoriasis and psoriatic arthritis: a continuing challenge for the dermatologist

Alexandra-Petruța Savu, **Ștefana Bucur**, Maria-Diana Ciurduc, Elena-Daniela Șerban, Costina-Cristiana Mutu, Răzvan Adrian Ionescu, Maria Magdalena Constantin

*20th National Congress of Dermatology, ONLINE edition, 2021, co
DermatoVenerol. (Buc.), vol. 66, Supplement, page 42, ISSN 1220/3734*

6. Psoriasis beyond the skin: ocular manifestations

Maria-Diana Ciurduc, **Ștefana Bucur**, Elena-Daniela Șerban, Costina-Cristiana Mutu, Ana Maria Cuciumita, Rodica Olteanu, Maria Magdalena Constantin

*20th National Congress of Dermatology, ONLINE edition, 2021, co
DermatoVenerol. (Buc.), vol. 66, Supplement, page 44, ISSN 1220/3734*

7. The importance of speed of response to biological therapy - considerations on a clinical case

Alexandra Petruța Savu, Costina-Cristiana Mutu, Elena-Daniela Șerban, Maria-Diana Ciurduc, **Ștefana Bucur**, Maria Magdalena Constantin

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8. Is SARS-COV-2 involved in the pustulation of psoriasis vulgaris?

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9. Non-Invasive Bioengineering Techniques In Analyzing Skin Viscoelasticity

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24th World Congress of Dermatology, 10-15 June 2019, Milano

10. The awareness of using hydroxychloroquine wisely for the prevention of COVID-19 –
e-poster presentation, Virtual EADV Vienna 2020

11. How to choose the right biological therapy in an age of biological overload

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12. Screening for hepatitis in patients with psoriasis vulgaris on biologic therapies

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13. Management of the patient with psoriasis vulgaris and joint damage

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14. The relevance of the human microbiome in dermatological diseases

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15. Systemic therapies at the dermatologist's disposal: shield or trap?

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16. Psoriasis induced or exacerbated by hepatitis C interferon therapy

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17. Paradoxical reactions induced by biological therapy with anti-TNF- α agents

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