The 23rd Annual Meeting of The Korean Society for Psoriasis

PROGRAM BOOK

SEP 7 (Sat), 2019

Seoul Dragon City,
Grand ballroom Baekdu (5F)
Seoul, Korea

Organized by
The Korean Society for Psoriasis
Co-sponsored by
The Korean Dermatological Association

인사말씀

안녕하세요?

9월 7일(토)에 열리는 제23차 대한건선학회 연례 학술대회에 여러분을 초대합니다. 올해도 건선분야에는 주목할만한 많은 연구성과가 있었습니다.

올 한 해 동안 우리나라 건선 연구자들이 노력하여 거둔 연구 결과를 발표하고 함께 토론하는 자유연제 세션에 오전과 오후에 각각 마련되어 있습니다. 올해는 자유연제 발표에 구연뿐만 아니라 포스터 세션도 준비하여 충분한 시간을 가지고 연구에 대한 토론이 이루어 질 수 있게 하였습니다.

또한 올해는 북미와 유럽에서 오신 세 분의 특별강연이 준비되어 있습니다. 독일 University Medical Center Schleswig-Holstein의 Dr. Sascha Gerdes가 “The latest updates on the optimal topical treatment of psoriasis” 라는 연제로 국소치료를 포함한 건선의 최적 치료에 대한 최신지견을, 이탈리아 Verona 대학의 Giampero Girolomoni 교수가 “The role of biological therapy in the new era”라는 연제로, 그리고 캐나다의 Kim Papp 교수가 “New novel biologics for complete clearance” 라는 연제로 건선의 생물학적제제 요법에 대한 특강을 할 예정입니다.

이번 학술대회가 여러분의 건선 연구와 진료에 큰 도움이 되기를 기대하며 많은 참여를 부탁드립니다.

끝으로 이번 학술 대회를 위하여 많은 애써주신 대한건선학회의 상임이사진의 노고와 연자 및 좌장들께도 깊은 감사를 드립니다.

2019년 9월

대한건선학회 회장 **송 해 준**

INFORMATION

◆ **등록비** (정회원 연회비 포함)

・사전등록 5만원, 현장등록 6만원

・전공의 및 65세 이상 회원 면제 (*피부과 이외의 타과 30만원)

◆ **연수평점** : 5점

◆ Official Language

모든 발표자료는 영어로 작성되어야 하며, 연제 발표 시 국내 연자는 한국어를 사용하고 외국인 연자는 영어를 사용하여 발표합니다.

◆ **학회장:** 드래곤시티 그랜드볼룸 백두홀(5층)

서울시 용산구 청파로 20길 95

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◆ **발표자들께 알리는 말씀**

・발표파일은 MS사의 파워포인트(버전 2000이상)로 만들어 주시기 바랍니다.

・모든 연자는 발표 1시간 전까지 USB에 저장하여 슬라이드 접수처에 제출해 주시기 바랍니다.

・발표자가 지참한 노트북은 발표 시 직접 연결하여 사용할 수 없습니다.

PROGRAM

09:30-09:50 Registration

09:50-10:00 Opening Address — **SONG Hae Jun**, President of KSP
Congratulatory Message — **SEO Seong Jun,** President of KDA

10:00-11:00 Free Communication I — **Chairs: KIM Kwang-Joong** *(Hallym Univ.),* **SEO Seong Jun** *(Chung-Ang Univ.)*

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[1]Department of Dermatology, Korea University Guro Hospital, [2]Department of Dermatology, Yonsei University Severance Hospital

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[1]Department of Dermatology, Seoul National University College of Medicine, Seoul, Korea, Department of Dermatology, Seoul National University Bundang Hospital, Seoul National University College of Medicine, Seongnam, Korea, [2]Department of Dermatology, Chungnam National University Hospital, Daejeon, Korea

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Department of Dermatology, Ulsan University Hospital University of Ulsan College of Medicine

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Department of Dermatology, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, Korea

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Department of Dermatology, Ulsan University, School of Medicine

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[1]Department of Dermatology, Konkuk University School of Medicine, [2]Department of Cardiovascular Medicine, Konkuk University School of Medicine, [3]Department of Preventive Medicine, Konkuk University School of Medicine

11:00-11:50 Special Lecture I

Chair: CHOI Jee Ho *(Ulsan Univ.)*

11:50-12:00 Commemorative photo

12:00-13:30 Lunch & Board Meeting

13:30-14:20 Special Lecture II

Chair: SONG Hae Jun *(Korea Univ.)*

14:20-15:20 Free Communication II

Chair: KIM Nack-In *(Kim Nack-In Dermatology Clinic.),*
KIM Tae Yoon *(Catholic Univ.)*

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[1]Department of Microbiology and Immunology, Yonsei University College of Medicine, Seoul, South Korea, [2]Department of Dermatology, Cutaneous Biology Research Institute, Severance Hospital, Yonsei University College of Medicine, Seoul, South Korea, [3]Brain Korea 21 PLUS Project for Medical Science, Yonsei University College of Medicine, Seoul, South Korea, [4]Department of Dermatology, National Health Insurance Service Ilsan Hospital, Goyang, South Korea, [5]Department of Plastic Surgery, Severance Hospital, Yonsei University College of Medicine, Seoul, South Korea

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[1]Department of Dermatology, [3]Division of Gastroenterology and Hepatology, Department of Internal Medicine, National Medical Center, [2]Department of Dermatology, Asan Medical Center, [4]Inshine Dermatologic Clinic

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PARK Hee Jae, KOH Byung Chang, OH Jae Hong, HAM Seung Pil, CHOI Mira, PARK Hai-Jin

Department of Dermatology, Ilsan Paik Hospital, College of Medicine, Inje University, Goyang, Korea

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JEONG Kyung Muk, SEO Ji Yun, SONG Jin Young, BAEK Yoo Sang, JEON Jiehyun, SONG Hae Jun

Department of Dermatology, College of Medicine, Korea University, Seoul, Korea

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15:40-16:30 Special Lecture III **Chair: YOUN Jai Il** *(Inshine Dermatology Clinic),*

The Role of Biological Therapy in the New Era ····· **41**
GIROLOMONI Giampiero *(University of Verona, Italy)*

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1. Problems in the Application of the Subsidy Program for Severe Psoriasis ····· **45**
YOUN Sang Woong *(Seoul National Univ.)*

2. My Perspectives on Research and Management of Psoriasis in the Era of Biologics ···· **47**
SONG Hae Jun *(Korea Univ.)*

17:00 Closing

Poster

Free Communication I

FC 1-1

Psoriasis Patient's Knowledge Level about the Disease and Treatment in Korea

SEO Ji Yun[1], KIM Tae-Guyn[2], LEE Ju Hee[2], Conjoined 18 hospitals group for Psoriasis Class Program, SONG Hae Jun[1]

[1]Department of dermatology, Korea University Guro Hospital,
[2]Department of dermatology, Yonsei University Severance Hospital

Patient education is one of the most important factors required for successful outcome of treatment of psoriasis. Although its usefulness was proved by a randomized clinical trial, very limited numbers of studies were available to find out topics which patients desire most or to evaluate knowledge level of patient's about psoriasis. Also was unavailable the study to compare the result between Western and Asian countries.

Korean Society for Psoriasis has been developed and held the education program for patients since 2013 with successful responses from patients with psoriasis. We developed a questionnaire consisted of 29 questions to evaluate the level of patient knowledge for psoriasis before and after the education and another questionnaire to compare the differences between European (Italy) and Korean patients. Survey was carried out for 324 patients in 18 university hospitals throughout the Korea in 2018. Among 29 questions provided, survey disclosed 6 questions of well known (more than 75%) and 5 questions least known to patients.

Comparing with Italian patients of 2007, general level of patient's knowledge for psoriasis was higher in Korean patients with psoriasis in 2018. Korean patients showed more anger, embarrassed feeling and depression. But they knew better about biological therapy and feel positive regarding progress of psoriasis treatment toward the cure and willing to undertake a systemic treatment. Korean patients seemed to be more satisfied with doctors treating them. But interestingly, unlike Italian patients, more Korean patients feel that they have did not received support from other people with psoriasis.

In conclusion, with the survey using proper sets of questionnaires, Korean Society for Psoriasis could successfully sort out most important topics for education of patients with psoriasis and the knowledge level before education and its change after education could also be assessed for evaluating effectiveness of education.

FC 1-2

Treg Cells Suppress the Psoriasis-like Skin Inflammation in Imiquimod-induced Psoriasis-like Mouse Model

CHOI Chong Won[1,2], YANG Seoyun[1], YANG Seungkeol[1], KIM Bo Ri[1], YOUN Sang Woong[1]

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Department of Dermatology, Seoul National University Bundang Hospital, Seoul National University College of Medicine, Seongnam, Korea
[2]Department of Dermatology, Chungnam National University Hospital, Daejeon, Korea

Psoriasis is a chronic inflammatory disease of skin, affecting 1-3% of the population in the world. The skin lesion of psoriasis and its relapsing-remitting nature leads to a considerable burden to the affected patients. Recent studies have found that Th17 cells and proinflammatory cytokines such as IL-17 and IL-23 play a central role in the pathogenesis of psoriasis and they are considered as the driver of aggravation of psoriasis. For remitting of psoriasis, Treg cells have been speculated to be the candidate for the inducer of remission. Although there are some clinical studies investigated the changes in Treg cells in psoriasis, few *in vivo* studies are available.

In this study, we applied imiquimod on the back of mice and found that the severity of psoriasis measured by ear thickness reached a plateau after 6 days of imiquimod application. This plateau suggests the existence of regulatory system. We investigate the change in Treg cells and found that the proportion of CD4+Foxp3+ Treg cells in draining lymph node was increased after imiquimod application. In addition, the immune-regulatory cytokines secreted by Treg cells (IL-10 and TNF-α) were also increased. To further investigate the role of Treg cells in imiquimod-induced psoriasis-like mouse model, we depleted Treg cells by anti-CD25 antibody and found that depletion of Treg cells exacerbated the imiquimod-induced psoriasis-like skin inflammation. We reveal the role of Treg cells in imiquimod-induced psoriasis-like mouse model and suggest that the modified model using anti-CD25 antibody can provide a new model for investigating Treg cell modulating therapy for psoriasis.

FC 1-3

A Case of Paradoxical Cutaneous Sarcoidosis after Adalimumab Therapy

SEO Byeong-Hak, KIM Ji-Hyun, OH Yong-Woo, KIM Dong-Hee, SUH Ho-Seok, CHOI Yu-Sung

Department of Dermatology, Ulsan University Hospital University of Ulsan College of Medicine

Adalimumab is an anti-tumor necrosis factor(TNF)-α monoclonal antibody used in inflammatory diseases such as psoriasis, ankylosing spondylitis, inflammatory bowel diseases, and sarcoidosis. Extensive use of TNF-α blocker may induce various cutaneous adverse effects including infections, immune-mediated reactions, and neoplasm. However, paradoxical cutaneous sarcoidosis caused by adalimumab has been rarely reported in the dermatologic literature.

A 37-year-old man presented with 10-month history of scattered various sized erythematous firm nodules on both extremities. He had treated with adalimumab for ankylosing spondylitis 1.5 years ago. Radiologic findings revealed multiple tiny pulmonary nodules without hilar lymphadenopathies. Histopathologic findings showed multiple non-caseating granulomatous inflammations composed of aggregates of epithelioid cells and multinucleated giant cells in the dermis and subcutaneous tissue. Polymerase chain reaction for Mycobacterium tuberculosis and AFB stain were all negative. The patient was diagnosed with cutaneous sarcoidosis. He discontinued adalimumab and treated with triamcinolone acetonide intralesional injection. The lesions were partially improved. Herein we present a case of paradoxical cutaneous sarcoidosis after adalimumab therapy.

FC 1-4

The Association between Nail Psoriasis and Psoriatic Arthritis in Korean Population: A Cross Sectional Observational Study of 424 Patients with Psoriasis

PARK Jin Woo, BANG Chul Hwan, KIM Tae Yoon

Department of Dermatology, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, Korea

Background: Nail psoriasis has been proposed as predictor for the development of PsA. However, it is not well described in Asian population, including Koreans.

Objectives: Our aim was to determine whether the prevalence of nail psoriasis in PsA patients was increased compared to patients with psoriasis alone.

Methods: A single-center, cross-sectional observational cohort study was conducted. The proportion of nail psoriasis in patients with psoriasis alone and that with PsA were calculated. Also, the proportion of nail psoriasis associated with arthritis, dactylitis or enthesitis in the hands was investigated.

Results: Among 424 psoriasis patients, the prevalence of PsA was 9.6%. There was no statistically significant difference in the proportion of nail psoriasis in patients with PsA and psoriasis alone. Furthermore, there was no statistically significant difference in the proportion of nail psoriasis in patients with arthritis, dactylitis or enthesitis in the hands

Conclusion: These results suggest that nail psoriasis may not be a predictor of PsA in Korean population.

FC 1-5

A Case of Psoriasiform Eruption in a Pediatric Patient with Inflammatory Bowel Disease treated with Anti-Tumor Necrosis Factor Alpha Agent

CHUNG Chang Jin, CHANG Sung Eun, WON Chong Hyun, CHOI Jee Ho

Department of Dermatology, Ulsan university, School of Medicine

Anti-tumor necrosis factors (anti-TNF) including infliximab and adalimumab have been used to treat several immune-based diseases, including Crohn's disease (CD) and psoriasis, paradoxically have been reported to induce new-onset or exacerbation of psoriasis or psoriasiform skin eruptions. While, previous studies have indicated higher co-occurrence of psoriasis and inflammatory bowel disease (IBD) regardless of anti-TNF therapies. Clarifying whether anti-TNF therapies induce psoriasis in IBD patients is important to establish the appropriate treatment plan. Herein, we report a case of psoriasiform eruption in a pediatric patient with IBD treated with anti-TNF agent. A 16-year-old girl who had been treated with adalimumab (Humira^{TM}) every two weeks for 2 years due to Crohn's disease, presented with a 6-month history of multiple erythematous scaly papuloplaques on the whole body. She had no history of upper respiratory tract infection before the skin eruption. Histopathologic examination demonstrated psoriasiform dermatitis with corneal microabscess. Therefore, the skin eruption was diagnosed with psoriasis.

Distinguishing between spontaneous and anti-TNF therapy induced psoriasis could prove difficult.

Although the role of adalimumab in occurrence of psoriasiform eruption in this case is unclear, a recent study reported the incidence of anti-TNF therapy induced psoriasis is higher than that of psoriasis irrelevant to anti-TNF therapy in pediatric patients with IBD.

FC 1-6

Cardiovascular Outcomes Related to Therapeutic Modalities in Psoriasis: A Nationwide Population-based Cohort Study in Korea

HONG Joo Ran[1], LEE Ji Su[1], KIM Sung Min[1], HONG Ji Youn[1], KIM Jin Hee[1], CHEON Hye In[1], HUR Min Seok[1], YANG Hyun Suk[2], KIM Hyeongsu[3], LEE Yang Won[1], CHOE Yong Beom[1] and AHN Kyu Joong[1]

[1]Department of Dermatology, Konkuk University School of Medicine, [2]Department of Cardiovascular Medicine, Konkuk University School of Medicine, [3]Department of Preventive Medicine, Konkuk University School of Medicine

It is well known that systemic inflammation in psoriasis increases the risk of cardiovascular diseases. Systemic treatments may reduce the risk of cardiovascular events. Therefore, we examined the rates of cardiovascular events in patients with psoriasis treated with systemic treatments. A nationwide population-based cohort study was performed using National Health Insurance Service database which was collected from 2006 to 2018 in Korea. A total of 1,201,778 psoriasis patients aged over 20 years were included. We classified the patients as mild if they never received a systemic therapy. If patients ever received any systemic treatment (methotrexate, cyclosporine, acitretin, phototherapy, or biologics), they were defined as moderate to severe. Patients treated with systemic treatment had markedly lower rates of major adverse cardiovascular events (MACEs) compared to the mild group (2.4% vs. 3.6%). Overall cumulative incidences for MACEs were 7.00, 3.17, 2.37, 0.83, and 3.61 for cyclosporine, methotrexate, phototherapy, biologics, and mild group, respectively. Methotrexate, phototherapy, and biologics showed tendency to reduce the rate of cardiovascular events. The treatment strategies in psoriasis may have an impact on cardiovascular outcomes and randomized trials to evaluate the cardiovascular safety and efficacy of systemic antipsoriatic therapies would be mandatory.

FC 1-7

Two Cases of Cardiovascular Events in Young Adult Psoriasis Patients

OH Jongwook[1], KIM Taegyun[1,2], LEE Min-Geol[1]

[1]Department of Dermatology, Severance Hospital, Cutaneous Biology Research Institute, Yonsei University College of Medicine
[2]Department of Microbiology and Immunology, Yonsei University College of Medicine, Seoul, South Korea

Psoriasis is a chronic immune mediated inflammatory disease. Because of its chronic nature, psoriasis is related to other inflammatory diseases. Most common comorbidities include psoriatic arthritis, cardiovascular disease, metabolic syndrome, overweight/obesity, inflammatory bowel disease, and depression. Many studies have shown an increased risk of cardiovascular morbidity in patients in psoriasis patients. And in recent report, psoriasis was an independent factor for an increased risk of ASCVDs in Korean patients with psoriasis. In our hospital, cardiovascular event occurred in two young adult psoriasis patients whose cardiovascular risk is low. One case is 44-year old women who has no CVD risk factor. She has no hypertension, diabetes, smoking and dyslipidemia. In coronary angiography, there was significant vessel occlusion. And another case is 44-year old man who also has no hypertension, diabetes, dyslipidemia but smoking history. This man didn't show chest pain. But his coronary angiography showed 3 vessel severe stenosis. Here we showed two cases of cardiovascular events in young adult psoriasis patients whose CVD risk is low. These cases highlight the burden of cardiovasculardisease in patient with psoriasis and suggest that appropriate screening test for possible cardiovascular disease is needed in Asian psoriatic patients.

Special Lecture I

CURRICULUM VITAE

GERDES Sascha
Inflammatory Skin Disease Center & Lab
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Education:

1997-2004 Christian-Albrechts-University of Kiel, Medical School, Kiel, Germany

Professional Experience:

2015 Assistant Professor of Dermatology and Venerology

2012- Head of Department for clinical trials at the Inflammatory Skin Disease Center Kiel

Sub-Investigator in approx. 75 international, multicenter clinical trials in patients with moderate to severe plaque-type psoriasis, atopic dermatitis, scalp psoriasis, herpes simplex and autoimmune dermatoses.

Principal Investigator in approx. 25, coordinating investigator in 10 clinical trials in patients with moderate to severe psoriasis vulgaris.

2004 Member of the Scientific Advisory Board of the German Psoriasis Association

Member of the German Society of Dermatology (DDG)

Member of the "Arbeitsgemeinschaft Dermatologische Forschung"

Member of the professional organization of the German dermatologists

45 published peer-reviewed articles referenced in Medline data base

Awards:

2014 German Psoriasis Award 2014, Research Award of the German Society of Dermatology (DDG)

2013 Abbvie Research Award Dermatology 2013

2008 Wyeth BioPharma Research Promotion Dermatology 2008

SL-1

The Latest Updates on the Optimal Topical Treatment of Psoriasis

GERDES Sascha

Department of Dermatology, Venereology and Allergology,
University Medical Center Schleswig-Holstein, Campus Kiel, Germany

Psoriasis vulgaris (psoriasis) is one of the most common chronic inflammatory skin diseases in daily dermatological practice and is characterized by a chronic, episodic course. Quality of life is strongly impaired in affected patients

Recently, even though a greater understanding of its immunopathogenesis has guided the development of novel, more targeted therapies. Nonetheless, still traditional treatment with topical agents, phototherapy and systemic medications is used in the management of the majority of psoriasis patients. Mainstay topical treatments include corticosteroids and vitamin D derivatives.

In daily practice topical treatment of psoriasis and its subtypes is of high importance. It is standard for the treatment of mild psoriasis and is used to support treatment of moderate-to-severe psoriasis. When optimizing psoriasis treatment not only the choice of suitable compounds, but also the formulation aspect matters. So in aspect of topical treatment, the key for the successful treatment is adherence and effectiveness based on way of deliver.

The newly developed Cal/BD foam was introduced in Germany at 2016 and it showed the great effectiveness and well tolerated in German real world daily clinical practice.

A side from that, in clinical perspective, When optimizing psoriasis treatment not only the choice of suitable compounds, but also the formulation aspect matters. Based on these acknowledgement, In the latest German consensus in psoriasis topical treatment was presented in PsoNet speaker conference and confirmed by the national psoriasis care conference. In that, during induction phase the gold standard for treatment is the fixed combination of Cal/BD once daily over four to eight weeks. Application via an aerosol-foam is the most effective formulation, but the individual choice of the formulation should be also based on patient's preference.

In this session, the evaluated outcome of Cal/BD foam in either effectiveness and tolerability in Germany will introduced, also the evolving role of topical treatment in psoriasis with clinical cases. Lastly, The data will indicate the standard for the treatment of mild psoriasis and how we figure out the role of topical treatment to support the treatment of moderate-to-severe psoriasis.

Special Lecture II

CURRICULUM VITAE

Kim A. PAPP, MD, PhD, FRCPC
K. Papp Clinical Research
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Canada N2J 1C4 519-579-9535

Career:

Dr. Kim Papp is a Member of the College of Physicians and Surgeons of Ontario, a Fellow of the Royal College of Physicians and Surgeons of Canada, and a Fellow of the American Academy of Dermatology. The Waterloo, Ontario, Canada based dermatologist has over 25 years' experience as a Principal Investigator, and has conducted over 170 psoriasis studies in which he closely supervised and assessed over 2750 subjects. Dr. Papp is an internationally renowned Key Opinion Leader in clinical research who conducts clinical trials on a wide range of dermatological disorders.

Dr. Papp, with the support of Probity Medical Research, an organization for which he serves as Founder and President, has earned the distinction of top enrolling investigator in over 70 international dermatology studies.

Dr. Papp has conducted early through late phase psoriasis studies, and has been instrumental in the investigation and development of the following compounds: adalimumab (Humira®), AIN457, alefacept, AMG714, AMG827, apremilast (CC-10004), BIRB 796 BS, BIRT 2584XX, BMS-582949, briakinumab (ABT-874), CD 2027, clobex, CP-690,550, CRx-140, cyclosporine, dovobet, dovonex, efalizumab, etanercept, golimumab, ILV094, infliximab, KH 1650, MEDI-507, MEDI-545, methotrexate, onercept, recombinant human interleukin eleven (rhIL-11), roziglitazone maleate, RWJ-445380,tacrolimus, tazorac, tofacitinib (CP-690, 550), ustekinumab (CNTO1275), volclosporine (ISA247)

K. Papp Clinical Research, like many high-enrolling research sites, has had routine inspections by the Food and Drug Administration, Health Canada, and the European Medicines Agency. Dr. Papp's clinic has the unique distinction of producing no significant findings; the FDA's Form 483-a standard document issued to non-compliant research centres—has never been issued to K. Papp Clinical Research.

Dr. Papp has acted as consultant and/or advisor to over 40 pharmaceutical companies on the development of dermatological compounds. He is instrumental in improving and refining study designs, and serves on a number of Steering Committees and Advisory Boards tasked with developing effective and efficient strategies for the timely development of new treatments. An author on over 275 publications, and a highly sought-after speaker known for delivering engaging, thought-provoking and accessible presentations, Dr. Papp is held in the highest esteem by the academic and medical communities.

SL-2

Aligning the Treatment Goal in Psoriasis with Novel Biologics

Kim A. PAPP

K. Papp Clinical Research 135 Union Street East Waterloo, Ontario, Canada

The introduction of anti-IL-17A and IL-23 therapies has created more opportunities for patients to achieve their goals for completely clear skin that is sustained over-time. Moderate-to-severe psoriasis patients still desire to reach their higher goals-achieving completely clear skin and experiencing rapid relief of symptoms. To find optimal treatment option for Moderate-to-severe psoriasis patients who have different expectation in biologic treatment, we compared long-term efficacy, speed of onset and compliance of novel biologics. In addition, various patient cases will be introduced to help our discussion.

Free Communication II

FC 2-1

Ustekinumab Does Not Increase the Risk of Tuberculosis in A High Tuberculosis Burden Area: from A Nationwide Claim Data Analysis in South Korea

KIM Ye Eun, CHO Soo Ick, KANG Sungchan[1], LEE Jin Yong[2,3], JO Seong Jin

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[1]Department of Public Health, Seoul National University College of Medicine, Seoul, Korea.
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Introduction: Ustekinumab is reported to show the highest drug survival with relative low adverse events, including tuberculosis. Clinical trials of ustekinumab rarely reported active tuberculosis, in western countries with low tuberculosis burden. South Korea is a nation with high tuberculosis burden among high-income countries. The purpose of this study was to identify patients with active TB among patients using ustekinumab in Korea and compare them with the incidence of TB in the general population.

Methods: We analyzed the claim data of patients who received ustekinumab from January 2012 to December 2018, from National Health Insurance Service in Korea. Active TB was defined as patients prescribed triple or quadruple anti-TB medications with diagnosis codes of tuberculosis.

Results: We found a total of 2,803 (M/F: 1,904/899) patients receiving ustekinumab. The average age at initial ustekinumab treatment was 45.25 ± 12.99 (mean ± standard deviation) years old and the mean duration of ustekinumab treatment was 691.09 ± 647.22 days. A total of three cases of active tuberculosis associated with ustekinumab were found; the incidence was lower than sex and age-adjusted expected tuberculosis incidence estimation (3.945 cases) based on the 2016 annual reports from Korean Centers for Disease Control and Prevention.

Conclusions: This study reported that ustekinumab did not increase the risk of TB even in a high tuberculosis burden area.

FC 2-2

A Case of Psoriasiform Dermatitis Induced by Nivolumab Successfully Controlled by Etanercept

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Immune checkpoint inhibitors are currently used for various cancer treatments but they can have immune-related side effects. Psoriasiform dermatitis is one of the reported dermatologic side effects by immune checkpoint inhibitor therapy. Most patients with psoriasiform dermatitis have a personal history or family history of psoriasis, but it is possible to that de novo psoriasiform dermatitis may develop after the treatment. Psoriasiform dermatitis has been known to generally show mild manifestations and is treated by topical medication and/or phototherapy in cancer patients. However, this report describes a case of de novo psoriasiform dermatitis after anti-programmed cell death 1 (PD-1) therapy that accompanied severe itching and was not controlled with topical and systemic steroid and phototherapy. This rare case of psoriasiform dermatitis induced by the anti-PD-1 therapy improved only after using a tumor necrosis factor-alpha inhibitor.

FC 2-3

A Case of the Safety and Efficacy of Guselkumab in Psoriasis with Alcoholic Liver Cirrhosis

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Biologics are often prescribed in particular population for several reasons. This is probably because physicians are usually reluctant to prescribe conventional systemic treatments such as methotrexate or acitretin in patients with psoriasis with liver abnormalities because of their liver toxicity. In addition, there is a general agreement that biologics have very few pharmacological interactions with liver function and are not contraindicated in cases of liver insufficiency. There are few studies specifically addressing the safety and efficacy of biological treatments, especially interleukin (IL)-23 agents, in patients with psoriasis with alcoholic liver cirrhosis.

A 34-year-old woman visited our emergency room presenting with esophageal varix rupture complicated by alcoholic liver cirrhosis. During treatment for alcoholic liver cirrhosis in intensive care unit, we received a dermatological consultation for psoriasis treatment. The patient had fine scaly patches and erythematous scaly plaques on the whole body. She was treated with conventional systemic treatment such as cyclosporine in the past, but Psoriatic lesions did not improved. Because another conventional systemic treatments such as methotrexate or acitretin was contraindicated in cases of liver abnormalities, we decided to prescribe Guselkumab, namely interleukin (IL)-23 agent to treat psoriasis with alcoholic liver cirrhosis. With the start of Guselkumab, psoriatic lesions improved speedly. No opportunistic or mycobacterial infections, spontaneous bacterial peritonitis or hepatocellular carcinoma were observed. The fourth biological treatments is currently underway

Given the difficulties due to the monitoring and hepatotoxicity of conventional systemic treatments, biological treatments can be proposed in the treatment arsenal for severe psoriasis in patients with liver cirrhosis. Here in, we report an interesting case of psoriasis with alcoholic liver cirrhosis improved by Guselkumab treatment.

FC 2-4

Pellino-1 Facilitates IL-17-Producing T Cell Immune Response in Psoriatic Inflammation

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Psoriasis is a chronic inflammatory skin disease particularly mediated by IL-17-producing T cell immune response. Underlying mechanisms how IL-17-producing T cell immune response is regulated within psoriatic microenvironment have been poorly understood yet. Pellino-1 (Peli1) belongs to a family of E3 ubiquitin ligases which regulates several immune receptor-mediated signaling pathways including IL-1β receptor-NF-kB signaling. However, its precise role in psoriatic inflammation remains unknown. Here, we found that Peli1 mediates psoriatic inflammation through facilitating IL-17-producing T cell immune response. RNA-sequencing of human psoriatic lesions demonstrated an upregulated PELI1 expression which was involved in the pathway of positive regulation of NF-κB signaling. Peli1$^{-/-}$ mice were significantly protected from imiquimod-induced psoriatic inflammation along with a lesser frequency of lesional IL-17A-producing $\gamma\delta$T cells ($\gamma\delta$T17). Experiments using mice with conditional ablation of Peli1 showed that Peli1 expression of neither dendritic cells nor keratinocytes was involved in the development of psoriatic inflammation. Interestingly, Peli1-deficient $\gamma\delta$T17 cells stimulated with IL-23 and IL-1β showed a significantly less production of IL-17A. Thus, our data demonstrate that Peli1 critically mediates IL-17-producing T cell immune response and pharmacological inhibition of Peli1 would be a novel therapeutic strategy for human psoriasis in the future.

FC 2-5

Clinical Features and Frequency of Non-Alcoholic Fatty Liver Disease in Psoriatic Patients with Abnormal Liver Function Tests

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Background: Non-alcoholic fatty liver disease (NAFLD) is the most frequent liver disease in the world. There are evidences supporting a strong relationship between psoriasis and NAFLD. Recent studies reveal that NAFLD is significantly higher in psoriatic patients than in matched controls and psoriatic patients with NAFLD have more severe psoriasis than those without NAFLD.

Objective: The aim of this study to reveal association between psoriatic patients with abnormal liver function tests and fatty liver.

Methods: We evaluated the laboratory results of psoriatic patients who visited the Department of Dermatology, National Medical Center from September 2012 to June 2017. Those who have abnormal liver function tests were consulted to a hepatologist to confirm the diagnosis of fatty liver by ultrasonography.

Results: In total, 311 psoriatic patients excluding viral hepatitis B and C infection took liver function tests (LFTs) and 50 patients (16.1%) had abnormal LFTs. Psoriatic patients with abnormal LFTs took hepatic ultrasonography and 38 patients (76.0%) were diagnosed with fatty liver. Among them, 4 patients were excluded because they had alcoholic fatty liver. Among psoriatic patients with abnormal LFTs, 34 of 46 patients (73.9%) were diagnosed with NAFLD. Among psoriatic patients with abnormal LFTs, moderate to severe psoriatic patients significantly had more fatty liver (87.5%) than mild psoriatic patients (59.1%). Among psoriatic patients with abnormal LFTs, moderate to severe psoriatic patients significantly had more moderate to severe fatty liver (66.7%) than mild psoriatic patients (31.8%). Among psoriatic patients with abnormal LFTs, psoriatic patients with NAFLD significantly had greater frequency of high fasting blood glucose and dyslipidemia. In multivariable logistic regression, NAFLD is significantly increased in moderate to severe psoriatic patients but not related with age, sex, duration of psoriasis,

hypertension, fasting blood glucose and total cholesterol.

Conclusion: In this study, 311 psoriatic patients who were seronegative for hepatitis B or C infections were evaluated LFTs and 50 patients (16.1%) were abnormal in LFTs and 38 patients (76.0%) were diagnosed as having fatty liver by ultrasonography. Among psoriatic patients with abnormal LFTs excluding alcoholic fatty liver, 34 patients (73.9%) were diagnosed as having NAFLD. Moderate to severe psoriatic patients had more NAFLD than mild psoriatic patients and moderate to severe psoriatic patients significantly had more severe fatty liver than mild psoriatic patients. In multivariable logistic regression, NAFLD is associated with psoriasis severity.

FC 2-6

The Impact of Psoriasis on the Pregnancy Outcomes: A Nationwide Population-based Study in Korea

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Background: Although the majority of patients with psoriasis are diagnosed before the age of 40 years, coinciding with the reproductive period, the association between psoriasis and pregnancy outcome is not clear.

Objectives: To evaluate the association between psoriasis and pregnancy outcomes.

Methods: From the claim data of the Korean National Health Insurance (NHI) system, 23,772 mothers with psoriasis and 118,860 mothers without psoriasis within childbearing age (15-50 years), using a matched case–control study design, were selected. If there were claims about systemic treatment (methotrexate, cyclosporine, acitretin or any biologics) or whole-body phototherapy before the end of pregnancy, the patients were defined as moderate-to severe psoriasis mothers. Univariate and multivariate analyses were performed to evaluate the association between psoriasis and pregnancy.

Results: Women with psoriasis have increased risk of cesarean delivery [odds ratio (OR) 1.05; 95% confidence interval (95% CI) 1.02-1.08), preterm delivery (OR 1.27; 95% CI 1.19-1.36) and premature rupture of membranes (PROM) (OR 1.08; 95% CI 1.03-1.13). Also, mother with moderate-to-severe psoriasis were 1.66 times (OR 1.66; 95% CI 1.18-2.33) more likely to have pregnancy-induced hypertensive diseases. However, there are no significant differences between control and psoriasis mothers in terms of live birth, spontaneous abortion, stillbirth, intrauterine growth retardation (IUGR) and placental disorder.

Conclusion: Psoriasis is associated with adverse pregnancy outcomes including cesarean delivery, preterm delivery and PROM. Also, moderate-to-severe psoriasis is a significant risk factor for gestational hypertension and pre-eclampsia.

FC 2-7

A Case of Photosensitive Psoriasis Provoked by Crizotinib

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Exposure to ultraviolet (UV) radiation is usually beneficial in psoriasis. However, in about 5.5% of patients with psoriasis, there is worsening of pre-existing psoriasis or the appearance of new lesions after sun exposure (so called “photosensitive psoriasis”, PP).

A 58-year-old man with ALK-positive adenocarcinoma was referred due to multiple skin lesions since 5 months after taking crizotinib (Xalkori®) 250mg PO twice daily for 6 months. The patient was diagnosed with psoriasis 14 years ago, but was not treated because of a few stable lesions confined to both elbow. He showed multiple erythematous scaly plaques with itching sensation mainly on photo-exposed area including face and both hand dorsum with sharp cutoff at lines of clothing. His torso was almost spared, but several skin lesions spread beyond the photo-exposed area. Histopathologic examination of the biopsied skin from the hand dorsum showed acanthosis with regular elongation of rete ridges, parakeratosis with less prominent granular layer, perivascular lymphocytic infiltrations, which was compatible with psoriasis. The patient diagnosed as PP provoked by crizotinib, and considering the severity of the skin eruptions, crizotinib was discontinued. The patient was also advised strict photoprotection and treated with systemic corticosteroid (prednisolone, 20mg per daily) along with anti-histamines, topical steroids, and emollients. After skin lesions showed improvement over a period of 2 weeks, 20% dose-reduced crizotinib (200mg PO twice daily) was restarted without noticeable deteriorations of symptoms and the systemic corticosteroid was gradually tapered. The patient continues to be on photo-protective measures and his skin condition is stable with symptomatic managements till now.

The photosensitivity of PP may have a range of underlying pathogenesis, including de novo psoriasis, koebnerization after sunburn in fair skin or after polymorphic light eruption, coexistence of other photosensitivity disorders, and concomitant ingestion of photosensitizing medications. In our patient, it is assumed that crizotinib provoked PP and the following possibilities are considered : 1) Crizotinib may cause photosensitivity and subsequent aggravation

of psoriasis considering previously reported two cases of photosensitivity 2) Crizotinib may have exacerbated psoriasis through a pathway imbalance associated with the pathogenesis of psoriasis, such as JAK/STAT pathway, considering that the lesions on photo-protected area were also worsened. Herein, we reviewed PP and its correlation with the drug through this presenting case. Further accumulation of cases is necessary in future for more understanding of PP.

Special Lecture III

CURRICULUM VITAE

GIAMPIERO Girolomoni, M.D.
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Career:

Giampiero Girolomoni, MD, is full professor of dermatology and head of the Dermatology Section in the Department of Medicine, at the University of Verona School of Medicine in Verona, Italy. Previously, he was director of the Laboratory of Immunology, head of the Second Division of Dermatology, director of the Department of Clinical Dermatology at the Istituto Dermopatico dell'Immacolata in Rome, Italy.

Professor Girolomoni received his degree in medicine from the University of Modena, where he also completed his residency training in dermatology and venereology. He was a research fellow and visiting instructor in the Department of Dermatology at the University of Texas Southwestern Medical School, Dallas, Texas, USA.

Professor Girolomoni was the president of the European Dermatology Forum (2011-12) and is past president of the Italian Society of Dermatology (SIDeMaST). He is editor in chief of Clinical Dermatology. Recent awards include the following: 2015 Pro-meritis award European Dermatology Forum; 2016 Ehrenmitglied, Deutsche Dermatologische Gessellschaf; 2017 "Commander" of the Order of Merit of the Italian Republic, Presidency of the Council of Ministers; 2017 Scientific Achievement Award, European Academy of Dermatology and Venereology, Geneva; 2018 Marchigiano dell'Anno 2017. Centro Studi Marche "Giuseppe Giunchi" - Senato della Repubblica; Corresponding member, Swiss Society of Dermatology and Venereology; 2019 Onorary member, Italian Society of Dermatology

His scientific interests include medical dermatology, immunodermatology, and immunology and immunopharmacology of atopic dermatitis and psoriasis. Professor Girolomoni is co-author of 530 peer-reviewed articles, 88 book chapters and 5 books. Global impact factor >1700; Citations >24,000; Scholar h-index 83.

SL-3

The Role of Biological Therapy in The New Era

GIAMPIERO Girolomoni

University of Verona, Italy

Psoriasis is a chronic, immune-mediated disease affecting 2-3% of the general population. The etiology of psoriasis is thought to originate from an interplay of genetic, environmental, infectious, and lifestyle factors. The manner in which genetic and environmental factors interact to contribute to the molecular disease mechanisms has remained elusive. However, the interleukin 23 (IL-23)/T-helper 17 (Th17) immune axis has been identified as a major immune pathway in psoriasis pathogenesis. Central to this pathway is the cytokine IL-23, a heterodimer composed of a p40 and a p19 subunit exclusive to IL-23. IL-23 maintains IL-17 production, acts as a survival cytokine for Th17 cells, and enhances the pathogenic activity of Th17 cells. IL-23 also regulates the production of IL-17 by neutrophils, which are a relevant source of IL-17 in psoriatic skin. Agents that specifically inhibit IL-23p19 have been developed for the treatment of moderate to severe plaque psoriasis. These agents have shown an excellent efficacy and safety and tolerability profile, adding effectively to the therapeutic armamentarium for psoriasis. Treatment of patients with chronic plaque psoriasis should take into consideration a number of factors, including psoriasis severity, patient preferences and patient's comorbidities. Indeed, patients with psoriasis are commonly affected by cardio-metabolic diseases (e.g., obesity, diabetes, NAFLD, dyslipidemia, hypertension, kidney disease) or other immune mediated inflammatory diseases (e.g., psoriatic arthritis, Crohn's disease), or may incur in disorders such as severe infection or cancer, which may contraindicate to or take advantage of the treatments for psoriasis.

Voice from the KSP

CURRICULUM VITAE

YOUN Sang Woong, M.D., Ph.D.
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Education:

1987-1993	B.S. Seoul National University College of Medicine, Seoul, Korea
1995-1997	M.S. Seoul National University, Seoul, Korea (major: Dermatology)
2001-2003	Ph.D. Seoul National University, Seoul, Korea (major: Dermatology)

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1993-1994	Internship, Seoul National University Hospital
1994-1998	Residency, Department of Dermatology, Seoul National University Hospital
1998-2001	Army surgeon, Captain, Republic of Korea Army
2001-2002	Clinical Instructor, Department of Dermatology, Seoul National University Hospital
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2002-2003	Instructor, Department of Dermatology, Seoul National University Hospital
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2007-2008	Visiting scholar, Division of Dermatology, University of California, San Diego
2008-2016	Associate professor, Seoul National University College of Medicine
2016-present	Professor (Tenure) Department of Dermatology, Seoul National University College of Medicine
2016-present	Chairman, Department of Dermatology, Seoul National University Bundang Hospital

Memberships & Career:

2010-2011	Director of Publication, Korean Society for Psoriasis
2012-2013	Director of Planning, Korean Society for Psoriasis
2013-2017	Treasurer, Korean Society for Psoriasis
2017-present	Academic director, Korean Society for Psoriasis
2016-present	Academic director, Korean Society for Immunodermatology
2013-2016	Section Editor. British Journal of Dermatology
2014-2015	Section Editor, Annals of Dermatology

KSP-1

Problems in the Application of the Subsidy Program for Severe Psoriasis

YOUN Sang Woong

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Special governmental subsidy program has been applied to severe psoriasis vulgaris (L40.00) since July 1, 2017. The program broadened the therapeutic application including biologics for psoriasis to resistant, intractable, severe psoriasis patients who were not affordable to high cost biologics even when they were not responded to conventional treatment. The standard for this subsidy program is so complicated and it also has hidden potential of cut down medical cost for the doctors who prescribed biologics without careful attention. In this lecture, I will discuss the subsidy standards for severe psoriasis once again, and also emphasize some pitfalls in the application of the standards.

CURRICULUM VITAE

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2007-2013	Chairman, Department of Dermatology, College of Medicine, Korea University, Seoul
2004-present	Professor, Department of Dermatology, College of medicine, Korea University
2001-present	Chief, Department of Dermatology, Korea University Guro hospital, Seoul, Korea
2015-present	President of Korean Society for Psoriasis

KSP-2

My Perspectives on Research and Management of Psoriasis in the Era of Biologics

SONG Hae Jun

Department of Dermatology, Korea University

Ever since etanercept had permitted for psoriasis in 2005 and ustekinumab became popular in 2011 in Korea, biological therapy have introduced an unprecedented world not only to patients but also to dermatologists. It changes dramatically the conventional concept of psoriasis management and even trends of psoriasis research.

I was also quite amazed at that surprising efficacy and its price and had been dragged around for a while before noticing gradually that the direction we are heading now is strange in many sense. In these days we are doused with tons of papers introducing new biologics and comparing their efficacy with preceding products. Researches on pathogenesis is usually focused on the target cytokines. Even though it is worth to pursuing further, it will not be all. For patients with severe psoriasis, it gives benefit beyond comparison. But for other patient group, it is just a pie in the sky. Desirable diversity in research field seemed to be narrowed down to a degree of disrupting our expedition in search of another paradigm in treatment and pathogenesis of psoriasis. To make my different view clear, I would like to give you a train of questions.

First of all, what is the meaning of PASI score 10? Why patients are needed to be discriminated with this score? Is disease burden of patients with PASI 10 surely huge enough than patients with PASI 5 to 7? Because most of studies only targeting patients above PASI 10, it is impossible to get answer quantitatively. What will be the fate of patients with moderate psoriasis? Will they become mild or just progressively worsening despite treatment? Will there be a pre-psoriatic stage like pre-diabetic stage? What is reasonable answer for our current custom treating patients with biologics only after they are suffering relentlessly to such an extent of damaging their emotion and threatening their internal organs. Why our patients are neglected to lose promising outcomes of early intervention? What will be the rate of return in biologics therapy for young patients with moderate psoriasis in the long run?

To answer above question, we indeed need to work on epidemiology of disease course of moderate psoriasis and remission rate of patients having early intervention. We need to find out psoriasis survivers to know the differences in the remission rate by treatment modalities. Also regarding biologics therapy, we need to develop a variety of alternative protocols for various biologics. A protocol using anti IL-17(or TNF alpha) and IL-23 sequentially in varying dosing and injection interval to maximize efficacy, speed of action, and cost performance and drug survival need to be developed.

Poster

P-1

Correlation of Serum Inflammatory Cytokine Levels with Clinical Characteristics Including Severity in Korean Patients with Psoriasis

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Recently, serum cytokine has been reported to be associated with psoriasis activity and clinical subtype, and related vascular health. To evaluate the correlation between inflammatory cytokines and the clinical characteristics including severity and treatment modality in Korean patients with psoriasis. The serum cytokines from psoriasis patients were measured using a multiplex immunoassay (Milliplex MAP; Millipore Corporation, USA) to determine the levels of Th17 related cytokines (interleukin [IL]-17A, IL-17F, IL-21, IL-22, IL-23; tumor necrosis factor [TNF]-α, TNF-β, IL-6, IL-1β IL-12, IL-27; interferon[IFN]-γ, IL-4, IL-5, IL-13, IL-25, IL-10, IL-28A; macrophage inflammatory protein-3 [MIP3A]; granulocyte monocyte-colony stimulating factor [GM-CSF], IL-15, IL-9, IL-33, IL-2, and IL-31) and their correlation with the clinical characteristics and severity of psoriasis was investigated. Serum IL-23 level was higher in the young age group than in the old age group. IL-6 and TNF-β showed elevated levels, whereas, IL-28A displayed lower serum level in the early-onset group than in the late-onset group. Moderate to severe psoriasis patients revealed lower serum IL-28A levels than mild psoriasis patients. The serum TNF-α levels in psoriasis patients possessing metabolic comorbidities were significantly higher than those of the non-comorbidity group. Serum cytokines levels including IFN-r, IL-10, IL-12, IL-15, IL-22, IL-33, IL-21, IL-5, IL-31, TNF-α, β, and IL-28A showed higher levels in the multiple treatment modality group than in the single treatment modality group. Clinical characteristics like young age, early onset, severity, metabolic comorbidities and treatment responsiveness might affect inflammatory cytokine levels in psoriasis.

P-2

Economic Burden can be the Major Determining Factor Resulting in Short-Term Intermittent and Repetitive Ustekinumab Treatment for Moderate-To-Severe Psoriasis

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As immunological understanding of the pathophysiology of psoriasis has expanded recently, biologic agents have become a major treatment for psoriasis. Although continuous use of these agents leads to the successful treatment with less side effects, some patients receive intermittent and repetitive treatment.

We retrospectively reviewed medical records of 30 patients who received discontinued ustekinumab treatment from January 2011 to October 2016. Among the total of 52 treatment periods, 82.4% were discontinued after the achievement of successful improvement or at the request of patients, which implies that the lack of effectiveness is not the cause of intermittent ustekinumab treatment. Comparison of the first and second treatment period revealed that the reaching psoriasis area and severity index (PASI) 75 and PASI90 were similar in both periods, but the patients in second treatment period were more likely to be insured.

We found that the patients choose intermittent ustekinumab therapy mostly because they cannot afford the treatment despite the satisfactory results. In conclusion, economic burden can be the major determining factor for the choice of intermittent ustekinumab treatment.

P-3

The Risk of Psychiatric Disorders Among Patients with Psoriasis in Korea: A 12-Year Nationwide Population-Based Cohort Study

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The association between psoriasis and risk of psychiatric disorders has not been thoroughly evaluated in a large longitudinal cohort of Asian population. We conducted a nationwide population-based retrospective cohort study encompassing more than 1.6 million Koreans with a 12-year follow-up period. Patients were considered in the psoriasis cohort if they had an incident diagnostic code for psoriasis and included patients were followed up until they developed any psychiatric disease. In adjusted models, psoriasis patients (n = 10,868) were at a 18% increased risk for depression (hazard ratio [HR] 1.18, 95% confidence interval [CI] 1.09-1.26), 16% for anxiety disorders (HR 1.16, 95% CI 1.08-1.26), and 21% for somatoform disorders (HR 1.21, 95% CI 1.08-1.34) compared with the referent cohort (n = 1,620,055). Patients with moderate-to-severe psoriasis had a higher risk of developing depression and somatoform disorders than patient with mild disease (depression, HR 1.28, 95% CI 1.07-1.54 vs HR 1.17 95% CI 1.07-1.27; somatoform disorders, HR 1.60, 95% CI 1.26-2.03 vs HR 1.13, 95% CI 1.00-1.28). Our results highlight the burden of psychiatric diseases in patient with psoriasis in Korea and suggest that appropriate medical support for possible mental illness is warranted in Asian psoriatic patients.

P-4

A Case of Interstitial Lung Disease and Autoimmune Thyroiditis Associated with Ustekinumab

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Ustekinumab is a fully human, monoclonal antibody that binds to the interleukin (IL)-12/IL-23 p40 subunit. It has been increasingly used to treat moderate to severe psoriasis due to its effectiveness and safety profile. There are several reports of anti-TNF-α agent induced interstitial lung disease and autoimmune thyroiditis. However, there was only one case of interstitial lung disease associated with ustekinumab. Furthermore, ustekinumab induced autoimmune thyroiditis has not been reported yet.

A 68-year-old woman presented with a 7-year history of psoriasis. She had been consecutively treated with methotrexate, cyclosporine and narrow band UVB (NBUVB) for 2 years, however PASI score remained above 12. Then, Ustekinumab was started and PASI score dramatically reduced to less than 4 after 3 injections. After 5 injections, the patient complained of dyspnea, so she was referred to a pulmonologist and chest CT was performed. The patient was diagnosed with interstitial lung disease and enlargement of thyroid gland was also found on chest CT. The patient was diagnosed with Graves' disease through further thyroid function tests including autoantibodies, thyroid ultrasonography and scanning. After discontinuation of ustekinumab, respiratory symptoms were slightly improved and thyroid hormone levels were also normalized. These findings suggested that interstitial lung disease and autoimmune thyroiditis were associated with ustekinumab.

Herein, we report a case of ustekinumab induced interstitial lung disease and autoimmune thyroiditis. As little is known regarding the mechanism of ustekinumab induced autoimmune diseases, further studies will be needed.

P-5

Vedolizumab-Associated Paradoxical Skin Reaction in a Patient with Ulcerative Colitis

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Biologic drugs are designed to act on specific immune system targets and have proved to be highly effective in treating various immune mediated skin diseases, rheumatic diseases, and some systemic diseases. But even though rare, perplexing adverse events called paradoxical reactions have been occurred during biologics treatment. They are unusual inflammatory immune-mediated reactions developing paradoxically during treatment with targeted biologics specific to the diseases. The hypotheses proposed to explain the pathogenesis of paradoxical reaction include an imbalance in cytokine production with altered lymphocyte recruitment and the production of autoantibodies, but definite mechanism has not been elucidated.

A 32-year-old female patient was referred to our clinic with 2-week history of multiple psoriasiform erythematous scaly papules on trunk and extremities. The lesions are distributed symmetrically on the elbows, knees and trunk. The patient has been suffered from ulcerative colitis since 2011. She was treated with adalimumab, infliximab and tofacitinib without satisfactory response. One year ago, treatment was switched to vedolizumab and reached complete response state of ulcerative colitis during the last 6 months. There was no other specific underlying diseases or medications that might have related with psoriasiform dermatitis. With these clinical findings, vedolizumab-associated paradoxical reaction was suspected. Considering favorable conditions of her ulcerative colitis and status of skin lesions, patient was recommended to continue vedolizumab treatment while applying topical steroid agent and moisturizer on the lesion. Psoriasiform skin lesions was improved in 2 weeks and was staying clear without any further flare-up despite vedolizumab treatment in regular schedule for 2 months.

Vedolizumab is a humanized monoclonal antibody, which blocks the interaction of $\alpha 4\beta 7$ integrin with MAdCAM-1. It prevents leukocytes binding to endothelial surface and its extravasation into affected tissue. It is recently got attention as a second-line therapy of moderate-to-severe ulcerative colitis refractive to tumor necrosis factor alpha(TNF-α) inhibitors. There have been few papers reporting the development of psoriasiform paradoxical skin lesions during treatment with vedolizumab. Herein, we are presenting additory case, which was successfully managed with topical treatment.

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