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ABSTRACTBOOK

**IPC 2023 Think Tank:
Gunnar Lomholt Symposium**

**Faroe Islands | Friday,
September 8, 2023,
09:00-17:00**

Hotel Hafnia | Panorama Room

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Advancing Knowledge. Enhancing Care.

SYMPOSIUM AGENDA PART ONE

09:00	Welcome and Program Overview	Lone Skov
09:10	Gunnar Lomholt's Story and Thesis	Claus Zachariaie
09:30	Big Data and Implications to Psoriasis	Tamar Nijsten
09:50	What Genetic Association Tells Us About Phenotype: HLA and Beyond	Michael Simpson
10:20	COFFEE BREAK	
10:50	Comorbidities and Their Causal Relationship	Lam C. (Alex) Tsoi
11:10	Linking Genetics with Biological Mechanisms	Johann Gudjonsson
11:30	KEYNOTE: A Genetic Epidemiologic History of Psoriasis	James T. Elder
12:15	LUNCH	

PART TWO

13:20	Inflammatory Memory in Psoriasis	Liv Eidsmo
13:40	Immunogenetic Dissection of Pustular Forms of Psoriasis	Hervé Bachelez
14:00	KEYNOTE: Where is Psoriatic Arthritis Heading?	Oliver Fitzgerald
14:40	The History of the Faroe Islands	Erland Viberg Joensen
15:00	COFFEE BREAK	
15:30	Science and Practice of Therapeutic Drug Monitoring	Catherine Smith
15:50	Treatment Strategies and Targets for Severe Psoriasis	Ulrich Mrowietz
16:10	The Need for Real World Evidence	Lone Skov
16:30	60 Years of Psoriasis Therapy: How Things Have Changed	Matthias Augustin
16:50	Closing Comments and Adjourn	Jonathan Barker

GUNNAR LOMHOLT'S STORY AND THESIS

Claus Zachariae, MD, DMSci

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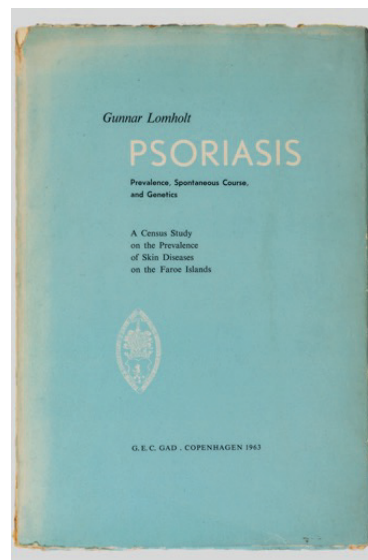
Gunnar Lomholt was born on 25th February 1915 in Denmark. He attained his medical degree from the University of Copenhagen in 1941. After completing his training at Finsenhospitalet, Kommunehospitalet, and Rigshospitalet, he earned recognition as a dermatological specialist in 1950. It was during his tenure as a resident physician in Klaksvig, Faroe Islands, from 1947 to 1948 that Lomholt identified the potential for research on psoriasis, the subject that would later become the focus of his groundbreaking thesis.

In 1963, Gunnar Lomholt successfully defended his thesis titled "Psoriasis: Prevalence, Spontaneous Course, and Genetics" at the University of Copenhagen. His study aimed to elucidate the genetic features of psoriasis and clarify its prevalence and natural course when left untreated, factors that were poorly understood at the time. Lomholt embarked on an extensive census survey covering 2,341 households, representing a significant portion of the Faroe Islands' 30,000 inhabitants. His research shed light on the occurrence of psoriasis within the population, providing crucial insights into its prevalence, spontaneous course, and possible genetic factors.

The results of Lomholt's research revealed a psoriasis prevalence of 2.84% + 0.16% in the Faroese population evenly distributed between men and women, with the onset of the condition typically occurring around the age of 12 to 13 years. Additionally, Lomholt explored the presence of psoriatic arthritis and found only 4 cases with distal interphalangeal joint involvement. Furthermore, his study indicated a low incidence of exacerbations during psychological trauma and no cases of diabetes mellitus among patients with psoriasis.

After collecting data to the thesis, Gunnar Lomholt worked as a private practicing dermatologist alongside Gunnar Auken from 1949. At the same time, he collaborated on various international publications and co-authored a book on sexually transmitted infections. Throughout his career, Lomholt received prestigious awards, including the Bangs Scholarship for Psoriasis Research and the Mr. and Mrs. J. N. Taub's International Memorial Award for Psoriasis Research. Gunnar Lomholt's impact extended beyond Denmark, as he was sent by the state to Greenland in 1958, 1964, and 1965 to investigate the prevalence of skin diseases and lead efforts to combat gonorrhoea and syphilis. He also conducted research on leprosy and tropical skin diseases during a study trip to Asia and Africa in 1968. From 1969 to 1973, Lomholt served as an advisor to the Ugandan government on dermatology and held positions as a consultant at Mulago Hospital and a lecturer at Makerere University, Kampala. He moved to Tromsø, Norway, in 1973 to assume a professorship in dermato-venerology at Tromsø University and a position as a consultant at the regional hospital. He became a consultant at the dermatology department at Helsingborg Hospital, Sweden, in 1977. Additionally, he was associated with Kamuzu Central Hospital, Lilongwe, Malawi, from 1984 to 1987 and was finally a lecturer at the University of Odense from 1990.

Gunnar Lomholt's legacy continues to inspire researchers and dermatologists worldwide, particularly in the field of psoriasis research on the Faroe Islands. His work serves as a testament to the transformative power of curiosity, dedication, and compassion in advancing medical knowledge and enhancing patient care. Gunnar Lomholt passed away on 20th August 1993.



BIG DATA AND IMPLICATIONS TO PSORIASIS

Tamar Nijsten, MD PhD

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Although 'big data' is a buzz word, it is not well defined. It contains larger and more complex datasets, often from new data sources, that require a new approach such as machine learning to analyze and interpret the data. The most important characteristics of big data are comprised in the 5 V's: volume, velocity, value, variety and veracity. Besides that the data set needs to be large, there is no clear cut off for its volume. Velocity refers to data that is generated quickly in an almost continuous flow. Variety refers to the diversity of data types and the interaction between the different data. In the past, most data sets were structured, but in big data they can be semi or unstructured. Veracity is about data's quality and accuracy. Data has some intrinsic value, but gaining insights from it adds real value to the data.

If these conceptual characteristics are applied to psoriasis research there are numerous examples in how big data affects and will be guiding psoriasis research in the future. In the translational research, the new sequencing techniques provide more and more detailed information than ever before. Where we used to analyze direct correlations between a genetic predisposition, the expression of a protein or the microbiome to the phenotype, the challenge will be on integrating different data sources to come to a more comprehensive understanding of the disease. Possibly, a less structured approach will provide us insights in the different phenotypes of psoriasis and will assist us in selecting the best treatment for individual patients. The one-on-one approach, which we understand, will be replaced by a complex integration of data beyond the understanding of most researchers. In observational research, we have made big steps forward in using larger datasets such as routine collected data, large population based cohorts and disease registries. However, these data sets were often organized around specific research questions, the collected data very structured based on prior knowledge and basically unidimensional. By expanding the variety of data, complexity increases, but new insights will be created. In clinical registration studies for new drugs, we will most likely continue to rely on randomized clinical trials. However, in the postmarketing phase of new drugs or in re-purposing of old drugs, big data approach might direct us in the best possible use of these drugs.

In conclusion, big data and machine learning are and will be affecting psoriasis research extensively. The analyses of the complex integrated data will provide many new answers as well as questions. However, increasing the dimensionality of the data and the use of new data analytics challenges us to correctly interpret the findings rigorously.

WHAT GENETIC ASSOCIATION TELLS US ABOUT PHENOTYPE: HLA AND BEYOND

Michael Simpson, MSc, PhD

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In recent years, significant strides have been made in understanding the genetic contributors to psoriasis susceptibility. The psoriasis genetics community has come together to perform large-scale Genome-wide association study meta-analysis that have now successfully identified over 100 genomic loci at which genetic variation influences an individual's risk of developing psoriasis. Concurrently, functional genomic investigations have begun to identify the biological mechanisms through which these genetic variants impact susceptibility.

However, beyond susceptibility, genetic research offers potential insights into diverse clinical aspects of the psoriatic phenotype; including elements of the natural history of the disease, from age of onset, disease manifestations, severity, to the development of co-morbidities.

Alongside the revolution in our understanding of the genetics of psoriasis there has also been a parallel revolution in the treatment of psoriasis, with a plethora of new therapeutics. However, not everyone responds uniformly to these treatments, and some individuals may experience a loss of treatment efficacy over time. Our studies have begun to identify components of the genetic basis of these differential treatment responses and the development of anti-drug antibodies that are associated with the loss of treatment response over time.

As these downstream psoriasis specific phenotypes can only be observed in individuals who have already developed the disease, there is potential for confounding by index event bias and must be interpreted with caution. Nonetheless, with rigorous methodology and statistical considerations, genetic investigations are increasingly revealing underlying biological pathways associated with facets of this complex condition.

COMORBIDITIES AND THEIR CAUSAL RELATIONSHIP

Matthew T Patrick, Philip E Stuart, Qimengge Li, Haihan Zhang, Rajan Nair, Zhi He, Johann E Gudjonsson, James T Elder, Lam C Tsoi

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Psoriasis is associated with multiple comorbidities, and they put significant health and economic burden to the patients. Recently, we utilized large-scale medical claim dataset to assess its ability to systematically investigate comorbidities among psoriatic patients. By comparing ~300k psoriatic patients with ~470k control individuals, we illustrated significantly higher co-occurrences between psoriasis and >10 different disorders, including IBD, asthma, obesity, diabetes, multiple sclerosis, age-related macular degeneration, after adjusting for demographic and socioeconomic variables. We also highlighted the association between the type-2 diabetes (T2D) and psoriasis is stable across the last 20 years (OR=1.15-1.31).

Similar to psoriasis, many of the comorbidities are complex genetic conditions. Elucidating the shared genetic components involved in the psoriasis and its comorbidities can provide unprecedented information regarding common pathological signaling. By using our psoriasis cohorts, including >7000 genotyped psoriatic arthritis (PsA) and cutaneous-only psoriasis (PsC) patients, we achieve >0.8 in AUROC in distinguishing PsA vs. PsC. By using the summary statistics of our psoriasis GWAS, we then conducted trans-disease meta-analysis and causal inference with different comorbidities, including BMI, T2D, coronary artery disease (CAD), and multiple sclerosis (MS). We unraveled shared signaling in NF- κ B (Pso/T2D), IL-17 (Pso/MS), as well as revealing shared loci encompassing IL-23/IFIH1 between psoriasis and CAD.

The identification of skin-associated comorbidities can contribute to enhanced clinical management, and by leveraging genetic information we have gathered for psoriasis and its comorbidities, we can support a better understanding of shared pathophysiology.

LINKING GENETICS WITH BIOLOGICAL MECHANISMS

Johann E. Gudjonsson¹, Lam C. Tsoi¹, James T. Elder^{1,2}

¹Department of Dermatology, 1910 Taubman Medical Center, University of Michigan, Ann Arbor, MI, USA, ²Ann Arbor VA Hospital, Ann Arbor, MI, USA

Psoriasis is a complex genetic disease where multiple genetic variants, most with a small effect, converge to increase the risk of psoriasis. Large gaps remain in our understanding of how genetic variants exert their effect and the specific cell types involved. Still, recently using single-cell approaches, we have gained new insights into the specific mechanisms and cell types involved. This has provided us with a new understanding that psoriasis predisposition depends upon interactions between multiple cell types and tissues for its predisposition and that the activation of these pathways is context specific. Many of the identified susceptibility loci and putative risk genes converge onto specific biologic and immunologic mechanisms, including antigen presentation, IL-23 signaling and IL-17 responses, epidermal differentiation, innate immune responses including nucleic acid sensing, and plasticity of T cell differentiation. Thus, psoriasis is becoming more clearly defined as an autoimmune T17 inflammatory disease from the context of immunogenetics, correlating with the remarkable therapeutic response seen in patients treated with therapeutics targeting these pathways.

KEYNOTE: A GENETIC EPIDEMIOLOGIC HISTORY OF PSORIASIS

Rajan P. Nair, Philip E. Stuart, Zhaolin Zhang, Johann E. Gudjonsson, Lam C. Tsoi, James T. Elder

Department of Dermatology, University of Michigan, 7412 Med Sci 1, Ann Arbor, MI, USA

Psoriasis is a common, immune-mediated inflammatory disease, whose polygenic attributes have been documented with increasing granularity over the past 2 decades by GWAS. It is at once nostalgic and informative to review the history of the genetic epidemiology of psoriasis.

Population studies: Two large population-based genetic epidemiology studies have been undertaken, one by Lomholt in the Faroe Islands and one by Hellgren in Sweden. Both of them revealed substantially higher psoriasis prevalence in relatives compared with the general population or matched controls. Comparison of disease prevalence as a function

of degree of relatedness clearly demonstrated a polygenic mode of inheritance.

Twin studies: (1) Studying the Danish Twin Registry, Brandrup and colleagues found that 63% (18/32) of monozygotic (MZ) probands had a psoriatic twin, yielding a heritability (h^2 , the genetic component of variability in disease liability) of 91%. The same estimate for h^2 was determined by Ananthakrishnan et al. based on the pedigrees published in Lomholt's thesis. (2) A similar estimate for h^2 can be calculated from the retrospective twin study of psoriasis by Farber and colleagues in 1974: 70% concordance in 80 MZ twin pairs, compared with 23% of 60 dizygotic (DZ) twin pairs. (3) Duffy et al. estimated $h^2 = 80%$ in a 1993 Australian twin registry study. (4) In 2007 survey of 8,045 individuals in the Norwegian Twin Panel, the best-fitting model (similar to h^2) showed that additive genetic effects could explain 66% of the variation in liability for psoriasis. Indicative of a strong yet polygenic effect, the age at onset and the disease manifestations were very similar in concordant MZ twins in all four twin studies. However, concordance was lower for both MZ and DZ twins in the Australian study compared to the other studies, possibly due to higher ambient ultraviolet light exposure.

Fast-forwarding to the present: We recently carried out the world's largest meta-GWAS of psoriasis, numbering 36,466 cases and 458,078 controls and yielding 168 independent signals, 143 outside the MHC. We also published a multi-ancestry GWAS of European and South Asian populations, which identified 17 independent psoriasis genetic signals in the MHC, all of which affect either the structure or regulation of HLA alleles (Class I >> Class II), with HLA-C*06 by far the top-ranking variant. Regarding environmental factors, streptococcal pharyngitis continues to be the top candidate, with smoking and obesity being two other well-documented factors. The mixed polyclonal / oligoclonal nature of T-cell rearrangements in psoriasis and the multiplicity of HLA signals identified by genetic studies suggest that multiple antigens are likely to be involved, with non-MHC signals (many of which involve signal transduction downstream of antigen or pattern recognition events) increasing the likelihood of psoriasis development.

INFLAMMATORY MEMORY IN PSORIASIS

Liv Eidsmo, MD, PhD

LEO Foundation Skin Immunology Research Center, Copenhagen, Denmark

A striking feature of psoriasis is relapsing disease in previously affected skin sites, whereas other areas remain healthy through life. The local disease recurrence has been attributed to localised disease memories composed by local immune cells. Immune cells reside in healthy skin to maintain barrier homeostasis by controlling microbial invasion and tumor development. In psoriasis, resident T cells have a disease-driving profile and secrete high levels of IL-17 and IL-22 years after resolution of disease. This presentation will discuss functional and epigenetically imprinted subsets of human CD8 T_{RM} cells in healthy skin and how this population is skewed and induce psoriasisiform inflammation in resolved plaques. The microenvironment in which pathogenic T cells reside in resolved lesions also show long-term imprinting of inflammation and are poised to maintain the disease driving T cells. Mechanistic insights into dysfunctional cross-talk between T cells and stroma pave the way for future treatments aiming for long term remission.

IMMUNOGENETIC DISSECTION OF PUSTULAR FORMS OF PSORIASIS

Hervé Bachelez, MD, PhD

Department of Dermatology, Hôpital Saint-Louis APHP; Laboratory of Genetics of Skin Diseases, INSERM U1163, Imagine Institute, Paris Cité University, Paris, France

Pustular psoriasis includes several clinical variants, mainly palmoplantar, also called palmoplantar pustulosis (PPP), an acral clinical variant named acrodermatitis continua of Hallopeau (ACH), and generalized pustular psoriasis (GPP). Although their relationship with psoriasis vulgaris (PV) has been challenged, pioneering and latest epidemiological studies emphasized the high prevalence of PV in patients with pustular psoriasis, up to 50% in national databases studies. The first demonstration that GPP mainly rely on single gene inborn errors of the innate immune systems was the identification of homozygous or composite heterozygous loss-of-function mutations of IL36RN, an IL1 family gene encoding the IL36 receptor antagonist (IL36RA), essentially in patients with GPP without PV, and in those with ACH, while the prevalence of these mutations seems very low in PPP. Over the last 12 years, it is estimated that IL36RN mutations account for 15 to more than 50% of GPP cases. The functional consequences of null and hypomorphic mutations has been well established, but the pathogenicity of heterozygous IL36RN mutations still remains a matter of debate. Mutations of other innate immunity genes have been identified since then: CARD14 heterozygous gain-of-function mutations in both GPP and PPP, AP1S3, SERPINA3 and MPO essentially in GPP and in ACH. Aside from CARD14, which mutations have been identified in single gene models of plaque psoriasis with or without psoriatic arthritis and in pityriasis rubra pilaris, none of these genes have been found mutated in patients with PV, and therefore do not account for the epidemiologic association between pustular psoriasis and PV.

These studies emphasized the key role of inborn errors of the innate immune system in pustular psoriasis, shifting these entities into the autoinflammatory diseases spectrum. Given recent evidence that CARD14 pathogenic mutants enhance IL17-driven keratinocyte responses on the one hand, and on the other hand the successful drug development of IL36 inhibitors in GPP, they pave the way for precision medicine approaches in the psoriasis spectrum, and for a new taxonomy of monogenic inflammatory skin diseases.

KEYNOTE: WHERE IS PSORIATIC ARTHRITIS HEADING?

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Some 30% of people with cutaneous psoriasis (PsC) may suffer a progressive debilitating arthritis, PsA. Several unmet needs in PsA have been identified, all underpinned by failure to adequately understand disease pathogenesis. Two hypotheses related to PsA pathogenesis have been proposed, that PsA is an enthesal-based auto-inflammatory disease or that it is an immune-based disease driven by HLA-Class I antigens presenting unidentified peptides to CD8+ T cells. Previous work has demonstrated that class I HLA alleles and haplotypes are implicated in the susceptibility to PsA and also play a role in determining specific features of the PsA phenotype. Furthermore, studies of CD8+ T cells in PsA synovial fluid and tissue have shown evidence for clonal

expansion. More recent work has highlighted the presence of shared Tissue Resident Memory (TRM) cells at several sites of inflammation in PsA and in Axial Spondyloarthritis (AxSpA). Herein, new concepts of pathogenesis in PsA that are shared with both PsC and AxSpA are described. Finally, areas of unmet need in PsA are being addressed by the IMI-funded HIPPOCRATES project. These areas of need include the identification of risk factors which predict the development of PsA in those with PsC. Being able to predict the development of PsA with a reasonable degree of confidence opens up the possibility of disease-prevention strategies. Of particular interest to Dermatologists is the innovative, potentially game-changing HIPPOCRATES Prospective Observational Study (HPOS), which aims to recruit to an on-line platform 25,000 people with PsC across Europe and to follow them prospectively for the development of PsA. A sample for molecular analysis will be collected remotely from 3000 of the participants chosen on the basis of having or not having clinical risk factors for progression to PsA. This study has just been launched.

THE HISTORY OF THE FAROE ISLANDS

*Erlend Viberg Joensen, PhD
Faroe Islands*

Abstract is missing.

SCIENCE AND PRACTICE OF THERAPEUTIC DRUG MONITORING

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Therapeutic drug monitoring (TDM) is a well-established clinical tool that can be simply defined as individually adjusting the dose of a drug to improve clinical outcomes. It can be based on *a priori* pharmacogenetic, demographic and clinical information, and/or on the *a posteriori* measurement of blood concentrations of drugs (pharmacokinetic monitoring, PK) and/or biomarkers (pharmacodynamic monitoring, PD). In psoriasis, TDM may add complexity where none is needed given the proven efficacy using standard, population-based dosing strategies. However, the sub-optimal or loss of response that complicates biologic therapy can be driven by insufficient drug exposure due to patient-specific co-variables such as body weight, age, inflammatory burden, and the presence of anti-drug antibodies. Equally, because biologics are perceived to be well tolerated at high doses, licensed fixed doses are set at high levels to assure efficacy whereas PK data suggests many of the growing psoriasis population with clear skin are on long-term drug dosing strategies they do not need. Data-driven dose (or drug) adjustment based on circulating biologic drug concentrations (presence of anti-drug antibodies) addresses these problems. Much of the evidence to date relates to TNF antagonists in immune-mediated diseases including psoriasis. Here, pro-active measurement of circulating drug concentrations and dose adjustment to achieve a defined PK target improves the maintenance of disease control and cost-effectiveness. Ongoing research in psoriasis will establish the clinical utility of pro-active TDM for the newer classes of biologics (IL23 and IL17 antagonists) to achieve and sustain remission, as well as to direct strategies for dose tapering. Model-guided Bayesian TDM through user-friendly dashboards will provide even greater precision dosing. Even with high-quality RCT and real-world evidence in place for at least some biologics, adoption into clinical practice is patchy. Reasons include

lack of perceived need (multiple biologic options) and paucity of approved, available diagnostics, and recommended therapeutic target drug concentrations and algorithms to direct clinical decision-making. The initiatives and collaborations now in place to address these challenges are important, and relevant to the future implementation of precision-medicine strategies more generally.

TREATMENT STRATEGIES AND TARGETS FOR SEVERE PSORIASIS

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Psoriatic disease not only comprises characteristic skin lesions but includes vascular and bone/joint inflammation in addition (Fig 1). These major domains of psoriatic disease are characterized by a common immune-mediated inflammatory pattern. On a cellular level dendritic cells and other antigen presenting cell types together with Th17 cells, IL-17gdT cells, and neutrophils are dominant cell types. On a cytokine level IL-23, the IL-17 family, IL-22 and TNF as well as interferon characterize the psoriasis cytokine signature.

There is increasing evidence that associated diseases such as atherosclerosis, hypertension or depression follow at least to a major degree a similar pattern of inflammation.

In the past traditional compounds not developed for psoriasis were used and most of them targeting multiple inflammatory pathways, however, the exact mechanism of action remained mostly enigmatic. This applies to methotrexate as well as to retinoids and fumaric acid esters. Cyclosporin was the first conventional drug where the IL-2-driven T cell activation was at least a major anti-inflammatory mechanism. Modern treatment targets are mainly cytokine-based, however, blocking distinct pathways such as the IL-23-driven Th-17 activation can also inhibit the generation of certain cellular subtypes. Inhibitors of IL-17A, A/F, and of the IL-17RA-receptor as well as TNF-inhibitors together with IL-12/23p40- or IL-23p19-antagonists using therapeutic antibodies or fusion proteins were able to generate clear or almost clear skin in a high proportion of treated patients together with an overall favorable safety and tolerability profile. The small molecules apremilast, a phosphodiesterase 4-inhibitor, and the recently registered tyrosine-kinase 2-inhibitor deucravacitinib, both used as oral drugs, supplement the comparatively large number of compounds for treating psoriasis. Most of these drugs are approved for treatment of psoriatic arthritis as well. Published data have shown, that in particular IL-17- and TNF-inhibitors are able to reduce vascular inflammation and the generation of atherosclerotic plaques. Recent data from clinical trials provide evidence for a beneficial effect of IL-17-, IL-23p19-, and TNF-inhibitors in reducing depression and anxiety.

New concepts favor systemic therapy as early as possible after first onset of psoriatic disease based on scientific data about the generation of an inflammatory memory in skin (eg. tissue resident memory T cells). First data show that at least in a subgroup of patients early treatment can generate super-responding patients with lasting treatment effects even after drug tapering.

In clinical practice treatment strategies are not only based on pathophysiological considerations but also on patients' needs and drug availability. Shared-decision making became an important strategy to increase treatment adherence adding to wellbeing as the overarching principle of people-centered health care.

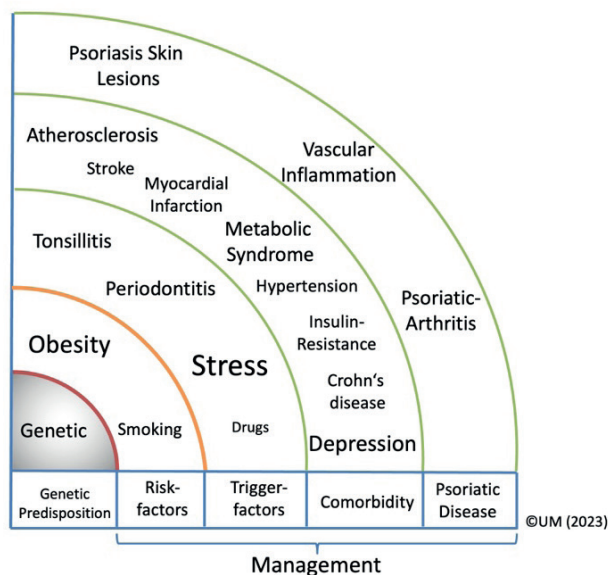


Fig. 1. The concept of Psoriatic Disease. (Mrowietz et al., J Eur Acad Dermatol Venereol 2023 (Online first))

THE NEED FOR REAL WORLD EVIDENCE

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Several new treatments for psoriasis have been introduced. Clinical trials have demonstrated high efficacy, especially for the new interleukin-17 and -23 inhibitors. Real-world evidence or real-world data refers to data collected from various sources in everyday clinical practice, such as electronic health records, insurance claims databases and patient registries. Real-world data provides valuable insights into the effectiveness and safety of treatments like biologics in real-world settings, complementing data obtained from clinical trials. Clinical trial data does not always represent

real-world patients who often have more co-morbidities and have failed several previous treatments. Studies show that more than half of patients in real-world registries would be ineligible to participate in a clinical trial. The efficacy of biologics in the real world is typically shown as drug survival. Drug survival is presented as the length of therapy until discontinuation of a drug and depends on effectiveness, side effects and safety. Overall, biologics in the real world have good overall survival and improve patients' quality of life. However, treatment effects decrease over time and loss of response is the main reason for discontinuing biologics. Common predictors for discontinuation are high BMI, previous exposure to biological treatment, smoking, increasing age and female sex. In females, discontinuation is more often due to side effects than in males. Real-world data may also help in the assessment of safety data both in the case of suspicions from clinical studies such as for anti-IL12/23 and major adverse cardiovascular events (MACE) as well as the assessment of, e.g., infections in a broad group of patients and not only those selected for clinical trials. New data from patient registers with long-term follow-up and clinical data have also led to important information about what constitutes a good response for patients and the importance of a good clinical response for the long-term effect of treatment. Within the next few years, real-world findings will lead to important information on whether an effective treatment can reduce the risk of developing secondary diseases such as psoriatic arthritis. Real-world data provide necessary evidence regarding the effectiveness and safety of biologics and other systemic therapies in treating psoriasis, helping healthcare professionals make informed treatment decisions and improving patient outcomes in real-world clinical practice.

60 YEARS OF PSORIASIS THERAPY: HOW THINGS HAVE CHANGED

*Matthias Augustin, MD
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Abstract is missing.