Patient characteristics and treatment patterns in patients with advanced psoriasis in specialty care settings in Finland

HSD98

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Introduction

- Psoriasis is a chronic, immune-mediated inflammatory disease affecting 2%-3% of the global population[1,2]
- In the Finnish public health care system, mild psoriasis is typically treated in the primary care setting with topical treatments or phototherapy, while severe cases often require the use of systemic treatments and are managed in hospital outpatient settings[1,3]
- Limited number of studies have characterized patients with psoriasis and treatment patterns in Finland to understand the full burden of managing moderate to severe psoriasis

Objective

- To characterize patient demographics and clinical characteristics by time of psoriasis diagnosis (2008-2012; 2013-2021) and treatment use (2013-2021) at 2 major Finnish hospital districts

Methods

- This retrospective, non-interventional, multiple registry study is based on the secondary use of data available from the data lakes of the Hospital District of Helsinki and Uusimaa (HUS), Hospital District of Southwest Finland (HDSF), and relevant nationwide registries in Finland
  - Services, demographics and patient characteristics, and drug purchase data were collected until October 2022 (end of study [EOS])
- Patients who met eligibility criteria were assessed in 2 study cohorts, based on patient index date
  - Index date was defined as the earliest date of recorded International Classification of Diseases, Tenth Revision (ICD-10) diagnosis code, International Classification of Primary Care, Second Edition (ICPC2) code, or reimbursement for psoriasis treatment
    - Cohort A diagnosis from 2008 to 2012 (indexed in January 2013; followed until death, lost to follow-up, or EOS)
    - Cohort B diagnosis from 2013 to 2021 (indexed upon diagnosis; followed until death, lost to follow-up, or EOS)
  - Treatment discontinuation was defined as having no records of the initiated treatment for at least 1 year prior to the end of follow-up
  - Cohorts were divided into subgroups stratified by use of systemic or biologic treatments for psoriasis

Key inclusion criteria

- Patients aged 18 years or older with a main diagnosis of psoriasis (ICD-10 L40.X) between 2008 and 2021
- Patients who were treated in the secondary/tertiary (specialized) health care centers of the HUS or HDSF, and whose data were accessible via the data lakes of each hospital district

Key exclusion criterion

- Patients who were not residents of the HUS or HDSF when initially diagnosed with psoriasis

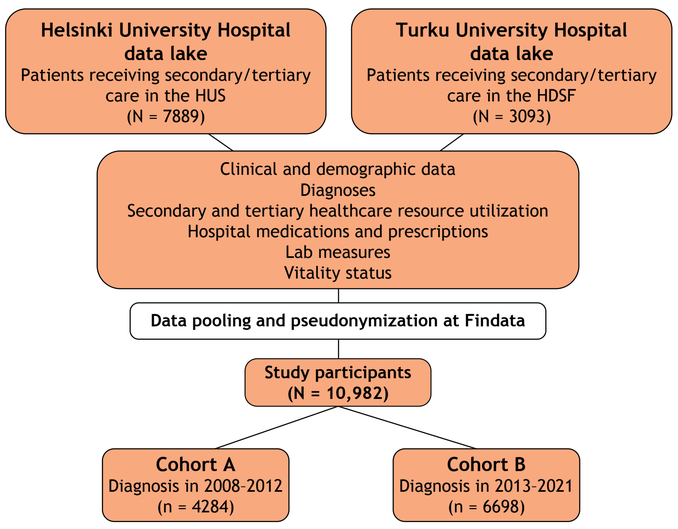
Statistical analysis

- Descriptive characteristics and uptake of systemic therapies were summarized
  - Means, standard deviations (SDs), medians, and interquartile ranges (IQRs) were reported for continuous variables
  - The numbers and percentages of patients were reported for each class of categorical variables
  - Drug survival, defined as time from first record of treatment initiation to last record of same treatment, was summarized by medians and IQRs
- Treatment patterns and treatment persistence were assessed using Kaplan-Meier analyses
  - Sankey plots were utilized to visualize treatment patterns and transitions by patient subgroups

Results

- Between 2008 and 2021, 10,982 patients in a public specialty care setting in Finland were diagnosed with psoriasis (**Figure 1**)
  - Cohort A consisted of 4284 patients
  - Cohort B consisted of 6698 patients
- **Table 1** reports demographics and clinical characteristics for patients in both cohorts

Figure 1. Study flow diagram



Findata, Finnish Social and Health Data Permit Authority; HDSF, Hospital District of Southwest Finland; HUS, Hospital District of Helsinki and Uusimaa.

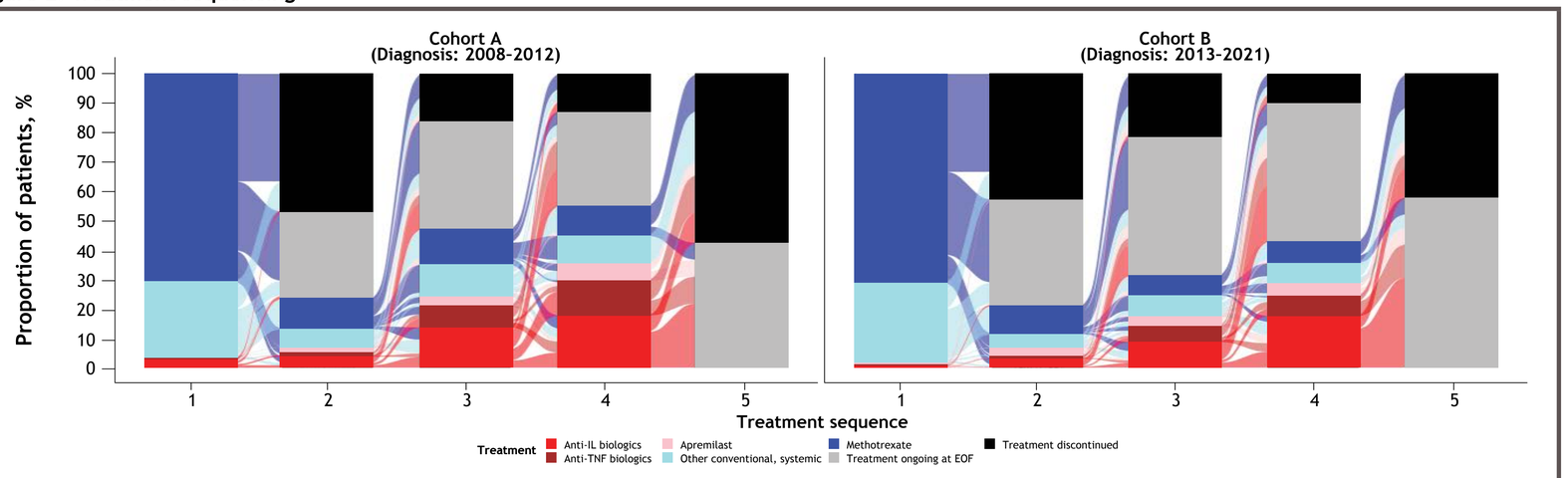
Table 1. Demographics and clinical characteristics at index date

Parameter	Cohort A (Diagnosis: 2008-2012) (n = 4284)	Cohort B (Diagnosis: 2013-2021) (n = 6698)
Age, n (%), years		
18-34	717 (16.7)	1277 (19.1)
35-54	1483 (34.6)	2467 (36.8)
55-64	1065 (24.9)	1447 (21.6)
≥65	1019 (23.8)	1507 (22.5)
Mean (SD)	52.8 (16.1)	51.3 (16.1)
Female, n (%)	2144 (50.0)	3237 (48.3)
PPP, n (%)	207 (4.8)	279 (4.2)
PsA, n (%)	1324 (30.9)	1915 (28.6)
IBD, n (%)	212 (4.9)	254 (3.8)
Index year, n (%)		
2013-2014	4284 (100.0)	1689 (25.2)
2015-2016	0 (0.0)	1441 (21.5)
2017-2018	0 (0.0)	1476 (22.0)
2019-2020	0 (0.0)	1528 (22.8)
2021	0 (0.0)	564 (8.4)
Hospital district, n (%)		
HDSF	1112 (26.0)	1981 (29.6)
HUS	3172 (74.0)	4717 (70.4)
Length of follow-up, years		
Mean (SD)	9.2 (2.1)	5.5 (2.6)

HDSF, Hospital District of Southwest Finland; HUS, Hospital District of Helsinki and Uusimaa; IBD, inflammatory bowel disease; PPP, palmoplantar pustulosis; PsA, psoriatic arthritis; SD, standard deviation.

- Per reimbursement guidelines, patients primarily received conventional systemic treatment (methotrexate or acitretin) before initiating biologic therapy or apremilast (**Figure 2**)
  - In Cohort B, median drug survival for patients initiating first-line methotrexate was 19 months (IQR 5-41) vs 7 months (IQR 1-24) for other conventional systemic treatments, and 8 months (IQR 3-25) for apremilast as first-line therapy (**Table 2**)
  - Among patients in Cohort B who initiated biologics, median drug survival was 35 months (IQR 12-46) for those on first-line anti-interleukin (IL) biologics compared with 29 months (IQR 18-41) for first-line antitumor necrosis factor (TNF) biologics
    - Overall, median drug survival for first biologic and nonbiologic systemic treatment initiated, regardless of treatment line, was 14 months (IQR 8-39) and 14 months (IQR 3-37), respectively

Figure 2. Treatment sequencing[a]



[a]The denominator for each proportion includes patients who received a systemic treatment in the previous line of therapy.
EOF, end of follow-up; IL, interleukin; TNF, tumor necrosis factor.

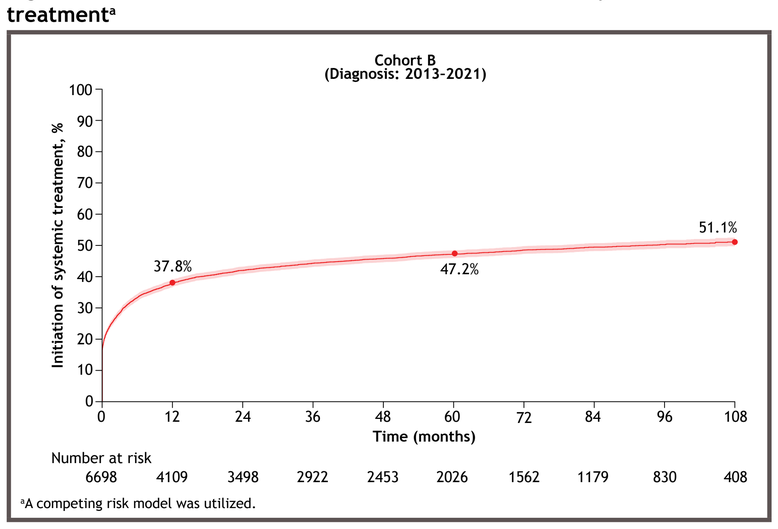
Table 2. Median drug survival, by treatment class[a]

Treatment sequence	Treatment	N (%)	Drug survival, median (IQR), months	Treatment sequence	Treatment	N (%)	Drug survival, median (IQR), months
	Cohort A (Diagnosis: 2008-2012)				Cohort B (Diagnosis: 2013-2021)		
1	Methotrexate	1005 (70.6)	33 (7-82)	1	Methotrexate	2191 (71)	19 (5-41)
	Other conventional, systemic	372 (26.1)	9 (1-38)		Other conventional, systemic	841 (27.3)	7 (1-24)
	Apremilast	-	-		Apremilast	24 (0.8)	8 (3-25)
	Anti-TNF biologics	-	-		Anti-TNF biologics	11 (0.4)	29 (18-41)
	Anti-IL biologics	40 (2.8)	51 (20-100)		Anti-IL biologics	17 (0.6)	35 (12-46)
2	Previous line of therapy discontinued and no new treatment initiated	668 (46.9)	-	2	Previous line of treatment discontinued and no new treatment initiated	1319 (42.8)	0 (0-0)
	Previous line of treatment ongoing at EOF	420 (29.5)	-		Previous line of treatment ongoing at EOF	1112 (36.1)	0 (0-0)
	Methotrexate	149 (10.5)	21 (7-57)		Methotrexate	301 (9.8)	15 (5-37)
	Other conventional, systemic	90 (6.3)	2 (0-9)		Other conventional, systemic	146 (4.7)	5 (1-16)
	Apremilast	25 (1.8)	5 (2-11)		Apremilast	82 (2.7)	5 (1-14)
	Anti-TNF biologics	19 (1.3)	25 (7-25)		Anti-TNF biologics	29 (0.9)	28 (15-54)
	Anti-IL biologics	53 (3.7)	37 (11-50)		Anti-IL biologics	95 (3.1)	16 (7-33)
3	Previous line of therapy discontinued and no new treatment initiated	53 (15.8)	-	3	Previous line of treatment discontinued and no new treatment initiated	140 (21.4)	-
	Previous line of treatment ongoing at EOF	125 (37.2)	-		Previous line of treatment ongoing at EOF	308 (47.2)	-
	Methotrexate	40 (11.9)	6 (0-34)		Methotrexate	44 (6.7)	4 (0-16)
	Other conventional, systemic	37 (11.0)	4 (0-25)		Other conventional, systemic	47 (7.2)	2 (0-7)
	Apremilast	11 (3.3)	12 (5-24)		Apremilast	22 (3.4)	7 (3-15)
	Anti-TNF biologics	24 (7.1)	19 (8-36)		Anti-TNF biologics	35 (5.4)	18 (7-34)
	Anti-IL biologics	46 (13.7)	18 (6-55)		Anti-IL biologics	57 (8.7)	21 (7-39)
4	Previous line of therapy discontinued and no new treatment initiated	20 (12.7)	-	4	Previous line of treatment discontinued and no new treatment initiated	20 (9.8)	-
	Previous line of treatment ongoing at EOF	51 (32.3)	-		Previous line of treatment ongoing at EOF	97 (47.3)	-
	Methotrexate	16 (10.1)	2 (0-11)		Methotrexate	15 (7.3)	2 (0-25)
	Other conventional, systemic	15 (9.5)	3 (1-9)		Other conventional, systemic	14 (6.8)	0 (0-12)
	Apremilast	9 (5.7)	23 (6-32)		Apremilast	9 (4.4)	1 (0-5)
	Anti-TNF biologics	19 (12.0)	18 (8-40)		Anti-TNF biologics	14 (6.8)	14 (10-29)
	Anti-IL biologics	28 (17.7)	17 (8-30)		Anti-IL biologics	36 (17.6)	14 (5-34)
5	Previous line of therapy discontinued and no new treatment initiated	50 (57.5)	-	5	Previous line of treatment discontinued and no new treatment initiated	37 (42.0)	-
	Previous line of treatment ongoing at EOF	37 (42.5)	-		Previous line of treatment ongoing at EOF	51 (58.0)	-

[a]Drug survival times were calculated as Kaplan-Meier fits with censoring. Patients who reached EOF and were censored were included in the time-on-therapy estimates for the time covered in their records.
EOF, end of follow-up; IL, interleukin; IQR, interquartile range; TNF, tumor necrosis factor.

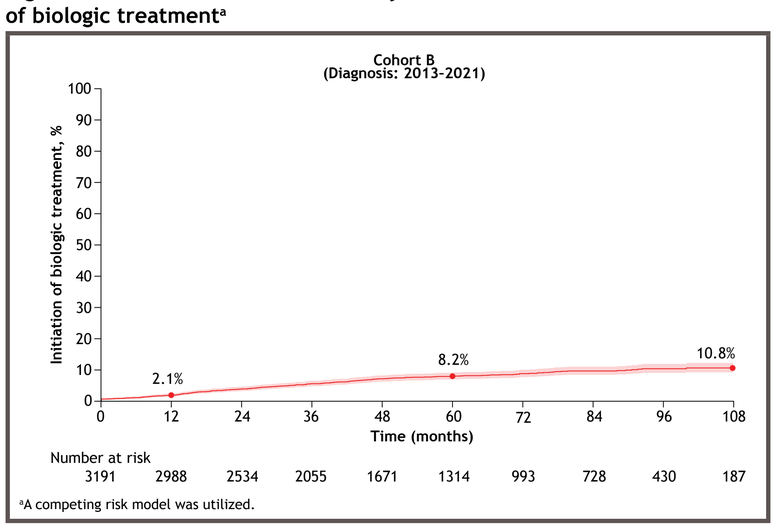
- Within approximately 7.7 years of their PsO diagnosis in the specialty care setting, 50% of patients had initiated systemic treatment
  - In Cohort B, nearly half of patients with psoriasis (47.2%) initiated systemic treatment within 5 years of index date (**Figure 3**)
  - In the specialty care setting, 8.2% of patients in Cohort B initiated biologic treatment within 5 years of systemic treatment initiation (**Figure 4**)

Figure 3. Time from the index date until the initiation of systemic treatment[a]



[a]A competing risk model was utilized.

Figure 4. Time from the initiation of systemic treatment until the initiation of biologic treatment[a]



[a]A competing risk model was utilized.

Discussion

- Consistent with prescribing guidelines, conventional systemic therapies are prescribed for most patients with advanced psoriasis in specialty care settings
- Patients with moderate to severe psoriasis typically receive conventional therapies as a second-line or later treatment and do not progress to treatment with a biologic therapy for several years
- This continuous cycle through the conventional treatment landscape can often lead to the undertreatment of psoriasis and to eventual treatment discontinuation

Strengths and Limitations

Strengths

- Data from 2 of the 5 major hospital districts in Finland, representing approximately 39% (n = 2.2 million) of the total Finnish population, were included in this study
  - This fairly extensive coverage of patients with severe psoriasis (with up to 9 years of follow-up) should make these results generalizable to the overall population of patients with severe psoriasis in Finland

Limitations

- This study was based on existing, specialized healthcare registry data; therefore, the available data were limited
- No patient-level medication data were available in this registry-based study; as a result, the determination of treatment persistence and adherence was based solely on purchases of reimbursable prescription medications

Conclusions

- Among patients with severe psoriasis in Finland, significant numbers of patients are treated with conventional systemic therapies, yet many discontinue treatment or spend several years on therapy before advancing to treatment with biologics
- There is a need for durable and effective therapies to fill an unmet need for severe psoriasis care

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Disclosures

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