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Subclinical cardiac organ damage in patients with moderate to severe psoriasis

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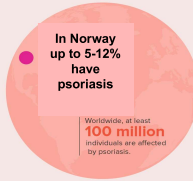


Nasjonalt senter for kvinnehelseforskning

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Psoriasis is a common skin disease


Psoriasis PREVALENCE




Worldwide, at least **100 million** individuals are affected by psoriasis.

Sources: World Health Organization, British Society of Dermatology, American Academy of Dermatology


RISK FACTORS of psoriasis



Sources: British Society of Dermatology, American Academy of Dermatology, European Academy of Dermatology and Venereology, National Psoriasis Foundation



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Danielsen K. et al. Acta Derm Venereol 2018

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Women and systemic treatment

- Men seem to be affected more severely than women¹
- Women seem to be less satisfied with the treatment and have more side effects²
- Child-bearing age³

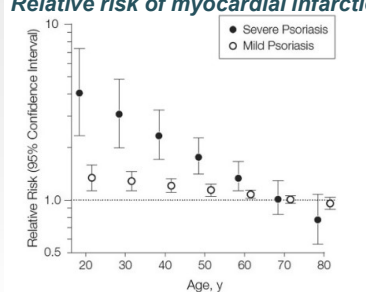





¹Hägg D et al. PLoS One 2013, 8, e63619.
²Van der Schoot LS et al. J Eur Acad Dermatol Venereol 2019, 33, 1913-1920. 419-34.
³Hotard RS et al. J Am Acad Dermatol 420 2000, 42, 620-3. 421-35.

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Cardiovascular risk in psoriasis

Relative risk of myocardial infarction (n=130,980)




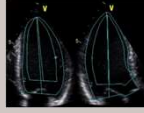
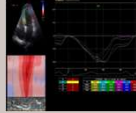
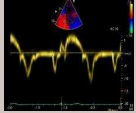
Gelfand JM et al. JAMA 2006

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Subclinical cardiac organ damage is a strong prognosticator for clinical events

Subclinical cardiac organ damage

Structural and/or functional changes of the heart or systemic arteries that do not produce clinical symptoms

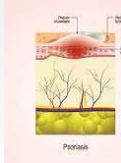








Williams et al, 2018 ESH/ESC Guidelines for the management of arterial hypertension. Blood Press 2018.

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Aim

To assess if the prevalence of subclinical cardiac organ damage is increased in patients with moderate-to-severe psoriasis on infliximab treatment independent of cardiovascular risk factors.







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Methods

Patient population


- Cross-sectional study
- 53 patients with severe psoriasis on systemic infliximab treatment included from Department of Dermatology.
 - Patients with known heart disease was excluded.
 - Average age was 47 years and 30 % women
- 99 control subjects matched for age, sex and body mass index from the FAT associated Cardiovascular dysfunction (FATCOR) study.
 - A study on obese and overweight men and women without CV disease.

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Methods


Echocardiography



Subclinical cardiac organ damage:

- presence of left ventricular hypertrophy (LV), concentric LV geometry and/or dilated left atrium

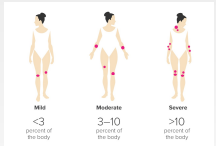
Blood pressure





Hypertension: Defined as use of antihypertensive medication/history of hypertension and/or elevated ambulatory blood pressure $\geq 130/80$ mmHg.

Williams et al. Hypertension guidelines 2018


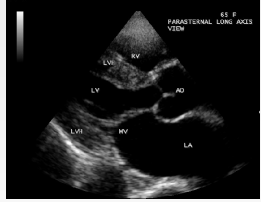
Psoriasis Area and Severity Index (PASI) and Dermatology Life Quality Index (DLQI)







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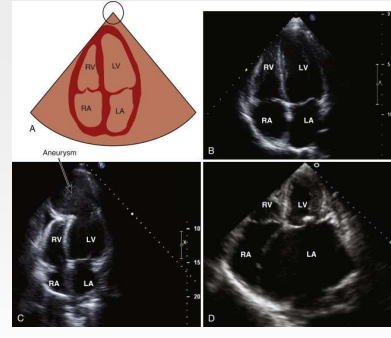
Echocardiography


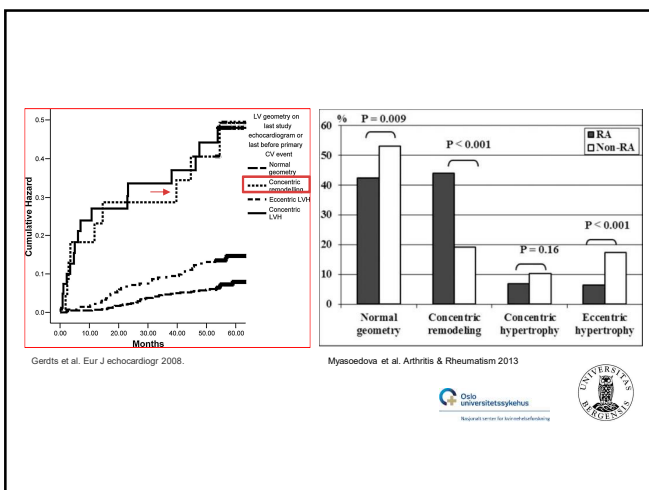
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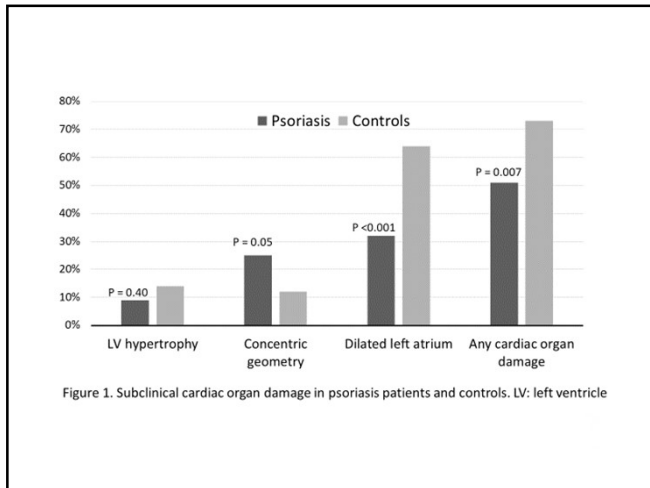
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Results - clinical characteristics

	Psoriasis (n = 53)	Controls (n = 99)	P
Age, years	47 (15)	47 (11)	0.94
Sex, women n (%)	16 (30)	28 (28)	0.81
Physical activity, hour/week	4.6 (3.7)	4.1 (3.4)	0.44
High-sensitive CRP (µg/ml), median (IQR)	1.0 (0.2-3.0)	1.1 (0.6-3.2)	0.33
Serum creatinine (µmol/L)	75 (14)	77 (12)	0.54
Disease duration, years	24 (13)	-	
PASI at initiation of infliximab treatment	16.1 (11.5)		
PASI, current	0.8 (0.8)		
DLQI at initiation of infliximab treatment	17.5 (6.0)		
DLQI, current	0.7 (1.3)		
Psoriasis arthritis, n (%)	19 (36)	-	
Current smoking, n (%)	19 (37)	15 (17)	0.005
Hypertension	31 (66)	57 (61)	0.54
Office systolic BP, mmHg	137 (17)	132 (17)	0.11
Office diastolic BP, mmHg	87 (8)	82 (9)	0.003
Ambulatory systolic BP, mmHg	123 (12)	122 (12)	0.75
Ambulatory diastolic BP, mmHg	80 (8)	79 (7)	0.60
Body mass index, kg/m ²	29 (5)	30 (4)	0.42
Obesity, n (%)	18 (34)	33 (33)	0.94
Diabetes, n (%)	3 (6)	5 (6)	0.87
Treated hypertension, n (%)	15 (48)	20 (35)	0.22
Methotrexate, n (%)	44 (85)	-	
Infliximab, n (%)	53 (100)	-	
Duration of infliximab treatment, years	4.9 (3.8)		

PASI: Psoriasis Area and Severity Index, DLQI: Dermatology Life Quality Index, BP: blood pressure



Association of subclinical cardiac organ damage in the total study population: uni- and multivariable logistic regression analyses

	Unadjusted analysis		Multivariable model	
	OR (95% CI)	P	OR (95% CI)	P
Psoriasis	0.39 (0.19-0.78)	0.008	0.30 (0.13-0.72)	0.007
Age, years	1.04 (1.01-1.08)	0.005	1.04 (1.00-1.07)	0.06
Female sex	2.67 (1.17-6.11)	0.02	4.88 (1.67-14.30)	0.004
Current smoking	0.33 (0.15-0.74)	0.006	0.51 (0.20-1.32)	0.16
Hypertension	2.21 (1.08-4.52)	0.03	2.09 (0.90-4.90)	0.09
Body mass index, kg/m ²	1.07 (0.99-1.16)	0.10		
Obesity	1.67 (0.80-3.46)	0.18		
Diabetes	4.29 (0.51-36.03)	0.18		
Anti-hypertensive treatment	2.57 (1.04-6.38)	0.04		

OR: odds ratio; CI: confidence interval, BP: blood pressure

Association of subclinical cardiac organ damage in psoriasis patients: Uni- and multivariable logistic regression analyses

	Unadjusted analysis		Multivariable model	
	OR (95% CI)	P	OR (95% CI)	P
Age, years	1.05 (1.01-1.10)	0.02	1.05 (0.99-1.11)	0.12
Female sex	1.96 (0.59-6.52)	0.27	3.24 (0.66-15.86)	0.15
Disease duration, months	1.04 (0.99-1.08)	0.11		
Psoriasis arthritis	2.03 (0.79-5.27)	0.144		
Current smoking	0.32 (0.10-1.05)	0.06		
Hypertension	9.10 (2.11-39.34)	0.003	6.88 (1.32-35.98)	0.02
Anti-hypertensive treatment	5.87 (1.41-24.40)	0.02		
Body mass index, kg/m ²	1.12 (1.00-1.26)	0.06	1.07 (0.93-1.24)	0.36
Obesity	1.87 (0.59-5.94)	0.29		
Diabetes	2.08 (0.18-24.51)	0.56		
PASI at treatment start	1.03 (0.97-1.08)	0.34		
Current PASI	1.75 (0.81-3.75)	0.15		
DLQI at treatment start	0.96 (0.86-1.06)	0.38		
Current DLQI	1.02 (0.68-1.54)	0.92		
Methotrexate	1.01 (0.23-4.71)	0.95		

OR: odds ratio; CI: confidence interval, BP: blood pressure

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Conclusion

- Subclinical cardiac OD was less prevalent in psoriasis patients on infliximab treatment than controls.
- Higher risk of organ damage in women
- Hypertension was the major covariable for subclinical cardiac OD in psoriasis.
- Higher psoriasis severity at start of treatment with infliximab predicted presence of adverse LV remodeling at follow-up
- This points to a role of inflammation in LV remodeling in psoriasis patients.



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