



## EXPLORING THE INTERPLAY BETWEEN INFLAMMATORY SKIN DISORDERS AND CARDIOVASCULAR HEALTH

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### Abstract:

**Background :** the therapeutic use of anti-inflammatory drugs on the body for the treatment of cardiovascular and cutaneous ailments. Thorough patient evaluations and data analysis yielded important insights that shed light on potential choices for integrated management approaches.

**Objectives :** This research aimed to evaluate the complex relationship between inflammatory skin illnesses, notably psoriasis, and cardiovascular comorbidities, with an emphasis on atherosclerosis and coronary artery disease (CAD).

**Study design :** A retrospective study .

**Duration and place of study :** inflammatory skin disorders, primarily psoriasis, the study was conducted at PIMS Hospital Islamabad from 05-January 2022- 05-January 2023

**Methods:** a retrospective investigation on 100 patients suffering from inflammatory skin illnesses, mostly psoriasis. Patient information, including as demographics, the extent of skin disease, cardiovascular risk factors, imaging findings, and specifics of the course of therapy, were carefully recorded and examined. The purpose of the research was to determine how common cardiovascular comorbidities were in these individuals and how well systemic anti-inflammatory medications worked to treat both skin and cardiovascular symptoms. Statistical techniques were used in the data analysis to assess relationships between treatment results, cardiovascular risk factors, and the severity of skin diseases.

**Results:** The correlation that has been noted between cardiovascular illnesses and inflammatory skin conditions emphasises the need of a multidisciplinary approach to patient therapy. Therapy that targets common inflammatory pathways may be able to reduce cardiovascular risks in addition to treating the cutaneous symptoms. Working together, cardiologists, rheumatologists, and dermatologists can optimise treatment plans and enhance overall patient results.

**Conclusion:** The study emphasises how closely inflammatory skin conditions, especially psoriasis, are related to cardiovascular risk. Promising in the management of both cutaneous and cardiovascular symptoms, systemic anti-inflammatory treatments underscore the need of integrated care methods. To clarify underlying processes and confirm best practices in therapy, further study is necessary.

**Keywords:** Inflammatory skin disorders, psoriasis, cardiovascular diseases, atherosclerosis, coronary artery disease, systemic anti-inflammatory therapies, integrated management.

### **Introduction:**

The intricate link between inflammatory skin problems and cardiovascular health has been more apparent in recent years, with far-reaching consequences for patient treatment and management. Millions of people worldwide suffer from psoriasis, a chronic inflammatory skin disorder that has become prominent in this complex relationship due to the substantial impact it has on cardiovascular morbidity and mortality as well as dermatological well-being [1]. Furthermore, an increasing body of research points to a reciprocal relationship between cardiovascular diseases and psoriasis, suggesting that psoriatic inflammation may be exacerbated by cardiovascular risk factors and comorbidities, and that the inflammatory milieu typical of psoriasis may aid in the onset and progression of atherosclerosis [2, 3]. This bidirectional link has complex and multiple molecular roots that include the confluence of immunological dysregulation, inflammatory pathways, and endothelial dysfunction [4, 5]. To further exacerbate their cardiovascular risk profile, people with psoriasis often have greater prevalences of conventional cardiovascular risk factors as insulin resistance, dyslipidemia, obesity, and hypertension [6, 7]. Given these results, there is a rising awareness of the need of a patient-centered approach that goes beyond conventional disciplinary boundaries and incorporates a thorough understanding of the connections between cardiovascular and dermatological health [8]. To develop integrated treatment strategies that address the cutaneous and cardiovascular elements of these disorders, dermatologists, cardiologists, rheumatologists, and other healthcare practitioners must work together. Given the increasing amount of research being conducted in this area and the changing nature of treatment approaches, there is a strong need to investigate the molecular basis of this intricate interaction and look into new directions for improving patient outcomes.

### **Methods:**

The study carried out a retrospective review of 100 patients treated at the PIMS Hospital Islamabad from 05-January 2022- 05-January 2023, during a two-year period for inflammatory skin illnesses, mostly psoriasis. Carefully recorded and analysed were the patient's demographics, clinical features (such as the severity of skin disease and cardiovascular risk factors), imaging examinations, and therapy methods. Statistical techniques were used to assess correlations between variables, such as Fisher's exact test or chi-square analysis. The purpose of the research was to evaluate the effectiveness of systemic anti-inflammatory medications in treating both skin and cardiovascular symptoms, as well as the prevalence of cardiovascular comorbidities among patients with inflammatory skin illnesses.

### **Results:**

There is a substantial association between inflammatory skin illnesses and cardiovascular comorbidities, according to a research including 100 individuals. The average age of psoriasis patients was 54 years (SD  $\pm$  7.5), while hypertension (19.4%), hyperlipidemia (9.8%), and diabetes mellitus (10%) were the most common conditions. Interestingly, there was a substantial correlation ( $p < 0.05$ ) between cardiovascular risk factors and the severity of skin illness. Biologics and traditional DMARDs are examples of systemic anti-inflammatory treatments that have shown promise in treating skin and cardiovascular symptoms. These results highlight the value of combined management approaches in addressing the intricate relationship between cardiovascular health and inflammatory skin conditions.

**Table 1: Demographic and Clinical Characteristics of Patients with Inflammatory Skin Disorders (n=100)**

Characteristic	Frequency (%)
<b>Age (years)</b>	
Mean $\pm$ SD	54 $\pm$ 7.5 years
Range	20 to 75 years
<b>Gender</b>	
Male	50(50%)
Female	50 (50%)
<b>Skin Disorder</b>	
Psoriasis	37 (36.8%)
Other	13 (13.2%)
<b>Cardiovascular Comorbidities</b>	
Hypertension	20 (19.4%)
Hyperlipidemia	10 (9.8%)
Diabetes Mellitus	10 (10%)
Smoking	5 (5%)
Family History of CVD	5 (5%)
<b>Disease Severity</b>	
Mild	35 (35%)
Moderate	25 (25%)
Severe	15 (15%)
Very Severe	25 (25%)

Note: CVD - Cardiovascular Disease, SD - Standard Deviation.

**Table 2: Association Between Inflammatory Skin Disorders and Cardiovascular Comorbidities**

Cardiovascular Comorbidity	Psoriasis (n=37)	Other Inflammatory Skin Disorders (n=13)	p-value
Hypertension	7 (7%)	3 (3%)	0.005
Hyperlipidemia	10 (10%)	2 (2%)	0.005
Diabetes Mellitus	5 (5%)	5 (5%)	0.005
Smoking	5 (5%)	2 (2%)	0.005
Family History of CVD	10 (10%)	1 (1%)	0.005

Note: CVD - Cardiovascular Disease. p-values were calculated using chi-square or Fisher's exact test, as appropriate.

**Table 3: Effect of Systemic Anti-Inflammatory Therapies on Skin and Cardiovascular Manifestations in Patients with Inflammatory Skin Disorders**

Treatment Modality	Skin Improvement (n=37)	Cardiovascular Improvement (n=50)	Adverse Events (n=5)
Biologic Agents	10 (10%)	25 (25%)	2 (2%)
Conventional DMARDs	15 (15%)	15(15%)	1 (2%)
Combination Therapy	12 (12%)	10 (10%)	2 (2%)

### Discussion:

The correlation shown between cardiovascular illnesses and inflammatory skin conditions, including psoriasis, emphasises the need of a multidisciplinary approach to patient therapy. These disorders are bidirectionally related, suggesting that they have similar underlying processes and inflammatory pathways that call for thorough assessment and treatment [9, 10]. Psoriasis's systemic inflammation aggravates cardiovascular risk factors such as insulin resistance, dyslipidemia, and hypertension in addition to aiding in the onset and advancement of atherosclerosis [11,12]. These results have significant therapeutic significance as they demonstrate the ability of systemic anti-inflammatory medicines to mitigate the symptoms of both cutaneous and cardiovascular diseases. Both biologics and traditional DMARDs have shown promise in easing skin conditions and lowering the risk of

cardiovascular disease [13,14,15]. But for these illnesses to be managed as best they can, dermatologists, cardiologists, and rheumatologists must work together to customise treatment plans for each patient. Cardiovascular morbidity and mortality may be decreased by identifying high-risk patients and implementing preventative treatments by including cardiovascular risk assessment and monitoring into regular dermatological care [16]. Overall, these results highlight the value of treating inflammatory skin illnesses holistically, which improves patient outcomes and quality of life by addressing both the cutaneous and cardiovascular elements of the condition.

### **Conclusion:**

The complex relationship that exists between inflammatory skin conditions, especially psoriasis, and cardiovascular health emphasises the need of thorough assessment and treatment. The potential of systemic anti-inflammatory medicines to treat cardiovascular as well as cutaneous symptoms highlights the need of integrated care methods. To maximise therapeutic approaches and enhance patient results, dermatologists, cardiologists, and rheumatologists must work together. To improve the overall care of patients with these intricately linked disorders, further investigation is necessary to clarify underlying processes and confirm the best course of treatment.

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