Psoriasis and its impact on the clinical outcome of patients with pulmonary embolism

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Background: Venous thromboembolism (VTE) is common and associated with high morbidity and mortality. Although chronic inflammation was not categorized as a traditional risk factor for VTE, chronic inflammation might increase the risk to develop VTE events.

While studies confirmed an increased cardiovascular morbidity and mortality in psoriatic patients, data regarding the influence of psoriasis on patients' cardiovascular profile and on prognosis of patients with pulmonary embolism (PE) are sparse.

Purpose: We aimed to investigate the impact of psoriasis on prognosis of PE patients.

Methods: Hospitalized PE patients were stratified for psoriasis and the impact of psoriasis on outcome was investigated in the German nationwide inpatient sample of the years 2005–2017 (source: Research Data Center (RDC) of the Federal Statistical Office and the Statistical Offices of the federal states, DRG Statistics 2005–2017, own calculations).

Results: Overall, 1,076,384 hospitalizations of PE patients (53.7% females, median age 72.0 [60.0–80.0] years) were recorded in Germany 2005–2017. Among these, 3,145 patients were additionally coded with psoriasis (0.3%). Psoriatic PE patients were younger (68.0 [57.0–76.0] vs. 72.0 [60.0–80.0] years, $P<0.001$) and more often male (64.1% vs. 46.3%, $P<0.001$). The prevalence of VTE risk factors, traditional cardiovascular risk factors and cardiovascular comorbidities was higher in psoriatic than in non-psoriatic individuals: All investigated traditional cardiovascular risk factors such as essential arterial hypertension (49.8% vs. 43.1%, $P<0.001$), diabetes mellitus (24.4% vs. 18.7%, $P<0.001$), hyperlipidaemia (14.1% vs. 12.0%, $P<0.001$), as well as obesity (19.6% vs. 9.6%, $P<0.001$) and atherosclerotic comorbidities like coronary artery disease (15.2% vs. 13.8%, P=0.022) and peripheral artery disease (3.6% vs. 2.9%, P=0.010) were more prevalent in PE patients with psoriasis.

Psoriatic PE patients showed a lower in-hospital case-fatality rate (11.1% vs. 16.0%, $P<0.001$), confirmed by logistic regressions showing an independent association of psoriasis with reduced case-fatality rate (OR 0.73 [95% CI 0.65–0.82], $P<0.001$), despite higher prevalence of pneumonia (24.8% vs. 23.2%, P=0.029). Psoriasis was an independent predictor for gastro-intestinal bleeding (OR 1.35 [95% CI 1.04–1.75], P=0.023) and transfusion of blood constituents (OR 1.23 [95% CI 1.11–1.36], $P<0.001$).

Conclusions: Overall, only a minority (0.3%) of all PE cases were coded additionally with psoriasis. PE patients with psoriasis were hospitalized in median four years earlier than those without. Although psoriasis was associated with an unfavorable cardiovascular-risk and VTE-risk profile in PE patients, our data demonstrate a lower in-hospital mortality rate in psoriatic PE, which might be mainly driven by younger age. Our findings may improve the clinical management of these patients and contribute evidence for relevant systemic manifestation of psoriasis.