positive dermographism (Fig. 1). One patient experienced, apart from a mild urticarial rash, a flare up of his previously well-controlled atopic dermatitis under treatment with dupilumab (Fig. 1d). In four patients (36.3%) extracutaneous manifestations occurred such as laryngospasm, periorbital oedema, and angioedema; these data are consistent with CDC report.[6] All manifestations resolved spontaneously within 2–3 days without treatment, except in the patients with extracutaneous symptoms. In addition, the patient who manifested a relapse of atopic dermatitis underwent a short oral steroids course prescribed by his general practitioner. Although the majority of patients (72.7%, eight cases) had a previous history of allergy or allergic diathesis, the skin reactions were very mild.

Media spread alarmism regarding severe anaphylactic reactions and a hypothetical exclusion of people with an allergic diathesis from vaccination. In our experience, cutaneous adverse reactions from COVID-19 vaccine were very rare, all mild and characterized by rapid, and generally spontaneous resolution. Flares of pre-existent dermatitis could alarm patients and physicians and doubts arise regarding the management of patient in therapy with biologic agents. Altogether cutaneous reactions observed in our series do not constitute a contraindication to a second dose of vaccine. The dermatologist, in collaboration with the colleagues of occupational medicine service, and immunologists should reassure patients for both recurrence of previously diagnosed cutaneous diseases and onset of new skin lesions.

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Incidence and prognosis of COVID-19 in psoriasis patients on biologic therapy: a multicentre retrospective cohort study

Editor

Current guidelines recommend continuing biologic therapy in dermatologic patients who have not tested positive for or exhibited signs/symptoms of COVID-19 and postponing biologic therapy in patients who have tested positive for or exhibited signs/symptoms of COVID-19.[1–3] In order to help guide current recommendations, we aimed to investigate the incidence and prognostic outcomes of positive SARS-CoV-2 infection in psoriasis patients on biologic therapy.

Following ethics committee approval, a multicentre retrospective cohort study was undertaken at two tertiary academic hospitals and four community practices in Canada. Inclusion criteria were all adult and paediatric patients treated with a biologic for moderate-to-severe psoriasis since COVID-19 was declared a global pandemic. Data were obtained from Patient Support

Table 1 Demographics and clinical symptoms of individuals on a biologic and who tested positive for COVID-19

Patient	Biologic therapy	Age (years)	Gender	Nationality	Comorbidities	Biologic duration†	Biologic interruption‡	Biologic restart	Duration of interruption§	COVID-19 symptoms	Oxygen therapy	Hospital admission
1	Brodalumab	38	M	Asian	None	3 months	Y	Y	28 days	Moderate lower RT symptoms	N	N
2	Guselkumab	31	F	Caucasian	Grave's	3 weeks	Y	Y	7 days	Mild upper RT symptoms	N	N
3	Ixekizumab	37	M	Caucasian	None	29 months	Y	N	ongoing	Headache	N	N
4	Ixekizumab	37	M	Caucasian	None	7 months	Y	Y	28 days	None	N	N
5	Ixekizumab	72	M	Caucasian	Hypertension, Ex-smoker	37 months	Y	Y	10 days	Sore throat, nasal congestion	N	N
6	Risankizumab	51	M	Eastern European	Hypertension, T2DM, CAD, Dyslipidaemia	18 months	N	NA	NA	Mild upper RT symptoms	N	N
7	Secukinumab	54	F	Caucasian	Hypertension	54 months	Y	Y	28 days	Fever, fatigue nausea, vomiting	N	N
8	Ustekinumab	19	M	Asian	None	31 months	N	NA	NA	None	N	N
9	Ustekinumab	32	M	Caucasian	Ex-smoker	120 months	N	NA	NA	None	N	N
10	Ustekinumab	49	F	Caucasian	None	42 months	Y	Y	13 days	None	N	N

Abbreviations: CAD, coronary artery disease; N, no; NA, not applicable; RT, respiratory tract; T2DM, type 2 diabetes; Y, yes.
†Time from biologic initiation until positive SARS-CoV-2 nasal swab.
‡Biologic therapy stopped due to a confirmed SARS-CoV-2 diagnosis.
§Delay in receiving their next biologic dose following a confirmed SARS-CoV-2 diagnosis.

Program (PSP) Case Managers of all major biologic suppliers and patient-reported clinical documentation.

As of 15 January 2021, there were 2647 patients on biologic therapy who met the inclusion criteria. In this cohort, 10 patients (0.4%) had confirmation of SARS-CoV-2 infection via nasal swab. Incidence of COVID-19 was highest in those treated with interleukin (IL)-12/23 inhibitors (3/443, 0.7%) and IL-17a inhibitors (5/667, 0.7%), compared to IL-23 inhibitors (2/799, 0.2%) and tumour necrosis factor-alpha (TNF-α) inhibitors (0/738, 0%). Biologic-specific incidence included that of adalimumab (0/336), brodalumab (1/80), certolizumab (0/60), etanercept (0/288), guselkumab (1/530), infliximab (0/54), ixekizumab (3/267), risankizumab (1/269), secukinumab (1/320) and ustekinumab (3/443). Of those who tested positive, mean age was 42 ± 15 years, with the majority being male (7/10, 70%), Caucasian (7/10, 70%) and on a biologic for over 12 months (7/10, 70%; mean: 34 ± 35 months). Six patients (60%) had symptoms of COVID-19, compared to three patients (40%) who were asymptomatic carriers (Table 1). Seven patients (70%) discontinued biologic therapy due to COVID-19. Six patients restarted treatment with a mean restart time of 19 ± 10 days, while one patient elected to remain off treatment due to persistently well-controlled disease.

The results from this study suggest that patients with moderate-to-severe psoriasis on a biologic agent have a similar or perhaps even lower incidence of COVID-19 (10/2647, 0.4%) compared to the general public (1.8%, reported Canada wide rate as of 15 January 2021). This supports current recommendations that psoriasis patients should not discontinue their biologic therapy out of risk or fear of contracting COVID-19.[4,5] However, these findings contrast prior evidence in a cohort of 1193 psoriasis patients on a biologic, suggesting increased risk of COVID-19 infection. Furthermore, our results suggest good prognosis for COVID-19-positive psoriasis patients on a biologic as symptoms were mild and no patients required oxygenation or hospitalization.[6] This is in contrast to early reports demonstrating psoriasis patients, with and without biologic exposure, are at higher risk of COVID-19 hospitalization and mortality, which may be driven by associated comorbid conditions.[6,7] Permanent discontinuation of biologic therapy due to COVID-19 was uncommon with just one patient holding treatment long term, compared to three patients who did not interrupt therapy and six patients who resumed within four weeks of their confirmed COVID-19 diagnosis.

Limitations of this study include the short-term follow-up and retrospective nature. Although close to 100% of biologic patients in Canada are enrolled in PSPs, we may have potentially missed a rare patient who is not enrolled in PSPs and their diagnosis of COVID-19 was not reported to their dermatologist. In summary, psoriasis patients on a biologic have an incidence of COVID-19 that is no worse than the general public, with TNF-α inhibitors demonstrating the lowest rate of infection. Symptom severity and mortality remain low supporting emerging evidence that interruption of biologic therapy should be reserved for clinically unwell patients.

IRB approval status

Ethical approval was granted by the Research Ethics Board at Sunnybrook Health Sciences Centre (287-2010) and Women's College Hospital (2010-0041-E).

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Conflict of interest

Dr. Vender has been a speaker, consultant, advisory board member and investigator for AbbVie, Actelion, Amgen, Astellas, Celgene, Dermira, Eli Lilly, Galderma, Janssen Ortho, Leo, Merck, Novartis, Pfizer, Regeneron and Takeda. Dr. Prajapati has been an investigator for AbbVie, Amgen, Arcutis, Asana, Boehringer Ingelheim, Bristol Meyers Squibb, Celgene, Concert, Dermira, Eli Lilly, Galderma, Incyte, Janssen, LEO Pharma, Novartis, Pfizer, Regeneron, Sanofi Genzyme, UCB and Valeant; and consultant, advisor and/or speaker for AbbVie, Actelion, Amgen, Aralez, Aspen, Bausch Health, Boehringer Ingelheim, Celgene, Cipher, Eli Lilly, Galderma, GlaxoSmithKline, Homeocan, Janssen, LEO Pharma, L'Oreal, Medexus, Novartis, Pediapharm, Pfizer, Sanofi Genzyme, Sun Pharma, Tribute, UCB and Valeant. Dr. Yeung has been a speaker, consultant and investigator for AbbVie, Allergan, Amgen, Arcutis, Astellas, Bausch Health, Boehringer Ingelheim, Bristol Meyers Squibb, Celgene, Centocor, Coherus, Dermavant, Dermira, Forward, Galderma, GlaxoSmithKline, Incyte, Janssen, Kyowa, Leo Pharma, Lilly, Medimmune, Merck, Novartis, Pfizer, Regeneron, Roche, Sandoz, Sanofi Genzyme, Sun Pharma, Takeda, UCB and Xenon. Dr. Georgakopoulos and Dr. Mufti have no conflicts of interest to disclose.

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Penile ischaemia secondary to COVID-19: why should the dermatologist be concerned?

Editor,

Coronavirus disease-19 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is associated with an increased risk of vasculitis and thrombotic vasculopathy. Dermatologically, this can translate to severe cutaneous manifestations, such as retiform purpura and acral ischaemia.[1]But whether these eruptions are specific to SARS-CoV-2 infection is yet to be determined.[2,3] An in-depth understanding and an elaborate characterization of these skin findings are therefore needed, as they can provide more insight into the physiopathology of this disease and define the role that dermatologists can play amid this pandemic.

To this extent, we herein report the case of a 58-year-old man with a history of type 2 diabetes, hypertension and terminal chronic kidney disease undergoing haemodialysis, presenting to the emergency department for acute penile pain. On physical examination, a retracted penis with phimosis and glans discoloration was noted (Fig. 1). A penile Doppler ultrasound confirmed the diagnosis of penile ischaemia. On further questioning, the patient reported the progressive appearance of ischaemic changes and necrotic lesions on the fingers (Fig. 2a), heels (Fig. 2b) and toes (Fig. 2c) compatible with acral perniosis; the advent of these skin findings preceded the chief complaint in a couple of days. A real-time reverse-transcription

