

SGLT2 inhibitors and their association with balanoposthitis and Fournier's gangrene

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A 57-year-old male patient of the author recently presented with balanoposthitis and penile cellulitis, at risk of progressing to Fournier's gangrene. The man, who was diagnosed with type 2 diabetes 5 years ago, had recently been prescribed a sodium–glucose cotransporter-2 (SGLT2) inhibitor as an addition to metformin 2 g daily and gliclazide 160 mg daily. This case serves as a reminder of this rare condition, its association with SGLT2 inhibitors and the importance of taking urgent action if it is suspected in a patient.

Sodium–glucose cotransporter-2 (SGLT2) inhibitors are associated with an increased risk of serious urinary tract infections, genital fungal infections and balanitis, which are all risk factors for Fournier's gangrene (Perkins et al, 2014; Singh et al, 2016). When balanitis (inflammation of the glans penis) and posthitis (inflammation of the prepuce) occur together, the condition is referred to as balanoposthitis (Figure 1). This condition can also arise from bacterial infections (including those involving anaerobic bacteria), viral infections, parasites and sexually transmitted infections. Non-infectious inflammatory causes are lichen planus, psoriasis and contact dermatitis.

Fournier's gangrene is a rare, aggressive and life-threatening necrotising fasciitis of the external genitalia, perineum and perianal region. It is much more common in men than in women and diabetes is a predisposing factor. The patient may present with symptoms of tenderness, redness or swelling of the genitals or perineum, and a fever. In its early stage, the severe pain being experienced may seem out of proportion with the findings on physical examination. The condition deteriorates rapidly.

In addition to a complete skin examination, a thorough patient history with respect to the patient's sexual background and any application of topically applied products is essential. This will indicate any predisposing causes, such as

balanitis, which are common in people with diabetes. In 2018, the US Food and Drug Administration (FDA) required that a warning about the risk of Fournier's gangrene be added to the prescribing information of all SGLT2 inhibitors (FDA, 2018). In a post-marketing review, 55 cases of Fournier's gangrene were identified by the FDA in 6 years of SGLT2 inhibitor use compared to 19 cases over a 35-year period for all other blood-glucose-lowering drugs (Bersoff-Matcha et al, 2019).



Figure 1. This is an image of genital cellulitis. It began as balanoposthitis after initiation of a sodium–glucose cotransporter-2 inhibitor. The patient was admitted to hospital urgently for intravenous antibiotic treatment. If left untreated, this condition could have led to Fournier's gangrene.

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Article points

1. Fournier's gangrene is a rare but aggressive and potentially fatal necrotising fasciitis of the external genitalia, perineum and perianal region.
2. Sodium–glucose cotransporter-2 (SGLT2) inhibitors are associated with a higher risk of developing genital infections that can lead to balanoposthitis (inflammation of the glans penis and prepuce), a condition that presents a risk for Fournier's gangrene.
3. People receiving SGLT2 inhibitor therapy should be advised on genital hygiene to reduce the risk of infections.
4. If Fournier's gangrene is suspected, the patient must be admitted to hospital immediately for prompt and aggressive treatment.

Key words

- Balanoposthitis
- Fournier's gangrene
- Sodium–glucose cotransporter-2 inhibitor

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Prevention

To reduce the risk of infections of the glans penis, provide hygiene advice on rinsing the genital area after every void and before going to bed. One study showed that receiving this advice significantly reduced the risk of genital fungal infections and, ultimately, balanoposthitis compared to those that did not (Williams and Ahmed, 2019).

When infections do occur, they must be treated and the glans penis kept dry. As a last resort, therapeutic circumcision can be considered for most forms of chronic balanitis.

Management

Balanoposthitis can progress rapidly to Fournier's gangrene. The best management outcome of Fournier's gangrene is to save the patient and minimise sexual and urinary dysfunction.

If Fournier's gangrene is suspected, aim for hospital admission immediately. Prompt treatment with broad-spectrum antibiotics and urgent, aggressive surgical debridement of all necrotic tissue is the definitive treatment. Patients undergoing surgery within 24 hours of admission have an improved survival rate compared to those in whom surgery is delayed (Freischlag et al, 1985; McHenry et al, 1995).

Although pus may be nearly absent, wounds can discharge copious amount of tissue

fluid. Antibiotic treatment without surgical intervention leads to progressive sepsis. SGLT2 inhibitor therapy must be discontinued, blood glucose levels monitored closely and alternative therapy for glycaemic control provided.

Reflections

SGLT2 inhibitors have demonstrated important glycaemic and cardiovascular benefits in people with type 2 diabetes. In the quest to manage diabetes and reduce cardiovascular risk effectively, prescribers should be mindful of the serious but rare condition of Fournier's gangrene. ■

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