

The Impact of COVID-19 on Diabetic Foot Care

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Among all late complications of diabetes, those involving the foot have traditionally required more face-to-face patient visits to clinics [1]. The COVID-19 (corona virus infectious disease) pandemic has resulted in the closing of most outpatient clinics for face-to-face consultations. Unfortunately, the enormous focus on COVID-19 has also led to disregard of many other conditions [2]. This has resulted in a paradigm shift in the delivery of care for those with diabetic foot ulcers (DFUs), which appears to be very important, granted that especially subjects with DFUs require urgent treatment in order to prevent amputations and decrease mortality [3].

In the face of the new challenges, a careful quick but also reliable triage utilizing telemedicine became immediately necessary. In Italy, Meloni et al. [4] conducted a study with 151 patients who had DFUs and were managed through telemedicine. They showed that the triage pathway seemed adequate in the management of DFUs, without compromising outcomes [4]. Similarly, in the USA and in the UK, a triage-based approach has been shown to be feasible and to achieve very satisfactory outcomes [5]. In hospitalized patients, treatment strategy should be determined by the urgency of surgical intervention and the complexity of DFUs [5].

Thus, hospitalization is beginning to be reserved for severely complicated ulcers, such as those with wet gangrene, abscess, necrotizing fasciitis, acute limb ischemia, fever, and sepsis [4]. It seems likely that many of these changes in the management of DFUs will become the new normality in our approach to this common clinical problem. Certainly, the success of the approach in each offers the opportunity to enrich future guidelines of DFU management [4].

Increased cytokine levels have been identified to play a key role in the poor development of COVID-19 symptoms [2]. Simultaneously, various cytokine alterations and increases are seen in patients with DFUs [2,4]. Moreover, it has been established that an imbalance in pro-inflammatory cytokines contributes to the pathogenesis of Charcot osteoarthropathy [1,5]. Secondly, neuropathy is a paramount contributor to the development of diabetic foot lesions [1,5]. At the same time, it may assuage the inflammatory response to infections. Conceivably, severe neuropathy might reduce pro-inflammatory cytokine production in the event of a superimposed COVID-19 infection, but this remains to be proven [6].

Kelahmetoglu et al. [7] have proposed an algorithm for DFU patients who require urgent surgical intervention in the COVID-19 era. If surgical intervention appears immediately necessary, then thorax computed tomography (CT) to exclude COVID-19 should precede surgical treatment [7]. By contrast, if surgical intervention is not urgent, then investigation of COVID-19 with nasopharyngeal swab should be done alongside treatment for DFU infection (e.g., intravenous antibiotics, glucose control etc.) [7]. Surgery should be preferably performed under local or regional block anesthesia to reduce length of hospitalization [7]. Post-operatively, online consultations may be used for wound and patient monitoring, in an effort to reduce the number of hospital visits [7].

Finally, Meloni et al. [8] have proposed another algorithm. In this algorithm, triage before the clinical visit is used to determine the course of action due to widespread COVID-19 infection. This allows for minimizing the risk of transmission to patients who need long-term care for DFU [8]. Patients with several comorbidities are triaged to follow-up by tele-medicine and community management, if appropriate and health care professionals are empowered to define DFU status [8].

Obviously, telemedicine appears indispensable in the re-organization of diabetic foot care [4,8,9]. Widespread utilization is based on its prior knowledge by experts [10]. In this re-organized setting, principles of established management (revascularization, off-loading, infection control) [11], as well as therapeutic adjuncts (hyperbaric oxygen, new skin substitutes etc) [12-14] will somehow have to be implemented. Importantly, diabetic foot emergencies (mainly critical limb ischemia and sepsis) should be no means overlooked [15,16]. Indeed, the aim of wound healing should not be compromised [17,18]. But, on a more optimistic note, lockdown and restriction of ambulation may also reduce foot injuries and new DFUs [19]. Hence, some optimism is justifiable that DFU outcomes in the long run will not be severely compromised.

In conclusion, re-organization of healthcare is needed to manage DFUs in the COVID-19 era. This re-organization has already shown very promising results. Patient triage and telemedicine are being prioritized [9]. Coupled with the possibly reduced number of new lesions [19], the new approach enables some optimism.

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