



Making a stand for diabetic foot reconstruction in the palliative patient in the European Union

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Diabetic foot (DF) is a frequent and potentially devastating complication of diabetes mellitus (DM). It is defined as the presence of a foot ulceration in a patient with diabetes, usually associated with peripheral arterial disease (PAD) and/or diabetic neuropathy (DN). Approximately 5% of patients with DM have a history of foot ulceration. 10–15% of them tend to have active chronic wounds. This can precede soft tissue infections or osteomyelitis, which may lead to an amputation of the infected foot (1). Every year, 139.97 and 94.82 cases per 100,000 patients with diabetes suffer minor and major amputations respectively (2).

Since March 2020, the coronavirus disease 2019 (COVID-19) pandemic has contributed to suboptimal care for non-communicable diseases (NCDs) including DF. Limited access to outpatient clinics and elective surgery has posed challenges to DF care. Before the pandemic, data from the Organisation for Economic Co-operation and Development (OECD) have indicated a sharp decrease in the rates of major amputations in this demographic (3). Although the impact of the pandemic on DF amputation rates is yet to be assessed, it is likely that the disruption of NCDs care has already had a negative impact on DF and related amputations.

Both the progression of underlying conditions such as PAD and DN and the development of ulcers could be diagnosed late, given that the monitoring of DF as a discrete disease entity and DM as a whole were challenging. Studies comparing admissions and outcomes of vascular surgery during and before the pandemic have underscored an increase in amputations among patients presenting in an

unfavorable general health condition (4,5). In this context, up to 12.5% of surgical operations had a palliative rather than a curative character (5). Therefore, the need and demand for DF reconstruction in palliative context might be increased in the proximal future.

Amputations have a devastating impact on the quality of life of the patients and their caregivers and dependents. The palliative approach to multimorbid patients with DF ulcers and infections is debatable. In principle, the plastic reconstruction of DF entails manipulation of the soft tissue in order to enhance wound healing and prevent or decrease the extent of amputation. The most common techniques include autologous skin grafting, with full or partial thickness grafts placed on a recipient bed that is sufficiently vascularized and free of bacterial contamination (6). Surgical debridement of the wound may precede the plastic reconstruction to enhance the viability of the skin graft. These procedures have a considerable failure risk, since approximately 15–22% of the patients do not achieve wound healing, 12% require a surgical revision, 4.4% present with a recurrent ulcer and 4.2% develop a local infection (7,8). Nevertheless, they have a reported potential to increase the limb salvage and the 5-year survival rate in up to 85% of patients undergone these procedures (9). Evidence-based selection criteria combined with patients' willingness to go through the necessary operations can help maximize the success rates. However, providing equitable access to DF reconstruction in palliative settings goes beyond individual decisions or practices followed within one or more centers. Access to DF reconstruction is a matter of healthcare policy

and planning at national and international level.

Globally, the recovery from the pandemic encompasses measures for strengthening NCDs prevention and management. In this frame, the European Union (EU) has launched the EU4Health programme investing approximately €5.3 billion in the health area during the 2021–2027 period. The programme serves a two-fold objective, being articulated as a response to the sequelae of the COVID-19 pandemic and as a crisis preparedness strategy. Regarding the former, the priority areas of EU4Health include cancer, equitable access to medicines and medical devices, healthcare systems' digitalisation, antimicrobial stewardship, primary healthcare, cardiovascular and mental health (10,11). Reconstructive surgery for palliative patients needs to be reconsidered in this context.

To date, the EU4Health programme seems to put an emphasis on prevention and early diagnosis. Strengthening healthcare systems and facilities, greatly through robust primary and digital healthcare options, is also a priority. Although reconstructive surgery in palliative settings does not seem to align with these priorities, “leaving no one behind”, is an additional principle that the EU has embraced within the same timeframe (12). Limb salvage among the numerous patients requiring DF care and potentially amputation, can also be considered as a form of tertiary prevention compensating for the debilitating effects of DF. The digital DF care capacity that was developed during the pandemic can also be enhanced by contributing to the selection of patients eligible for plastic reconstruction and their referral to specialized centers (13). Finally, investing in DF reconstruction, benefits informal caregivers who experience a high rate of physical and mental ailments in the sphere of NCDs, including but not limited to hypertension, musculoskeletal pain and psychological stress. Therefore, putting resources into a seemingly specialized service can save resources consumed by widely encountered pathologies (14).

It is also worth to mention that developing capacity for DF reconstruction in palliative settings is an asset for future healthcare crises. In case novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) variants or the ongoing Mpox outbreak put a strain on DF care, a DF reconstruction infrastructure will help mitigate the burden of amputations early during and after the crisis (15). At a broader level, the same can benefit displaced populations seeking refuge in the EU due to ongoing armed conflicts, such as the Russia-Ukraine war. Evidence has already illustrated the detrimental impact of war on DF care and

the subsequent increase in the demand for amputations (16).

Overall, paying more attention to DF Reconstruction in the Palliative Patient is in line with the fundamental principles of the EU4Health programme and has a major potential to improve both the quality of life of individuals with DF in Europe and the preparedness of the Union for the implications of future healthcare crises on DF care.

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