Malta Journal of Health Sciences
https://www.um.edu.mt/library/oar/handle/123456789/105235
DOI: 10.14614/DIABETICFOOT10/22

Guest Editorial

The Diabetic Foot: Saving Limbs, Saving Lives

Professor Cynthia Formosa (Cynthia.formosa@um.edu.mt)
Associate Professor, Podiatry Department, Faculty of Health Sciences, University of Malta, Malta.

Every 30 seconds a limb is lost somewhere in the world due to diabetes! (International Diabetes Federation and International Working Group of the Diabetic Foot, 2005)

Diabetic foot ulceration and amputations are a worldwide concern, including Malta where some 500 partial or full amputations of the foot are carried out annually. In the EU, 450,000 amputations cost €2.5 billion yearly (Raghav et al., 2018), resulting in major economic consequences both for patients and healthcare systems alike. If managed timely, ulceration may be prevented in 80% of the cases.

Diabetic foot infections are potentially disastrous complications that progress rapidly following minor traumas. For a long time, scientists have been fighting against infection and it is evident that wound infection is a challenging situation for all healthcare professionals. It has been suggested that infections present in diabetic foot ulcerations are the largest cause of lower extremity amputations, impacting the patient's quality of life significantly (Camilleri Attard, Gatt, Formosa. 2021). Our research leads us to believe that an increase in pressure on the sole of the foot, followed by a rise in temperature before ulceration, can also be key indicators that could detect those areas which are about to develop a wound, known as a diabetic ulcer (Perren et al 2021). Thus identifying and correcting increased plantar pressures and altered biomechanical factors are key to prevention amongst other risk factors.

Correspondence to Cynthia Formosa
(cynthia.formosa@um.edu.mt)
Received: 09.10.2022
Accepted: 22.10.2022
Published: 31.12.2022

Diabetic foot amputation and hospitalization are still on the increase. This may suggest that current management of the diabetic foot is not effective, clearly demonstrating the need for the implementation of new and effective strategies aimed primarily at prevention of ulceration. Where the high-risk foot is concerned, "*time is tissue*" (Setacci, 2012). One cannot simply afford to wait for complications such as infection to develop as this might mean limb loss and ultimately even death.

The COVID-19 Pandemic has proven to be a very challenging time for both patients and healthcare professionals. The total closure of Podiatric clinics in Malta for at least a period of 4 months, the closure of the Biomechanics clinic in Birkirkara Civic Centre and the cancellation of all elective surgeries at Mater Dei Hospital have led to a very high impact on the diabetic foot. Furthermore, when the Podiatric services reopened for the public, the elderly and the vulnerable were still afraid to attend to their much-needed clinical appointments, hence cancelling or delaying their appointments by months. This resulted in severe complications in the diabetic foot including severe cellulitis, and callosities leading to pre-ulcerative lesions and extravasations, ulcerations, osteomyelitis, gangrene and an increase in amputations. A recent retrospective audit reported that 61.4% of amputees in Malta were not seen by a podiatrist (Schembri, et al., 2022).

This emergency situation has shown us the importance of introducing the concept of telehealth and telemedicine in our services to ensure that patients are fully supported when faced with situations when the patients cannot attend our clinics. 84.2% of the amputees reported in the above mentioned local audit did not receive any diabetes education preceding their amputation; perhaps the availability of such telehealth services could have precluded this (Schembri, et al 2022).

Depression is also a growing concern in the 21st century and according to the World Health Organization (WHO). Unipolar depressive disorders were ranked as the third leading cause of the global burden of disease in 2004 and will move into the first place by 2030 (WHO 2021). Depression and diabetes have surely ranked amongst the defining epidemics of the 21st century, given the current explosion in the prevalence rates of both these conditions in the world. There is a bidirectional relationship between type 2 diabetes and depression, the one increasing the risk for the other (Alzoubi, 2018). In diabetes, poor glycaemic control and presence of complications increase the risk of depression. This should be viewed in the context of the widely increasing awareness on mental health. Indeed, the WHO has reported that depression is one of the leading causes of disability and premature death (WHO, 2021).

The high prevalence rate of both diabetes and depression is well established, therefore it is not surprising that these two conditions could interact when both are present, leading to additional morbidity and a higher mortality risk in patients living with diabetes. Depressive symptoms need to be given their rightful importance especially amongst the high-risk population with many co-morbidities such as diabetes (Alghafri, et al 2020). Routine screening for depression and anxiety in patients living with diabetes, is to date not standard practice amongst healthcare professionals at both primary and secondary care in Malta, even though the American Diabetes Association has recommended that patients with diabetes, especially patients with poorly controlled blood glucose, should be screened for depression. Thus, a call for change in screening practices for patients with diabetes is warranted. Mental health must not be relegated to the bottom of National Health priorities but rather be given utmost consideration. In addition to mental health screening amongst people living with diabetes, diabetic foot screening should also be extended on a National level to **all** persons living with diabetes to ensure the timely identification of those at risk and reduce the morbidity and mortality rate, as advised by the International Diabetes Federation in addition to the three national screening programmes that have been introduced in Malta since 2009 and are based on the guidelines supported by the European Commission. Just like these programmes are gradually scaled up and there is continuous investment in new technologies and human resources, so should be the case for Diabetes and the Diabetic foot – a silent epidemic with a high prevalence rate in Malta, placing Malta in the first quartile within the European region (Cuschieri, 2020).

The primary mission of the podiatrist is to save limbs. We know that by saving limbs we are saving lives since the prognosis of diabetic foot ulceration (DFU) is poor, with 3-year mortality rate after primary amputations though to be as high as 20–50% and 5-year mortality rates after major amputation are second to lung cancer (Thorud, 2016). It is time to reinforce the multidisciplinary approach to the diabetic foot. Working in a multidisciplinary team is of utmost importance. Healthcare professionals from different disciplines and with unique expertise in the management of the diabetic foot should work together with one goal – improving the quality of lives of our patients by saving limbs. There is the need for a joint effort in patient care. The multidisciplinary team should comprise podiatrists, diabetologists, diabetes nurses, vascular surgeons, orthopaedic surgeons, orthotists, interventional radiologists and radiographers, psychologists, diabetes educators and the rehabilitation team. Together we can make a difference in our patients' lives!

With the projected ageing demographics, there will be a further increase in prevalence of obesity, cardiovascular disease and diabetes mellitus (Wang, 2011). Hence, it is critical to develop new models of healthcare to provide fair and equitable access to care and improve culturally appropriate outreach strategies. Improved care could mean better quality of life, improved health outcomes, lesser health-related complications and less expenditure from healthcare budgets. It would be very unrealistic to expect cultural change strategies to be effective in a very short period of time. Successful strategies require realistic time frames to implement the complex and multi-level changes required inside any healthcare system. It is certainly worth the journey even if the place of arrival might be surprising (Formosa, 2013).

Reference:

Alghafri RM, Gatt A, Formosa C. Depression Symptoms in Patients with Diabetic Peripheral Neuropathy. *Rev Diabet Stud.* 2020;16(1):35-40. doi: 10.1900/RDS.2020.16.35. Epub 2020 Dec 28. PMID: 33905471; PMCID: PMC9380089.

Alzoubi A, Abunaser R, Khassawneh A, Alfaqih M, Khasawneh A, Abdo N. The Bidirectional Relationship between Diabetes and Depression: A Literature Review. *Korean J Fam Med*. 2018; 39(3):137-146. doi: 10.4082/

kjfm.2018.39.3.137. Epub 2018 May 18. PMID: 29788701; PMCID: PMC5975983.

Camilleri Attard F, Gatt A, Formosa C. Superficial Tissue Swabs Versus Deep Tissue Samples in the Detection of Microbiological Profile of Infected Diabetic Foot Ulcerations. *Int J Low Extrem Wounds.* 2021 25:15347346211053481. doi: 10.1177/15347346211053481. Epub ahead of print. PMID: 34693770.

Cuschieri S. The Diabetes epidemic in Malta. South Eastern European Journal of Public Health 2020, 13(1). doi 10.4119/SEEJPH-3322.

Formosa C. (2013). Managed Care: Methods/Techniques, Types and Impact Analysis – Cultures for Change. Advances in Medicine and Biology 2013. Volume 60. Nova Publishers.

International Diabetes Federation and International Working Group of the Diabetic Foot. In: *Time to act*. Bakker K, Foster AVM, van Houtoum WH, Riley P, editors; The Netherlands: 2005.

Perren S., Formosa, C. Camilleri, L. Chockalingam, N. Gatt, A. The Thermo-Pressure Concept: A New Model in Diabetic Foot Risk Stratification. *Appl. Sci.* 2021, 11, 7473. https://doi.org/10.3390/app1116 74

Raghav A, Khan ZA, Labala RK, Ahmad J, Noor S, Mishra BK. Financial burden of diabetic foot ulcers to world: a progressive topic to discuss always. *Ther Adv Endocrinol Metab.* 2018 Jan;9(1):29-31. doi: 10.1177/2042018817744513. Epub 2017 Dec 12. PMID: 29344337; PMCID: PMC5761954.

Schembri B., Falzon M. L., Casingena L., DeGiorgio, G., Grech Sciberras, M., Manfre, M., & Cassar, K. (2022). Adequacy of clinical surveillance of diabetic patients requiring minor foot amputations. *Malta Medical Journal*, *34*(1), 76-86.

Setacci C. Time is tissue. *J Endovasc Ther.* 2012 Aug;19(4):515-6. doi: 10.1583/12-3933E.1. PMID: 22891833.

Thorud JC, Plemmons B, Buckley CJ, Shibuya N, Jupiter DC. Mortality After Nontraumatic Major Amputation Among Patients With Diabetes and Peripheral Vascular Disease: A Systematic Review. *J Foot Ankle Surg.* 2016;55(3):591-9. doi: 10.1053/j.jfas.2016.01.012. Epub 2016 Feb 19.

Wang YC, McPherson K, Marsh T, Gortmaker SL, Brown M. Health and economic burden of the projected obesity trends in the USA and the UK. *Lancet.* 2011 27;378(9793):815-25. doi: 10.1016/S0140-6736(11)60814-3. Erratum in: Lancet. 2011 Nov 19;378(9805):1778. PMID: 21872750.

World Health Organisation (2021). Depression. (Online). Available from: https://www.who.int/news-room/fact-sheets/detail/depression