

Diabetes Related Major Lower Extremity Amputation – An Audit of Patient Management Against NICE Guidelines From a Tertiary Care Specialist Multidisciplinary Foot Clinic

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Background: Approximately 6,000 patients undergo a diabetes related amputation each year in England¹. Amputation is associated with significant morbidity and mortality with previous work suggesting a 2 year survival rate of only 50%². There is a significant cost burden associated with the management of people with diabetes related foot disease, estimated in 2012 to be £639 million per annum. This amount is expected to increase because the prevalence of diabetes in the UK is predicted to increase to 4.6 million people by 2030³.

NICE guidelines CG10 and CG119 (updated to NG19 in August 2015) set standards of care for people with diabetes related foot disease before and during acute hospital admission. We aimed to assess compliance against these guidelines for patients undergoing diabetes related lower extremity amputation (LEA) at our large tertiary centre in 2013-2014.

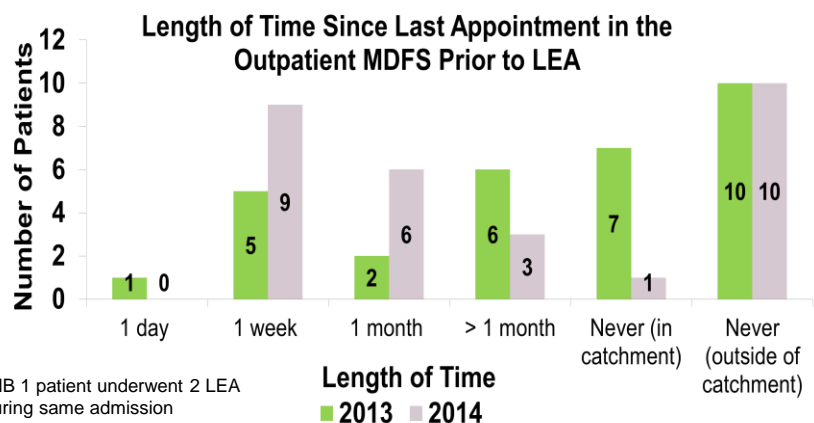
Method: A retrospective analysis of patients undergoing LEA between 01/01/13 and 31/12/14 using the NICE audit tool to assess pathways, assessment, documentation and cardiovascular risk management. Patients were identified for inclusion from 3 sources; the Hospital Episode Statistics database, podiatry records and vascular surgery lists. Data was obtained from clinical notes, blood results reporting systems and retinopathy screening databases.

Results: In total, 74 LEAs were performed during the 2 year study period. Of these, 13 patients were excluded from the analysis, due to miscoding (9 [12%]) or missing notes (4 [5.4%]).

In 2014 patients undergoing amputation were on average, younger, had a longer duration and worse control of their diabetes when compared to those undergoing LEA in 2013. Additionally, in 2014 there was a higher proportion of patients with type 1 diabetes (see table). In 2014; 11 patients had previous major and 15 minor amputations vs 8 major and 9 minor in 2013. The documented incidence of microvascular disease was 67% and macrovascular disease was 38% over the whole study period.

As Norwich is an arterial centre 34% (21/61) of the LEA occurred on patients from outside of the MDFS catchment area. 13% of patients (8/61) from within the catchment were not seen as an outpatient prior to LEA (see graph). On admission, the foot care multidisciplinary team saw 100% of patients within 24 hours and if infection was present, 97% were treated according to local soft tissue infection guidelines⁴. All patients were documented as having appropriate outpatient follow-up organised at discharge.

Patient Demographics	2013	2014
Gender (M/F) [n]	25 / 7	19 / 10
Age (years) [mean ± SD]	71.3 (11.4)	60.8 (14.4)
Duration of diabetes (years) [mean ± SD]	14 years (11.0) [n=18]	21 years (11.1) [n=14]
Type 1 [n]	3 (9.4%)	11 (37.9%)
Type 2 - Diet	2 (6.3%)	0 (0%)
Type 2 - OHA	15 (46.9%)	6 (20.7%)
Type 2 - Insulin	12 (37.3%)	12 (41.4%)
HbA1c (mmol/mol ± SD)	54.2 (17.3) [n=29]	61.5 (16.7) [n=27]



Conclusion: Referral and treatment pathways in hospital followed national guidance. A large number of patients 34% undergoing LEA come from other hospitals. This presents many challenges to ensure co-ordinated care pre, during and post admission. Through the implementation of a CCG based training package referral rates to the MDFS prior to LEA improved from 2013 to 2014. Incorrect clinical coding of patients artificially inflated local LEA rates by 12%. In this cohort, patients had significant comorbidities, with trends towards younger, T1DM patients with poorer control undergoing LEA.

1. National Diabetes Inpatient Audit: 2012 results. www.hscic.gov.uk/catalogue/PUB10506. Last accessed 19th February 2016. 2. Kerr M, Foot Care for People with Diabetes: The Economic Case for Change. NHS Diabetes 2012 3. Yorkshire and Humber Public Health Observatory 2010. APHO Diabetes Prevalence Model, Key Findings for England. http://www.yhpho.org.uk/resource/item.aspx?RID=81124. Last Accessed 19th February 2016. 4. Gooday C et al Diabetic Med 2013;30(5):581-89