



Glycaemic Variability As Measured By The Magnitude Of Change Of Visit To Visit HbA1c Concentrations Over The 5 Years Prior To Presentation, Is Significantly Associated With Rate Of Wound Healing In The Diabetic Foot

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Background

- Recent work has suggested that glycaemic variability – the visit-to-visit variation in HbA1c – plays a role in the development of micro and macrovascular disease in patients with diabetes¹⁻⁴
- However, whether HbA1c variability is a factor determining wound healing in diabetes related foot ulcers remains unknown

1. Virk SA, et al *J.Clin.Endocrinol.Metab.* 2016;101:3257-3263

2. Luk AO et al *Diabetes Metab.Res.Rev.* 2013;29:384-390

3. Gorst C et al *Diabetes Care* 2015;38:2354-2369

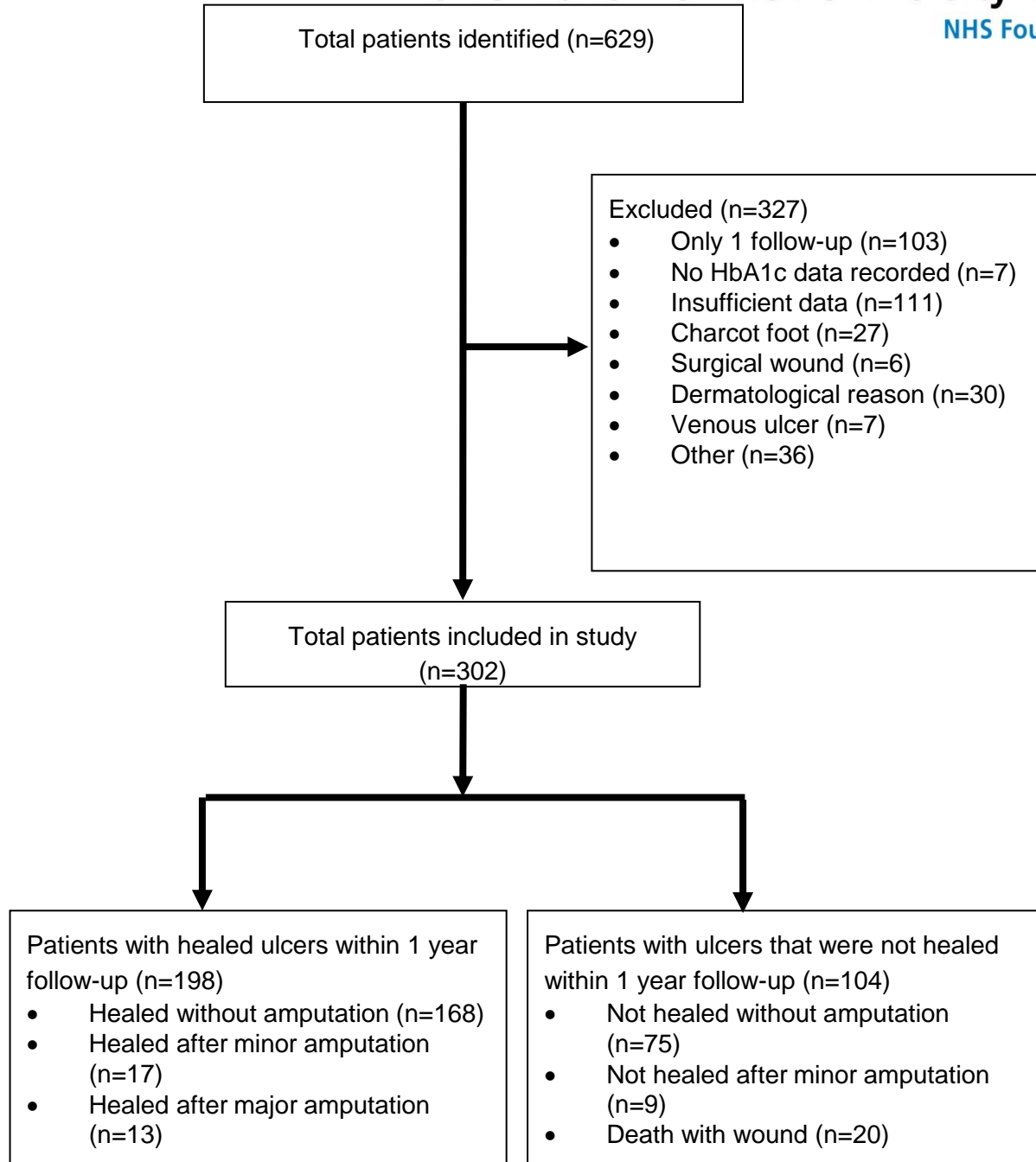
4. Dorajoo SR et al *Diab.Res.Clin.Pract.* 2017: In press

Aim

- To determine whether HbA1c variability is associated with wound healing time in patients presenting to our multidisciplinary specialist foot clinic

Methods

- A retrospective analysis
- Patients presenting between July 2013 and March 2015
- At least 3 HbA1c measurements 5 years prior to first presentation with a foot ulcer
- Must have at least 2 follow-up reviews within 1 year after first presentation were included
- HbA1c variation was measured by the magnitude of Standard Deviation (SD)



Results – Healing Times

- The overall geometric mean days to heal was 91.1 days (SD 80.8 to 102.7)
- In the low HbA1c variability group the geometric mean days to heal was 72.1 days (58.3 to 89.1)
- In the high Hb1Ac variability group the geometric mean days to heal was 106.5 days (89.4 to 126.9), ($p < 0.05$)

Results - Other Factors

- Ulcer healing was significantly associated with duration of DM ($p=0.0278$)
 - The odds of healing for DM duration of 8-15 years was 2.56 (95 CI 1.25 to 5.139) cf DM <8 years
- Ulcer grade [Texas] ($p<0.0001$)
- Number of pulses ($p<0.0001$)
- ABPI ($p=0.0208$)
- Past foot problems ($p=0.0453$)
- T2DM patients on tablet or insulin OR for healing 2.6 (95% CI: 1.37 to 4.94) cf patients with T1DM or diet controlled T2DM

Conclusions

- Our novel data has shown that wound healing of a foot ulcer is significantly associated with HbA1c variability, with lower variability associated with shorter time to heal
- These data confirm the importance of maintaining steady glycaemic control, but also emphasise that large variations in HbA1c over time lead to longer healing times



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