Hospital costs and health-related quality of life associated with adverse events in people with diabetes

Mi Jun Keng (mijun.keng@ndph.ox.ac.uk), Jane Armitage, Louise Bowman, Jose Leal, Borislava Mihaylova
Nuffield Department of Population Health, University of Oxford

Introduction

- Hospital costs and health-related quality of life (QoL) associated with adverse events needed to evaluate cost-effectiveness of treatments.
- UK estimates for people with diabetes based on 1996-2007 data[1-3] so more recent data reflecting contemporary clinical practice and treatments needed.
- We estimate annual hospital costs and QoL associated with a range of adverse events using data from ASCEND[1], which recruited and followed 15480 participants with diabetes but without cardiovascular disease over 7 years of follow-up (study period 2005-2017).

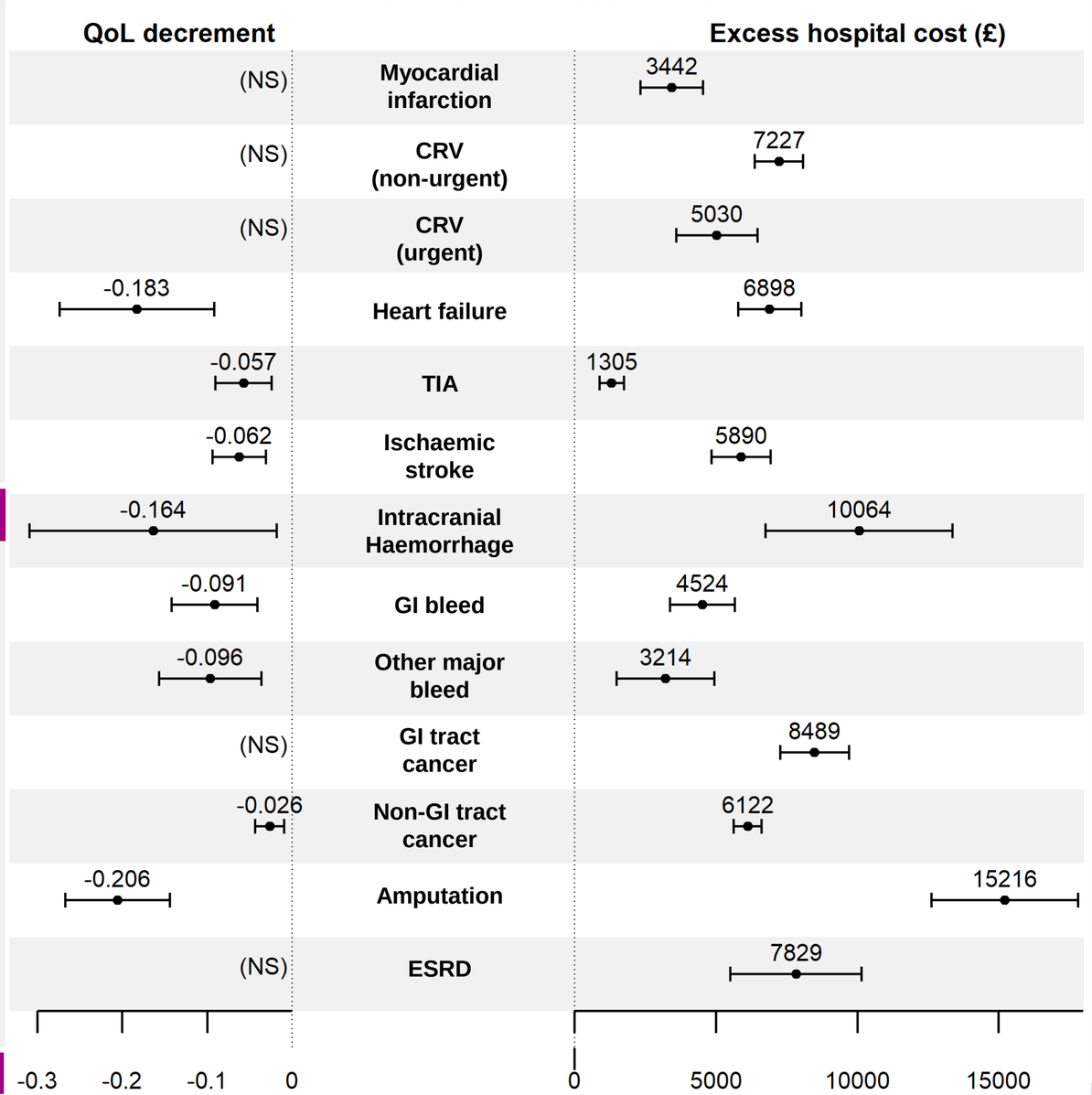
Methods

- Annual hospital costs (19/20 GBP£) derived from routine electronic hospital data for 15436 participants.
- QoL (UK tariff) derived from 11638 participants' EQ-5D-5L questionnaire response at average 6.7 years into the study.
- Costs and QoL associated with each adverse event estimated using generalised linear models, adjusting for baseline socio-demographic and clinical risk factors.
- We considered effects separately in year of event and in subsequent years if there was evidence for temporal change.

Acknowledgements

This work was supported by a grant from the British Heart Foundation Centre of Research Excellence.

Figure: QoL decrement and excess annual hospital cost* (£) in the year of adverse event occurrence



CRV, coronary revascularisation; TIA, transient ischaemic attack; GI, gastrointestinal; ESRD, end-stage renal disease. (NS), association not significant.
* Fatal vascular and non-vascular events associated with additional cost of £1854 and £4655, respectively.

Results

Baseline characteristics	Mean (SD) / %
Age, years	63 (9)
Type 2 diabetes	94%
Diabetes duration, years	10 (9)
BMI, kg/m^2	31 (7)
HbA1c, mmol/mol	55 (13)
Non-HDL cholesterol, mmol/L	2.9 (0.8)
SBP, mmHg	136 (15)
eGFR <90ml/min/1.73m^2	54%
Presence of albuminuria	13%

- On average, ASCEND participants at baseline estimated to incur £1104 hospital cost per year and have EQ-5D utility of 0.785.
- Amputation associated with largest cost and QoL decrement in the year of occurrence.
- In subsequent years,
  - Smaller but lasting increases in annual cost for all events but urgent CRV and intracranial haemorrhage
  - Smaller QoL decrement for heart failure; similar for other events.
- We did not detect QoL decrements associated with MI, CRV, GI tract cancer or ESRD. This may be due to the low number of events particularly for ESRD.

References

1. Beaudet et al. (2014). doi:10.1016/j.jval.2014.03.003.
2. Alva et al. (2014). doi: 10.1002/hec.2930.
3. Alva et al. (2015). doi: 10.1111/dme.12647
4. The ASCEND Study Collaborative Group. (2018) doi:10.1056/NEJMoa1804988.