Author's response to reviews

Title: Vascular complications in young adults with type 1 diabetes: prevalence and predictive factors

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Author's response to reviews: see over
Dear Editor,

In response to the Editor’s Comments:

I have read the manuscript and it is potentially interesting. Some of the limitations detailed by the authors limits the external validity of the findings. In addition, couple of issues related to the regression need to be addressed:

1. Why A1c was used as a categorical variable rather than a scale variable?

*We used it as both a scale and categorical variable. Throughout, a key finding but also limiting factor, has been the paucity of data and the number of patients with absent contacts and hence ‘missing data’. This has limited the power of analyses, as demonstrated by, for example, loss of significance when HbA1c was used as a scale variable compared to when used in categorical form.*

2. HbA1c is obviously and important predictor of complications but the recent A1c is not as important as an “older” A1c measurement. Baseline A1c rather than current A1c needs to be in the model (change of A1c over time is also important).

*We tried using values from each year separately, and tried looking at change over time. As noted above, this effected reduction in sample size and increased Type1 error.*

*We entirely agree that if we had complete data for the recommended numbers of occasions of service for these patients, we could do a great deal more in identifying ‘baseline’ and ‘change’ values. However, when (as is the case for some participants) the first or sole measurement occurs in the second year of the series, the ability to conduct analyses with ‘baseline’ or ‘change over time’ values is seriously hampered.*

*A key consideration for this study was not just to demonstrate diabetes outcomes in this cohort, but also to demonstrate them in relation to the services accessed. And whilst uptake cannot be wholly addressed by changed access, patients cannot use services they do not have access to. This paper tries to indicate outcomes in relation to service provision – so we have tried to make maximal use of what data are available, rather than just say we don’t have the data, for example, to demonstrate the impact of scale HbA1c values rather than categories.*

3. Obesity is a major risk factor for diabetes-related outcomes, the authors did not include BMI due to the lack og linear relationship. But the authors could include BMI as a categorical variable (tertiles, quartiles etc)

*This does not address the issue of a non-linear relationship as ‘risk’ increases in both directions - with low as well as elevated values. We did try statistical manipulation - but it added nothing. Once again, missing data compounded the problem.*

4. The use of CSII predicts complications in this analysis, this could be confounded by the indication for CSII (recurrent hypoglycaemia, uncontrolled hyperglycaemia, recurrent DKAs
etc). Hence the indication for CSII need to be adjusted for in the model.

Anecdotally, most of these participants who used CSII were started with this technology by paediatric services. The availability of subsidised equipment for children allied with a completely different and much better support service for children means that the issues for patients using pumps as adults are radically different to the issues encountered as children - and choices made by paediatric services for their patients bear little relation to the situation encountered when these patients move on into adult services.

Further, these patients are served by several different paediatric services and multiple consultants. There is little coordination or communication, and no agreed criteria for pump starts were in operation for these patients - this is only now being addressed.

Hence, there are no agreed indications for CSII use for these patients and if there were, it is not clear how relevant they would be at the time point of these data.

Kind regards,

Lin Perry

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