

Short-term and long-term impact of continuous subcutaneous insulin infusion therapy on HbA1c changes in Type 1 diabetes

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Introduction

- Continuous subcutaneous insulin infusion therapy (CSII) has been proven to be superior over intensified insulin therapy using multiple daily injections ¹
- Studies are showing conflicting data on long-term follow-up of CSII therapy, from sustained benefit over 6 years ² to loss of it after 3 years ³
- Our aim was to assess both the short-term and long-term impact of CSII on HbA1c changes in Type 1 diabetes

Methods

- Retrospective, observational study of 517 adults with Type 1 diabetes starting on CSII between 2002 and 2017
- Exclusion criteria were unavailability of baseline HbA1c and at least one follow-up HbA1c level - 474 eligible patients in total
- Comparisons were made between subgroups classified by baseline HbA1c level:
 - ≥ 69 mmol/mol
 - 58.5-69 mmol/mol
 - < 58.5 mmol/mol

Results

CSII provides sustainable improvement of HbA1c levels

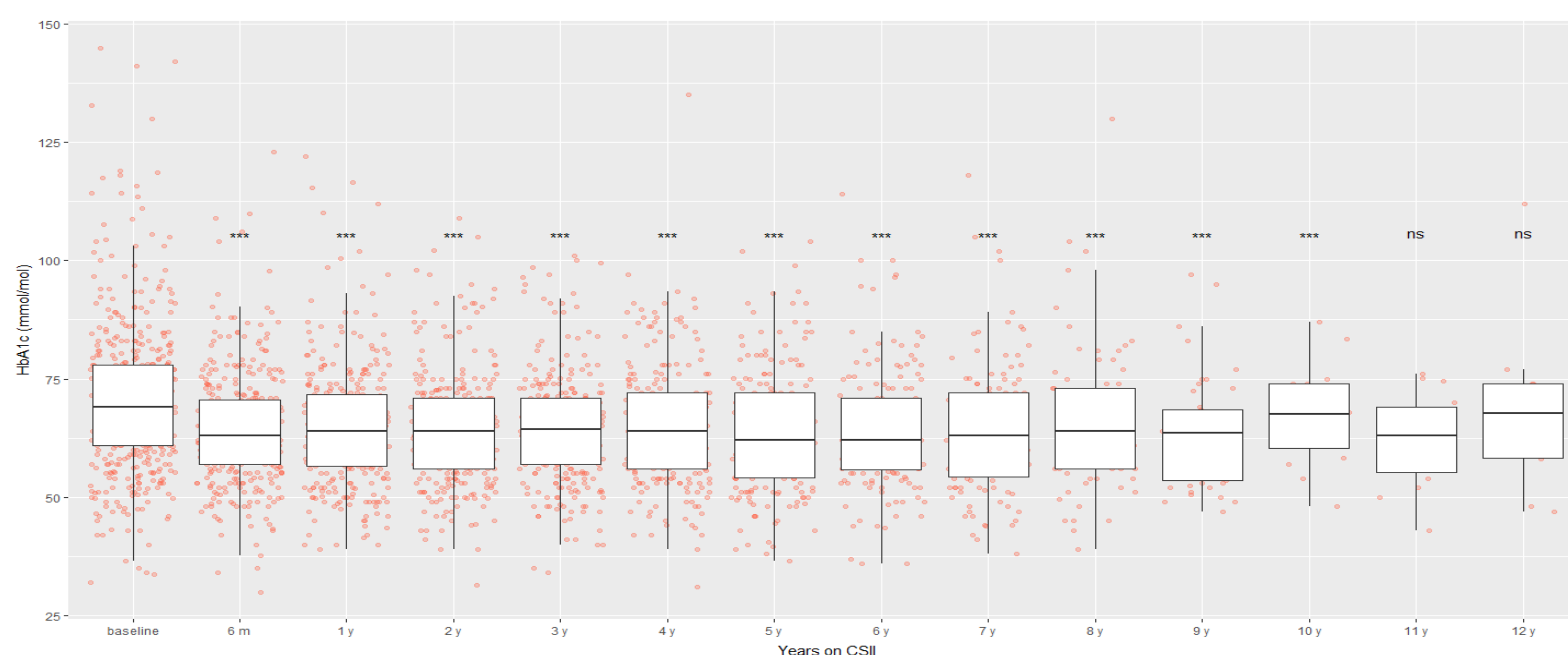


Figure 1: Effect of CSII initiation on median overall HbA1c levels. Red points show raw data for each individual (Wilcoxon signed-rank test, *** $p < 0.001$, ns - not significant, $p > 0.05$)

CSII initiation improved poorly controlled DM

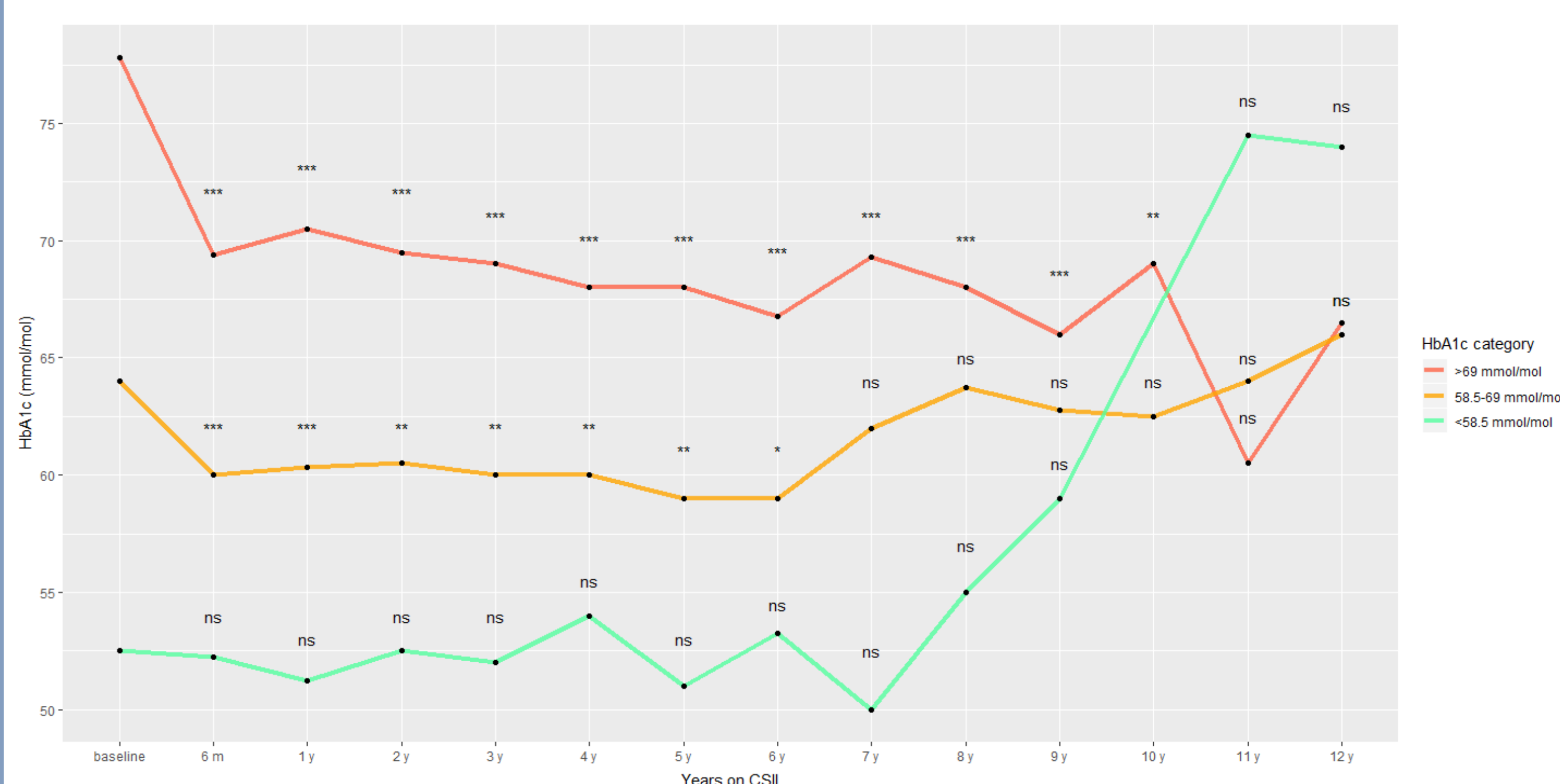


Figure 2: Effect of CSII initiation on median HbA1c levels by HbA1c category (Wilcoxon signed-rank test, *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, ns - not significant, $p > 0.05$)

Pump change did not alter HbA1c levels further

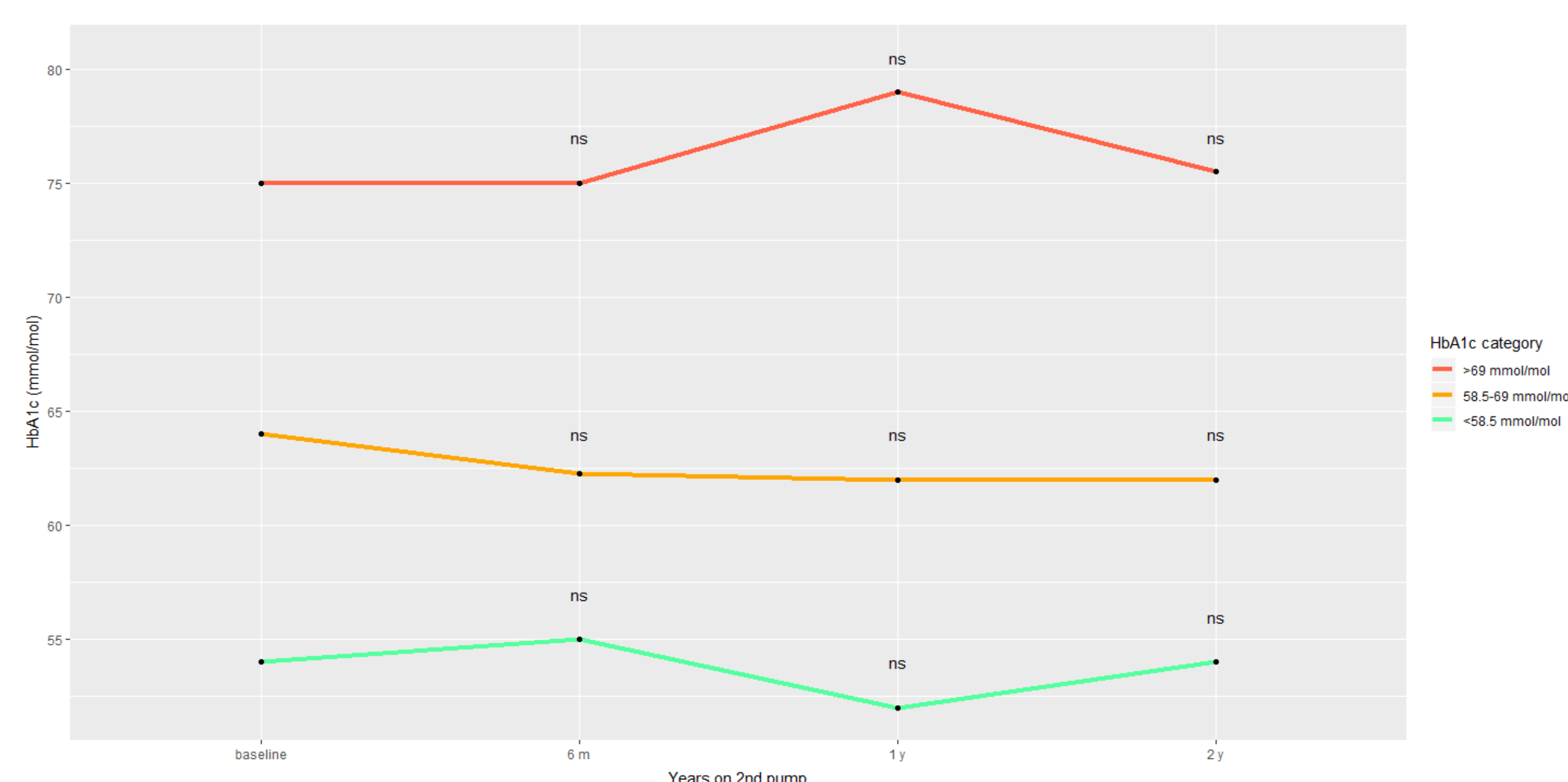


Figure 3: Effect of pump change on median HbA1c levels by HbA1c category (Wilcoxon signed-rank test, ns - not significant ($p > 0.05$))

Conclusions

- CSII initiation significantly improved HbA1c levels after 6 months with sustainable effects lasting up to 10 years
- Patients more likely to benefit the most from CSII are those with prior poor glycaemic control
- Switching pump models at end of initial warranty did not significantly change glycaemic control irrespective of HbA1c category on switch

References:

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