Pump-Downloaded Insulin Usage For The First 12 Months In A Cohort of Children Newly-Diagnosed With Type 1 Diabetes (T1D)

Ridyard, Colin; Blair, Jo ; Hughes, Dyfrig

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PUMP-DOWNLOADED INSULIN USAGE FOR THE FIRST 12 MONTHS IN A COHORT OF CHILDREN NEWLY-DIAGNOSED WITH TYPE 1 DIABETES (T1D).

Ridyard CH[1], Blair J[2], Hughes DA[1], on behalf of the SCIPI Trial Investigators .[3]
[1]Bangor University, Bangor, United Kingdom, [2]Alder Hey Children's NHS Foundation Trust, Liverpool, United Kingdom, [3]Clinical Trials Research Centre, Liverpool, United Kingdom

OBJECTIVES: Continuous subcutaneous insulin infusions (CSII) are an alternative to multiple daily injections (MDI) for glycaemic control and reducing risks of developing long term microvascular and macrovascular complications in type 1 diabetes (T1D). As part of a randomised clinical trial (SCIPI, ISRCTN29255275), we compared insulin usage downloaded from CSII pumps with General Practitioner (GP)-recorded insulin prescriptions given to a newly-diagnosed paediatric cohort. **METHODS:** Patients between 7 months and 15 years of age, newly diagnosed with T1D participated in this pragmatic, open, multicentre, parallel group, randomised, controlled trial. Total daily insulin usage (basal and bolus) recorded in the pumps from day 0 to day 365 was downloaded for patients initially randomised to CSII and analysed and compared to insulin usage recorded from their GP prescriptions. **RESULTS:** Pump data was available for 94/144 patients randomised to CSII (<5y: 21; 5 to <12y: 54; 12 to 15y: 19). Among these patients, data were available for a median of 198 days (range 28 to 343; mean 194). Mean prescribed insulin usage for these 94 patients was 70 U/day (95%CI: 58, 81) and compared well with the prescribed mean of 72 U/day (95%CI: 63, 82) for the whole 144-patient cohort. Mean recorded daily usage (min, max; 95%CI) for the three age groups was: (i) <5y: 12 U/day (2, 21; 9 to 14); (ii) 5 to <12y: 20 U/day (4, 36; 17 to 23); (iii) 12 to 15y: 37 U/day (9, 65; 32 to 42). **CONCLUSIONS:** Pump downloads provide an accurate record of insulin usage in paediatric populations with T1D. However, this study shows a large disparity between the quantities of insulin prescribed and insulin used. Reasons for this disparity might include: over-prescription, prescriptions not being collected and physical losses (e.g. spillage and priming of pumps). This may have implications when estimating drug utilitsation costs.