

WHICH GROUP OF CHILDREN ACHIEVED THE BEST RESULTS DURING INSULIN PUMP THERAPY?

LONG-TERM OUTCOME IN CHILDREN WITH TYPE 1 DIABETES

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OBJECTIVES

CSII has some potential advantages and disadvantages for children. It is easier and more convenient to take multiple daily doses of insulin with CSII than with a syringe or insulin pen.

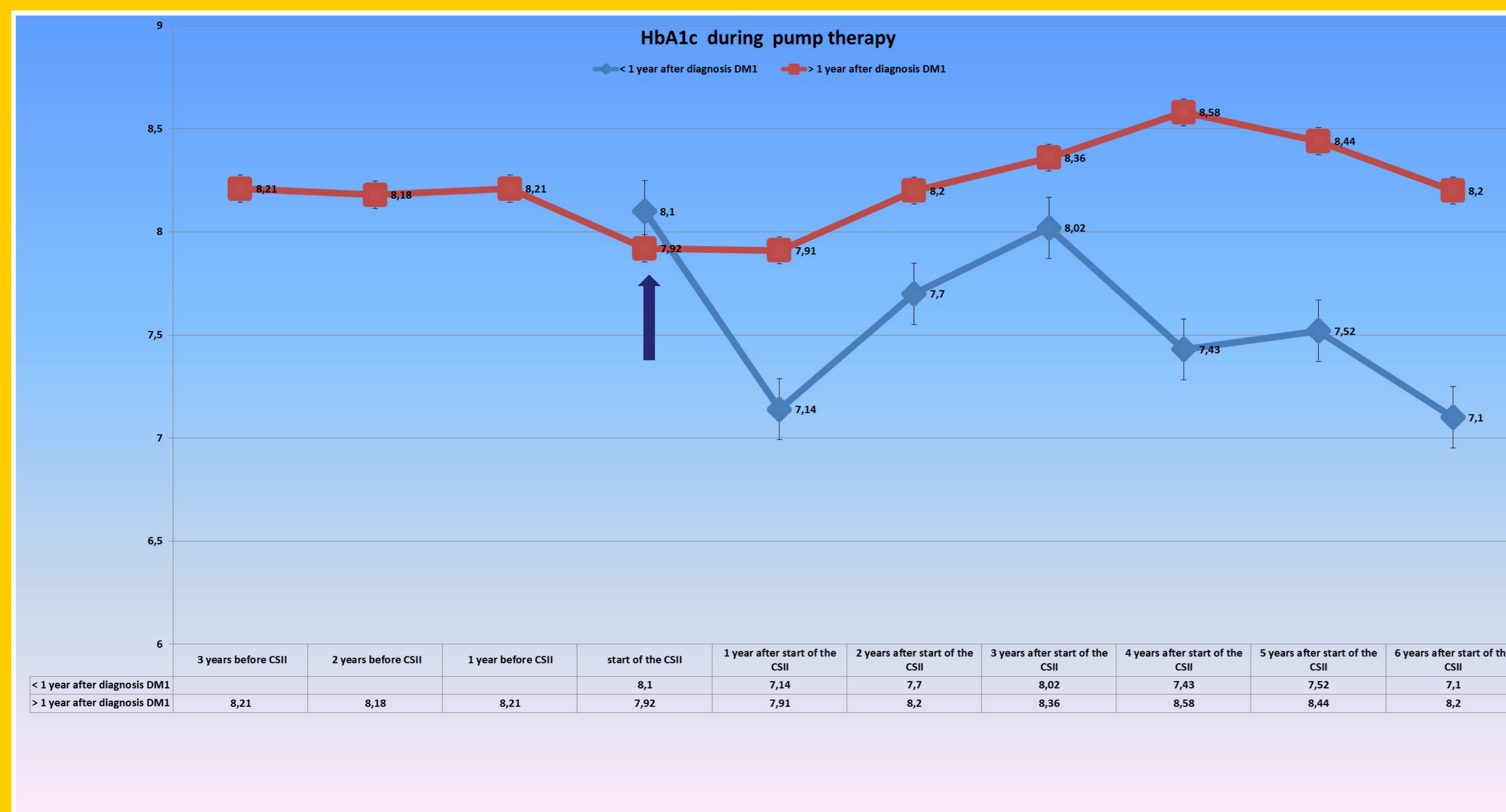
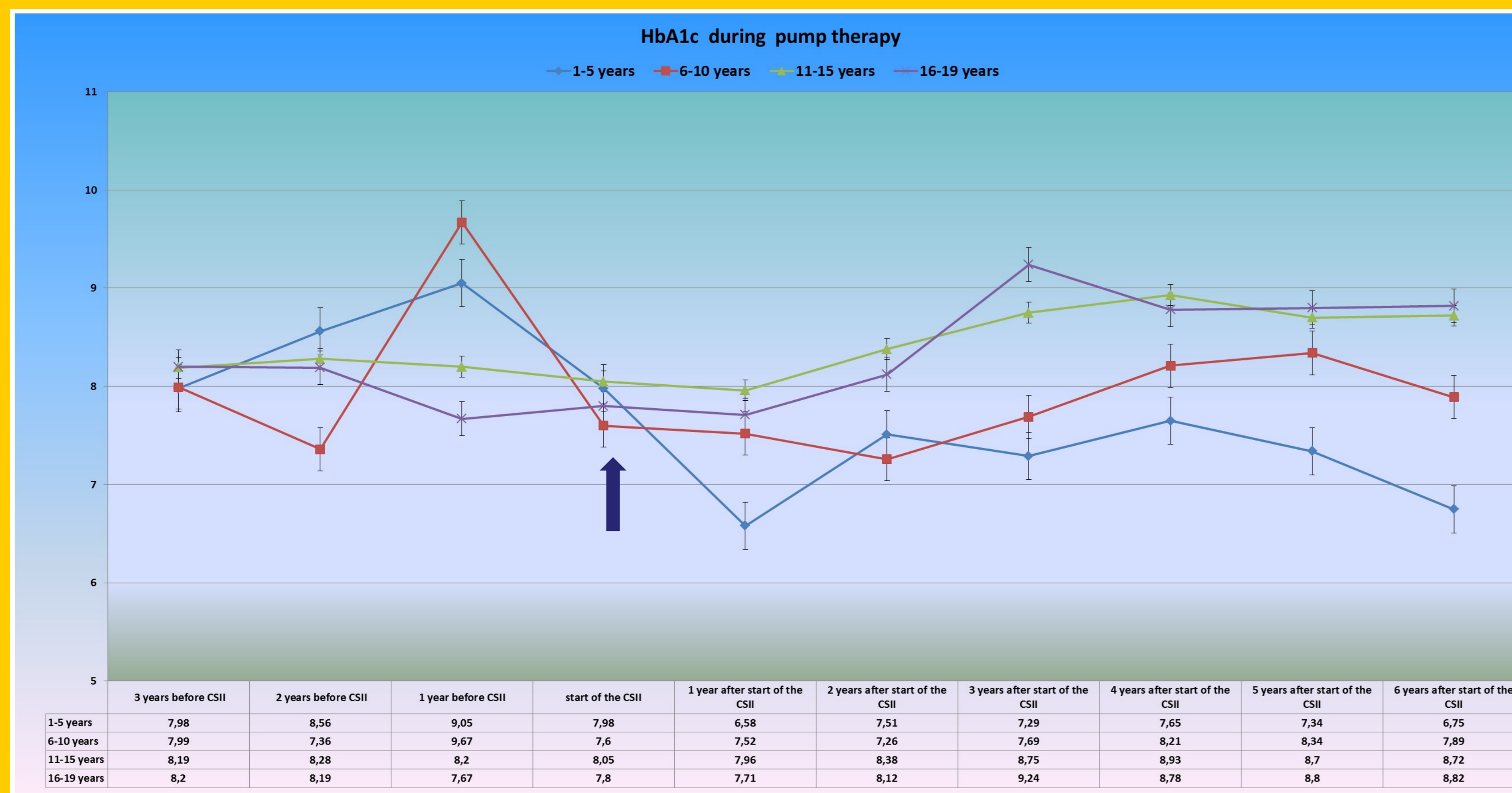
The growing popularity of type 1 diabetes (DM1) treatment based on continuous subcutaneous insulin infusion (CSII) raises a question of the group of patients that benefit most from the treatment.

METHODS

Clinical observation was carried out in 285 1-18-year-old patients diagnosed with DM1 treated with CSII. Every 3 months, HbA1c was determined by an agglutination inhibition immunoassay. The patients were followed for 6-10 years.

RESULTS

The greatest benefits from the treatment with CSII using an insulin pump were noted in type 1 diabetes children aged 1-5: the mean HbA1c decreased in these patients from 7,98% to 6,75% ($p < 0,01$) over 6 years. Slightly lesser outcomes were noted in the group of 6-10-year olds: the mean HbA1c value increased slightly from 7,6% before the CSII to 7,89% after 6 years of treatment ($p > 0,01$). Somewhat worse outcomes were reported in the group of 11-15-year-old children: HbA1c increased from 8,05% to 8,72% ($p > 0,01$). The lowest outcomes were found in the group of the 16-19-year-old patients, as HbA1c rose from 7,8% to 8,82% ($p < 0,01$) over 6 years. The children receiving the CSII treatment as early as in the first year of treatment exhibited better diabetes control (HbA1c 8,1 % declined after 6 years to do 7,1%, $p < 0,01$) than patients who received CSII at an older age (HbA1c increased from 7,92% to 8,2%, $p < 0,01$).



CONCLUSIONS

The CSII on offers the greatest benefits for patients aged 1-5 and those with the treatment commenced in the first year after diagnosis of type 1 diabetes. The best results this group of children achieved 6 or more years after start of the pump therapy.

REFERENCES:

Comparison to the other authors Majedah M. AbdulRasoul et al. 2015 A Comparison of Continuous Subcutaneous Insulin Infusion vs. Multiple Daily Insulin Injection in Children with Type 1 Diabetes in Kuwait: Glycemic Control, Insulin Requirement, and BMI. Oman Med J.	The best metabolic control in children starting to CSII before 6 years of age
Stephanie R. Johnson et al. 2013 Long-term outcome of insulin pump therapy in children with Type 1 diabetes assessed in a large population-based case-control study. Diabetologia.	Mean HbA1c stay below 7,5% during 5 years of CSII in children <6 years of life
Ruby Joshi Batajoo et al. 2012 Long-term Efficacy of Insulin Pump Therapy in Children with Type 1 Diabetes Mellitus. doi: 10.4274/Jcrpe.751	In children > 11 years on the start to CSII was better metabolic control, after 30 months observed not differences between older and younger group
Orit Pinhas-Hamiel et al. 2010 The Impact of Baseline Hemoglobin A1c Levels Prior to Initiation of Pump Therapy on Long-Term Metabolic Control. Diabetes Technology & Therapeutics	The shorter time between DM1 diagnosis and start CSII and younger age of patients is connected with lower HbA1c level in long-time observation.
Shalitin S et al. 2010 Predictors of glycaemic control in patients with Type 1 diabetes commencing continuous subcutaneous insulin infusion therapy. Diabet Med.	

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