

Continuous subcutaneous insulin infusion versus multiple daily injections in children and young people at diagnosis of type 1 diabetes: the SCIPI RCT

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Plain English summary

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People with type 1 diabetes cannot make insulin, a hormone that controls blood sugar levels. This type of diabetes is treated with insulin. Insulin can be given by injections at mealtimes, with additional injections in the evening and/or morning. Alternatively, insulin may be given by pumps that give a small amount of insulin continuously by a fine plastic tube and needle that goes under the skin.

Pump treatment costs more than treatment with injections. If pumps treat this type of diabetes better during childhood, then patients may not need as much medical care as adults. If there is no difference between injections and pumps, money may be better spent in other diabetes services.

We compared these two methods of treatment in 293 newly diagnosed children aged 7 months to 15 years. Half of the patients were treated with insulin pumps and half with injections. The method of insulin delivery was decided randomly; neither the doctor nor patient could choose which they received.

We measured how good each method was at controlling blood sugar levels, growth and weight gain, doses of insulin needed, side effects and quality of life (QoL) reported by parents and children. After 1 year, we compared these measurements. On average, children treated with continuous subcutaneous insulin infusion (CSII) had poorer blood glucose control, used more insulin and had more adverse effects than children who had multiple daily injections, but these results were not statistically significant. However, parents of children on CSII reported a small, but statistically significant, increase in QoL, but this was not observed in the child-reported QoL. In this study, pump treatment cost £1863 per patient per year more than injections. The results of our study are not necessarily true for children after the first year of diabetes. Further research is needed in children who have had diabetes for longer.

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