Continuous subcutaneous insulin infusion for the treatment of diabetes mellitus (review of technology appraisal guidance 57)

Implementing NICE guidance

2008
What this presentation covers

Definitions

Background

Clinical need

Recommendations

Barriers to treatment

Costs and savings

Discussion
Updated guidance

This guidance replaces ‘NICE technology appraisal guidance 57’ issued in February 2003.

The Institute reviews each piece of guidance it issues.

There has been a change to the recommendation on the use of CSII in children younger than 12 years.
Definitions

CSII – Continuous subcutaneous insulin infusion

Disabling hypoglycaemia – repeated and unpredictable occurrence of hypoglycaemia which results in persistent anxiety about recurrence associated with a significant adverse effect on quality of life

Hyperglycaemia – high blood glucose levels

Hypoglycaemia – low blood glucose levels

MDI – multiple daily injection
Background

- 250,000 people in the UK have type 1 diabetes
- UK has variable access and provision of CSII therapy
- Current UK usage of insulin pumps is low

Estimated insulin pump usage in different countries (J Pickup)

Graph reproduced courtesy of Diabetes UK
Diabetes mellitus

A chronic metabolic disorder caused by:

• insufficient activity of the hormone insulin (either a lack of insulin, or resistance to its action) and

• subsequent loss of control of blood glucose levels.
Diabetes mellitus symptoms and problems

Short term
• acute metabolic emergencies that can be life-threatening:
  - diabetic ketoacidosis; and
  - hypoglycaemia caused by treatment

Long term
• nephropathy
• renal failure
• ischaemic heart disease
• stroke
• foot ulceration and amputation
Recommendation: Adults and children 12 years and older

Insulin pump therapy is recommended as a treatment option for adults and children 12 years and older with type 1 diabetes provided:

- attempts to achieve target haemoglobin A1c (HbA1c) levels with multiple daily injections (MDIs) result in the person experiencing disabling hypoglycaemia

or

- HbA1c levels have remained high (8.5% or above) on MDI therapy despite a high level of care.
Recommendation:
Adults and children 12 years and older

Only continue CSII therapy if it results in a sustained improvement in glycaemic control evidenced by:

• a fall in HbA1c levels
  or
• a sustained decrease in the rate of hypoglycaemic episodes
Recommendation: Children younger than 12 years

CSII therapy is recommended as a treatment option for children younger than 12 years with type 1 diabetes provided:

- MDI therapy is considered to be impractical or inappropriate, and

- children on insulin pumps would be expected to undergo a trial of MDI therapy between the ages of 12 and 18 years.
Recommendation: Type 2 diabetes

CSII therapy is not recommended for the treatment of people with type 2 diabetes mellitus
Recommendation: Specialist teams

CSII therapy should be initiated only by a trained specialist team comprising:

- a physician with a specialist interest in insulin pump therapy
- a diabetes specialist nurse
- a dietician.
Insulin pump technology

Insulin pump models currently available:

- Animas 2020
- Paradigm real-Time MMT-522
- Paradigm real-Time MMT-722
- Accu-Chek Spirit
- Accu-Chek D-Tron Plus
- Deltec Cozmo

Image reproduced courtesy of Diabetes UK
Barriers to treatment

• Inconsistent or incomplete provision of conventional diabetes management

• Unclear referral pathways; lack of formal CSII pump assessments

• Costs of devices range from £996 to £2750

• Uneven provision of specialist CSII services
## Costs and savings per 100,000 population

<table>
<thead>
<tr>
<th>Estimated costs and savings CSII pump therapy</th>
<th>Costs (£000s per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated cost of providing CSII</td>
<td>72.4</td>
</tr>
<tr>
<td>Estimated saving resulting from reduction in MDI</td>
<td>24</td>
</tr>
<tr>
<td>Additional annual recurrent cost of providing continuous subcutaneous insulin infusion compared with MDI</td>
<td>48.4</td>
</tr>
</tbody>
</table>
For discussion

Which recommendations will require a change in practice?

What is the current availability of insulin pump therapy locally?

How could we enable the full CSII therapy patient pathway, including maintenance to be provided locally?

What additional training is needed?
Find out more

Visit www.nice.org.uk/TA151 for:

• Other guideline formats
• Costing report and template
• Audit support
• Slide set