Audit on **C**ontinuous **S**ubcutaneous **I**nsulin **I**nfusion (CSII) in Colchester General Hospital

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Introduction

Insulin pump is one of the treatment options for patients with type 1 Diabetes Mellitus. In July 2008, NICE has issued Technological Appraisal (TA 151) regarding insulin pump therapy guidance. In TA 151, the indications for the insulin pump therapy were clearly mentioned.

Objective of the audit

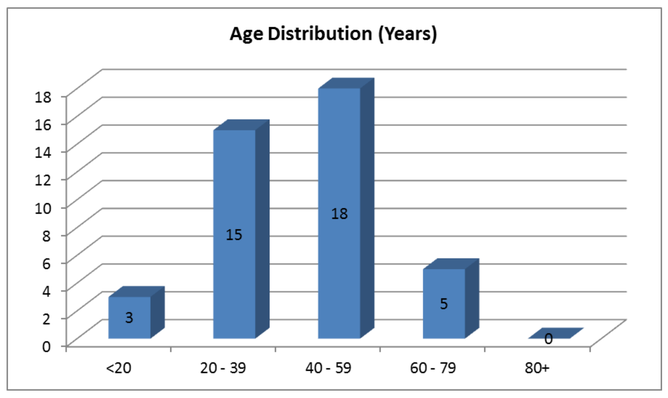
To measure current practice in Colchester General Hospital (CGH) in CSII (insulin pump) for the treatment of diabetes mellitus against the recommendations in TA 151.

Methodology

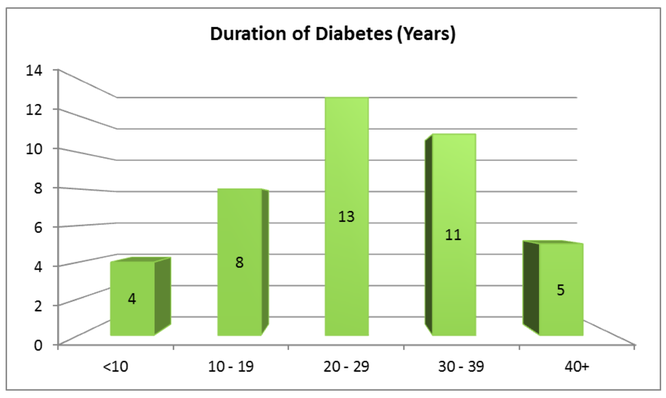
List of patients on CSII was obtained from Diabetes Database of the Diabetes Department of the hospital. All available case notes of the patients who are on CSII for one year or more were reviewed.

Demography

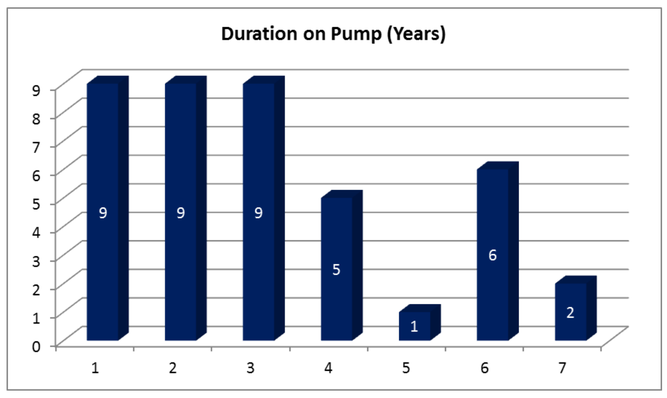
N = 41 (14 male:27 female); 40 patients = type 1 diabetes mellitus, 1 patient = ?type 1/?type 2



Mean age of patients = 43.1 (18 - 73) years

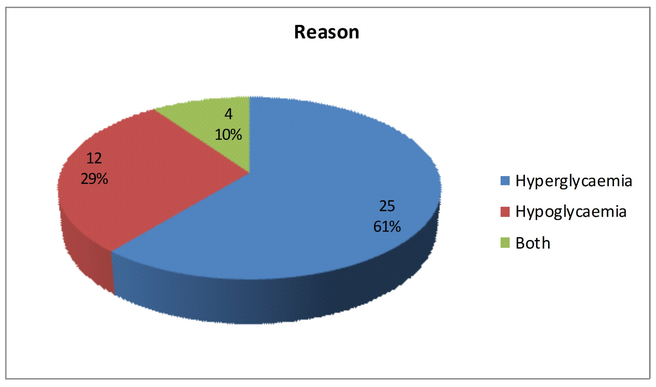


Average duration of diabetes = 25.7 (5 - 47) years

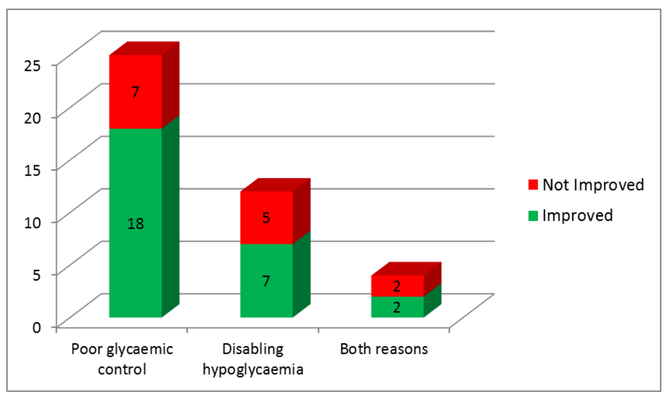


Average duration on CSII = 3.15 (1 - 7) years

Reason for starting insulin pump therapy



Achieved goal of therapy?



Initiation of the therapy

As recommended by NICE's TA 151, CSII was initiated in **ALL** patients by a trained specialist team which included a physician with a specialist interest in insulin pump therapy, a diabetes specialist nurse and a dietician. The specialist team provided structured education programme and advice on diet, lifestyle and exercise appropriate for people using CSII.

Overall, 27 patients (66%) had improvement in HbA1c (>0.5% reduction in HbA1c) one year after starting CSII. 14 patients (34%) did not.

Regarding improvement in hypoglycaemia, it is very difficult to make comments just by reviewing the case notes. However, the Diabetes Department assessed patient's hypoglycaemia awareness using questionnaires. 6 (43%) out of 14 patients assessed have hypoglycaemia awareness. 2 patients were not assessed.

20 (49%) out of 41 patients had weight gain whereas another 20 patients had weight loss after one year of CSII treatment. 1 (2%) patient did not change in weight.

Change in HbA1c one year after CSII

Change in HbA1c	Number of patients	Percentage
>1% reduction	19	46%
0.5% to 0.9% reduction	8	20%
0.1% to 0.4% reduction	7	17%
No change	1	2%
0.1% to 0.4% increment	4	10%
0.5% to 0.9% increment	2	5%
>1% increment	0	0%

Change in body weight one year after CSII

Change in body weight (percentage change from initial body weight)	Number of patients	Percentage
>10% weight gain	2	5%
5 – 10% weight gain	2	5%
0.1 – 4.9% weight gain	16	39%
No change	1	2%
0.1 – 4.9% weight loss	14	34%
5 – 10% weight loss	6	15%
>10% weight loss	0	0%

Measures against the recommendations by NICE's TA 151

Criterion	NICE's TA151 Audit support criteria	NICE	CGH
1	Percentage of patients offered evidence-based written information about: their illness or condition the treatment and care they should be offered, including being made aware of the 'Understanding NICE guidance' booklet the service providing their treatment and care.	100%	100%
5	The percentage of patients in whom CSII therapy was initiated by a trained specialist team.	100%	100%
6	The percentage of patients who received a structured education programme and advice on diet, lifestyle and exercise appropriate for people using CSII, provided by a specialist team (as described in criterion 5).	100%	100%
7	The percentage of adults and children 12 years and older in whom CSII therapy was discontinued when it did not result in a sustained improvement in glycaemic control.	100%	unclear
8	The percentage of people with type 2 diabetes mellitus who have been offered continuous subcutaneous insulin infusion (CSII or 'insulin pump') therapy as a treatment option.	0%	2%*

*1 patient with ?type1/?type2 is on CSII

Conclusion

Overall, the current practice in Colchester GH in CSII therapy for the treatment of diabetes mellitus is in line with the recommendations set by NICE's TA 151.

Recommendation

In TA 151, it is recommended that appropriate targets for improvements after CSII therapy should be set by the responsible physician in discussion with the person receiving the treatment. It is not clear whether such targets were set in our patients. We should set the targets and clearly document in the notes. When the target is not achieved then we discontinue the CSII therapy and offer an alternative treatment option.