

Is there an improvement in glycaemic control when paediatric patients commence on an insulin pump?

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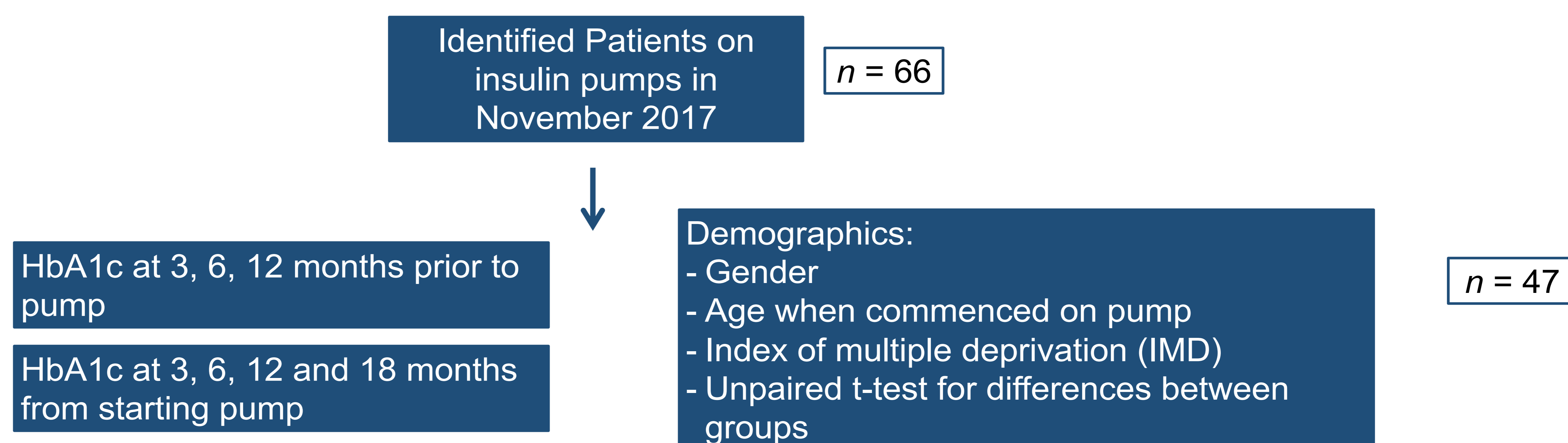
Take home messages

- Paediatric **diabetic patients** can be **treated with insulin pumps** which are **extremely expensive**
- We found **no significant improvement in glycaemic control** when patients were commenced on insulin pump therapy

Background

- An estimated 35,000 children in the UK have diabetes
- Treatment options include multiple daily injections or continuous insulin pumps
- In the UK, the National Institute of Clinical Excellence (NICE) recommends the use of insulin pumps for patients when multiple daily injections are impractical or inappropriate (Guideline 151, 2008)
- Insulin pumps are very expensive – cost of £3,000 to £4,000 per year for consumables alone
- Our aim was to **evaluate** whether this cost can be justified by a **significant improvement in glycaemic control** with the **use of insulin pumps**

Methods



Results

	Mean HbA1c for all patients (n = 47)					
	12 months	3 months	pump start	6 months	12 months	18 months
Gender						
Female (n = 22)	59 mmol/l	59 mmol/l		61 mmol/l	60 mmol/l	
Male (n = 25)		56 mmol/l		57 mmol/l	57 mmol/l	
		p = 0.1		p = 0.12	p = 0.14	
Age of commencing on pump						
0 – 12 years (n = 33)		58 mmol/l		59 mmol/l	60 mmol/l	
13 years and above (n = 14)		58 mmol/l		58 mmol/l	58 mmol/l	
		p = 0.92		p = 0.29	p = 0.83	
Deprivation (based on IMD scores)						
Most deprived areas (n = 23)		62 mmol/l			61 mmol/l	
Least deprived areas (n = 22)		54 mmol/l			57 mmol/l	
		p = 0.03			p = 0.35	

Discussion

- **Commencing on an insulin pump did not result in significant improvement in glycaemic control in our patients**
- There was no significant difference for gender or age
- Those from least deprived areas had better glycaemic control prior to commencing on the pump but there was no significant difference in HbA1c between patients from less deprived and more deprived areas once patients had commenced on pumps
- This suggests that **all our patients may benefit from more input and education once they have been commenced on insulin pumps**
- Data from other studies also suggests no significant improvement in glycaemic control when patients commence insulin pumps
- We could compare with those on multiple daily injections – **perhaps there is an improvement in quality of life with pumps?**
- We need to educate and motivate patients to respond to make their own changes to insulin dosing in response to glucose levels. Ways we are trying to do this include:
 - Encouraging patients to download blood glucose levels data weekly and to review this themselves and share with our team via email
 - Educating patients on how to make changes to insulin delivery via pumps in response to blood sugars

References

Diabetes UK Fact sheet . Available from: www.diabetes.co.uk
 NICE Guidelines – Guideline 151, 2008 . Available from www.nice.org.uk