

# INSULIN PUMP THERAPY IN TYPE 1 DIABETES THE INDIAN EXPERIENCE

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## INTRODUCTION

Insulin pumps have been used for the management of Type 1 Diabetes Mellitus (T1DM) for over 15 years in developed countries. However, similar experience is lacking in India where multi dose insulin injections still form the mainstay of management of T1DM. In a first study of its kind from India, we attempt to highlight the effectiveness and safety of insulin pump use in T1DM.

## OBJECTIVES

To determine the impact of insulin pump therapy on short term glycemic control, body mass index (BMI), rate of severe hypoglycaemia and diabetic ketoacidosis (DKA) in children, adolescents and young adults in our population.

## METHODS

Retrospective analysis of data from case records of patients was done. Out of the 64 patients on insulin pump, 52 were included in the study. Age of the patients at initiation of insulin pump ranged from 3 to 26 years. Patients were stratified into 5 age groups at 5 year intervals (0-5, 6-10, 11-15, 16-20, 21-25 yrs) and data was recorded as PRE-PUMP and POST-PUMP values. Data included HbA1C (just before initiation of pump therapy and 6 months and 1 year after initiation), BMI (at visit prior to and 6 months after pump therapy), episodes of DKA and severe Hypoglycemia (in the 1 year before and after pump therapy). Severe Hypoglycemia was defined as either altered sensorium or seizures associated with low blood glucose level.

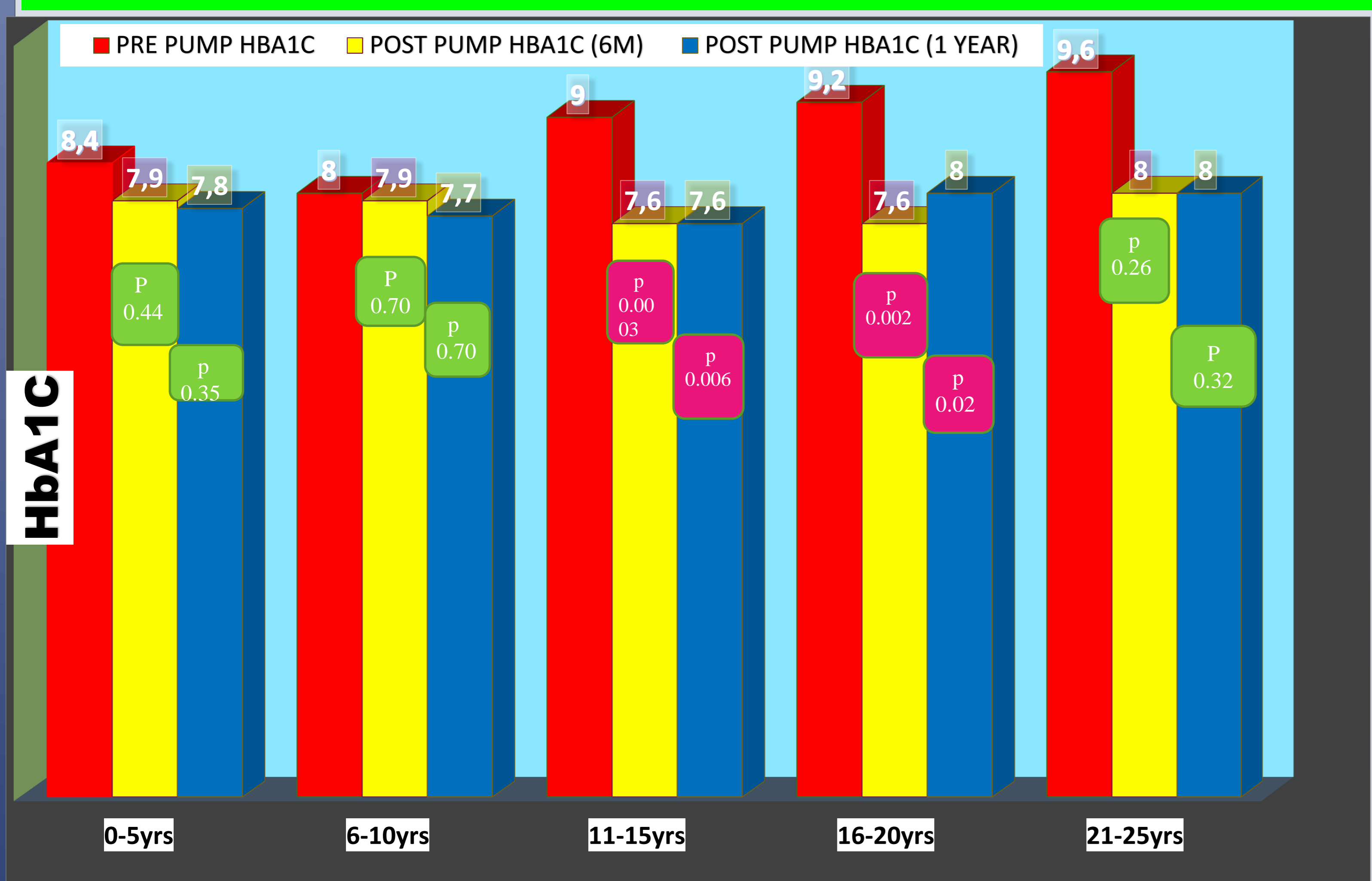
## RESULTS

Of the 52 patients included, we have follow up of 29 patients for up-to 1 year or more. The remaining 23 patients have either yet not completed 1 year (18) after pump initiation or are lost to follow up (5).

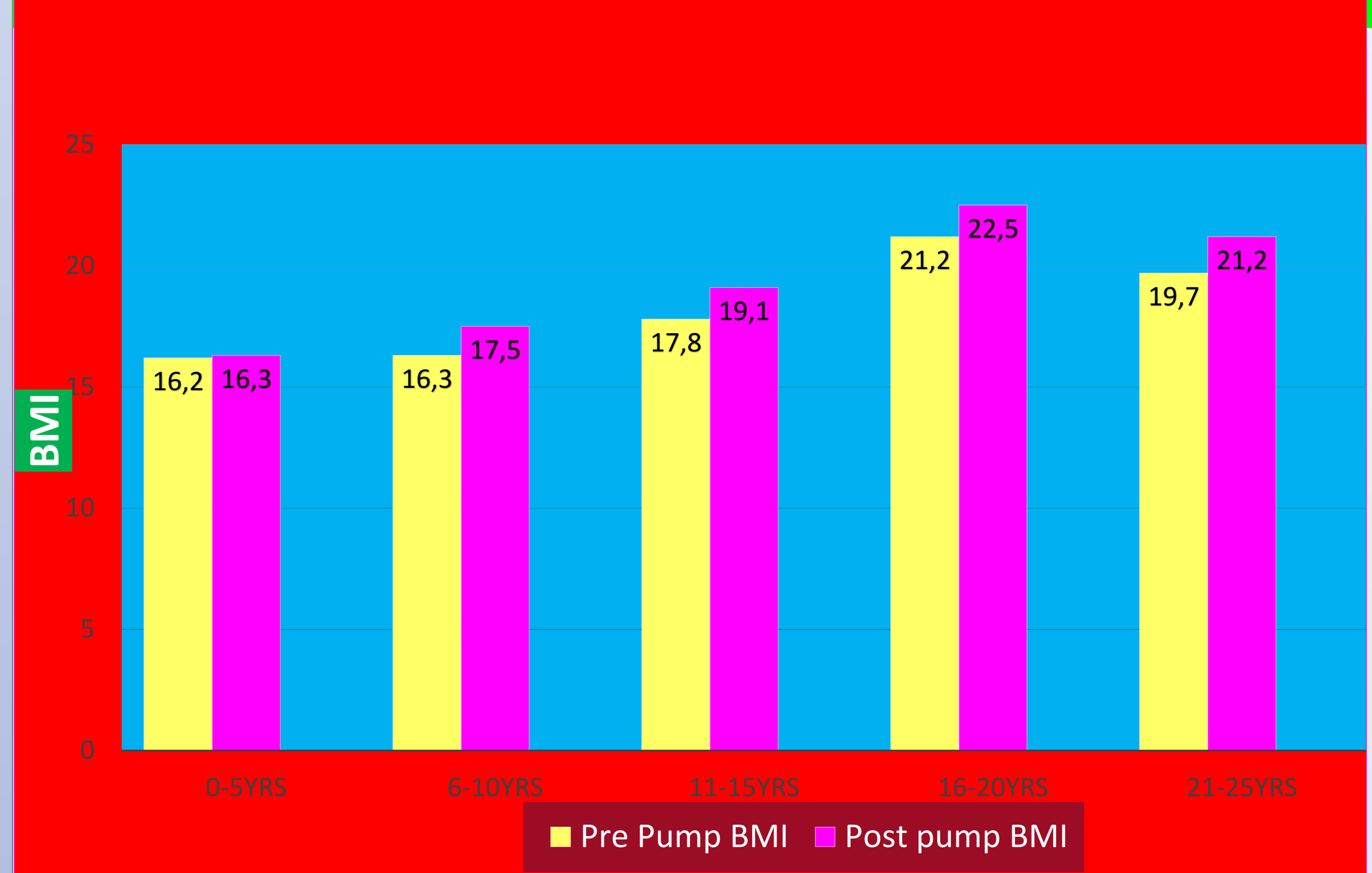
## DATA OF 52 PATIENTS ON INSULIN PUMP

Age Group	No. of Pts. (52)	Mean Duration of DM before starting Insulin Pump (yrs)	Mean HbA1C just before Pump Initiation	Mean HbA1C 6 mths Post-Pump initiation N=52	Mean HbA1C 1 yr Post-Pump initiation N=29	Mean Pre-pump BMI (BMI at visit before pump initiation)	Mean Post pump BMI (after 6mths of pump initiation)
0-5 yrs	2	0.85 (0.25-1.5)	8.4	7.9 (0.5) p = 0.44	7.8 (0.6) N=2 p = 0.35	16.2	16.3 (0.1) p = 0.77
6-10 yrs	16	2.75 (0.5-5)	8.0	7.8 (0.2) p = 0.70	7.7 (0.3) N=11 p = 0.35	16.3	17.5 (1.2) p = 0.5
11-15 yrs	20	4.3 (0.5-11)	9.0	7.6 (1.4) p = 0.003	7.6 (1.4) N=9 p = 0.006	17.8	19.1 (1.3) p = 0.47
16-20 yrs	10	5.6 (1-9)	9.2	7.6 (1.6) p = 0.002	8.0 (1.2) N=4 p = 0.02	21.2	22.5 (1.3) p = 0.84
21-25 yrs	4	10.7 (7-16)	9.5	8.0 (1.5) p = 0.26	8.0 (1.5) N=3 p = 0.32	19.7	21.2 (1.5) p = 0.24

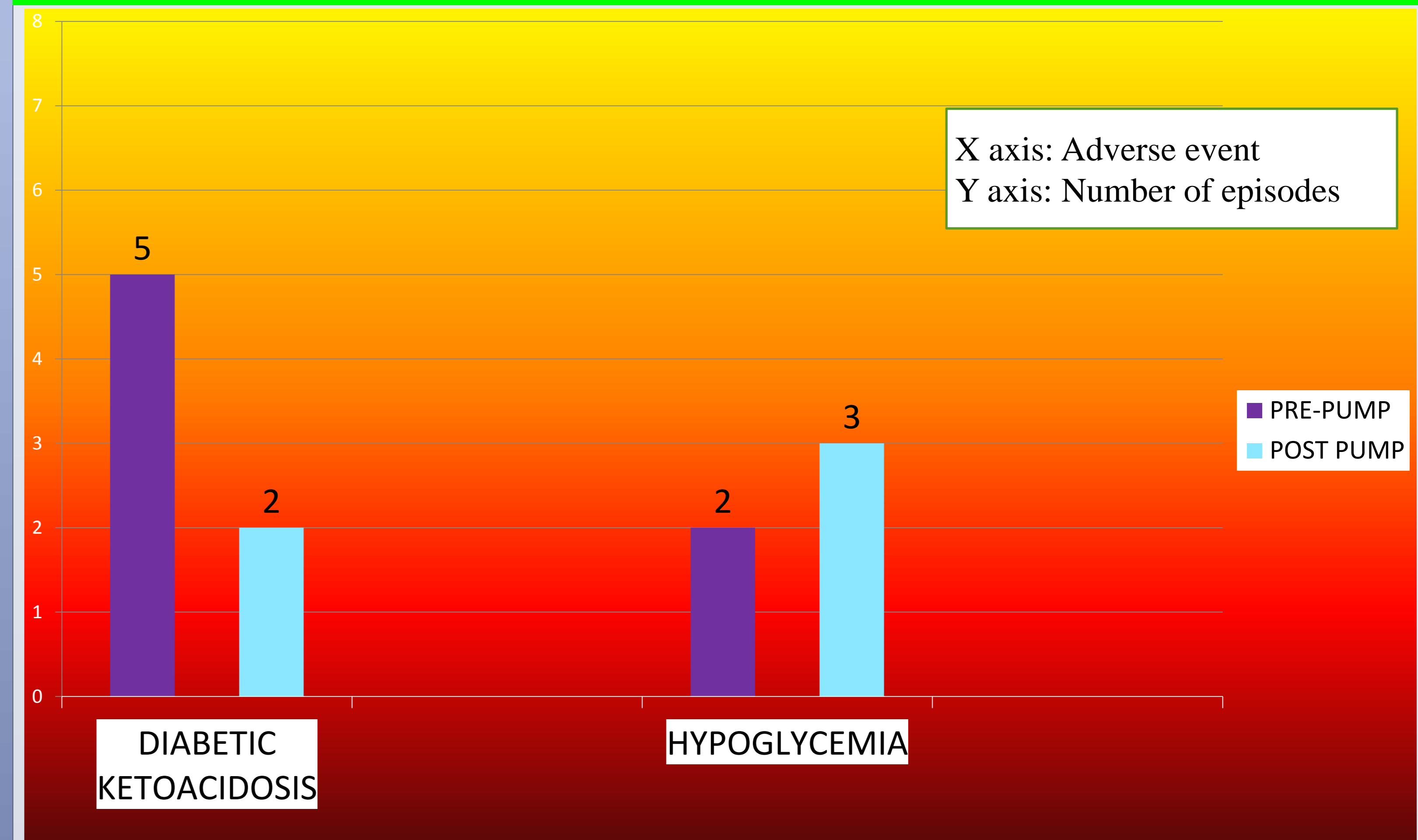
## HbA1C BEFORE AND AFTER INSULIN PUMP



## BMI BEFORE AND AFTER INSULIN PUMP THERAPY



## COMPLICATIONS BEFORE AND AFTER INSULIN PUMP THERAPY



## SUMMARY OF RESULTS

- There was a drop in HbA1C across all age groups after initiation of insulin pump therapy. This difference was statistically significant in the 11 to 15 year and 16 to 20 year age groups.
- Body Mass Index also increased across all age groups with Insulin Pump Therapy, though this difference was not found to be statistically significant.
- 3 episodes of DKA were recorded after pump therapy against 5 episodes in the pre pump period. However there were 3 episodes of severe hypoglycaemia in the post pump period as compared to 2 episodes in the pre pump period.

## CONCLUSION

This study suggests that insulin pump therapy is an effective and safe modality of treatment for children, adolescents and young adults with Type I Diabetes Mellitus in our population.

