Insulin Pump in Children with Type 1 Diabetes in a Regional Hospital in Ireland

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Introduction
Initiation of insulin pump therapy in children with type 1 diabetes results in better glycaemic control, reduction in the short-term and long term complications and in better quality of life.

Objectives
To determine the impact of insulin pump on glycaemic control (HbA1c), BMI and occurrence of severe complications in children with IDDM in a secondary care centre.

Methods
A retrospective study of children with type 1 diabetes on insulin pump therapy for at least one year at the time of the study was conducted. HbA1c, BMI and frequency of severe complications one year before and after introduction of insulin pump were compared.

Results
Twelve out of the thirty children (40%) on insulin pump therapy met our inclusion criteria. Their mean age at the time of the study was 12.6 years. Seven boys (58.3%) and five (42%) girls were studied. The mean duration of diabetes was 5.5 (±2.2) years. The mean HbA1c before the introduction of pump therapy was 8.1% vs. 7.1% one year after; while the mean BMI z-score was 0.79 before and 0.88 after. Severe hyperglycaemia and DKA were noted in two children before but none after the initiation of pump therapy. The mean HbA1c decreased by 0.4% at 3 months (p = 0.05) and by 1% at 2 months (p = 0.013) of pump therapy.

Conclusions
Initiation of insulin pump therapy results in significant reduction in the HbA1c within the first twelve months of therapy with a decrease in the frequency of occurrence of severe complications.

Clinical and Laboratory Findings of Diabetic Ketoacidosis in a PICU of Albania

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Introduction
Delay diagnosis is the major cause of Diabetic ketoacidosis (DKA). Children with profound acidosis are at great risk for symptomatic cerebral oedema.

Objective
To identify the epidemiological profile, clinical feature, factors related to delayed diagnosis in children with DKA and to analyse the factors associated with prolonged acidosis.

Methods
We analysed the records of all children with DKA, admitted to our PICU during January 2004–December 2013. We evaluated clinical features, biochemical profile at admission, 6, 12 and 24 hrs, presence of sepsis, shock, complications and outcome. The severity of DKA was defined by the degree of acidosis: mild (pH = 7.2–7.3), moderate (7.1–7.2) and severe (pH <7.1). Anion gap (AG), delta gap (DG) and delta ratio were calculated. Prolonged acidosis was analysed against various independent factors.

Results
Mean age of the patients was 7.06 ± 4.24 years, with misdiagnosis in 32% of cases. By the degree of acidosis, DKA was mild in 16%, moderate in 56% and severe in 28% of cases, with prolonged acidosis (≥24 hrs) in 36% of cases. Factors associated with prolonged acidosis were: Na >133 mEq/L (p = 0.01), HCO3− <14.8 mEq/L (p = 0.03), pH <7.01 (p = 0.01), Cl− >100 mEq/L (p = 0.02) and AG >25.1 (p = 0.03). HbA1c, azotemia, DG and misdiagnosis didn’t resulted significative for prolonged acidosis. Three cases are complicated with cerebral oedema. Initial blood glucose or decline in glucose had no association with cerebral oedema. Mortality rate was 8%.

Conclusion
Misdiagnosis of diabetes with DKA as consequence, is still high in children in Albania. Clinical and laboratory findings help identifying the patients who require a higher level of intervention.