PITFALLS IN MANAGEMENT OF DIABETIC KETOACIDOSIS (DKA)

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Diabetic Ketoacidosis is known as acute complication of diabetes occurring in a high percentage of patients at disease onset-frequency varies worldwide from 15% to 70% – with higher risk in very young children and in children of ethnic minority groups as well as families with reduced access to medical care. Furthermore, this acute diabetes complication can also occur at any time during disease based on insulin deficiency. In children with established diabetes risk factors for DKA are poor metabolic control, omission of insulin, gastroenteritis and vomiting, psychiatric disorders and eating disorders, unstable family circumstances and risk behaviour during puberty. Additionally, during Covid-Pandemic a worldwide increase of DKA has been reported.

Clinical signs of diabetic ketoacidosis include dehydration, nausea, vomiting, abdominal pain, tachycardia and tachypnoe, deep respiration, drowsiness, confusion and progressive decrease in level of consciousness.

The management of DKA and/or the hyperglycemic hyperosmolar state (HHS) includes intravenous rehydration and correction of electrolyte disturbances, insulin replacement and clinical and biochemical monitoring throughout the DKA episode. Simple, clear and effective algorithms for the management of DKA need to be established at every department of paediatrics.

During treatment of DKA several complications can occur. Watch out for neurological deteriorations as a sign of severe complications during DKA. Cerebral injury (CI) – formerly cerebral edema – may occur at any stage of DKA. Symptoms of CI include headache, change in neurological status followed by high blood pressure, bradycardia, respiratory suppression. Be aware of other complications of DKA during treatment like hypopotassemia, hyperchloremic acidosis, hyperglycemic hyperosmolar state and inadequate rehydration but also hypoglycaemia during insulin infusion.

INCIDENCE AND RISK FACTORS FOR PAEDIATRIC DIABETIC RETINOPATHY: CASE CONTROL FOR A TERTIARY HOSPITAL IN LEEDS, UNITED KINGDOM

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Background Diabetic retinopathy is a leading microvascular complication and preventable cause of vision loss. NHS diabetes eye screening program (DESP) assesses for early signs, enabling review of modifiable risk factors.

Aims and Objectives Establish clinical characteristics and modifiable risk factors for patients with retinopathy identified by DESP under Leeds Children’s Hospital.

Material and Methods Retrospective case control, comparing patients with evidence of diabetic retinopathy versus age-matched control. Patients identified by DESP, mild non-proliferative diabetic retinopathy (NPDR) (R1/M1) or more severe.

Results Retinopathy identified in 9.7% of those eligible for eye screening (n=37/380). There was a female predominance 59.4% (n=22/37) compared to the control group 47.2% (n=27/36). On average, the retinopathy group had 2.6 years longer duration of diabetes and lower clinic attendance.

The mean last two Hba1C measurements were higher in the retinopathy group (n=69.9mmol/mol and 71.4mmol/mol) compared to control (n=60.6mmol/l and 58.7mmol/mol). Similarly time in range (TIR) was lower (n=43% versus n=52%). More of those in the retinopathy group had an HbA1C >80mmol/l 29.7% (n=11/37) versus 13.8% n=5/36).

There was more technology uptake in the control group; pump use 63.8% (n=23/36) versus 54.0% (n=20/37), hybrid closed-loop (HCL) (n=5 versus n=1) and 86.1% (n=31/36) using sensors versus 75.6% (n=28/36).

The retinopathy group had more evidence of other microvascular disease, urine albumin-creatinine ratio (uACR) 1.35mg/mmol versus 0.7mg/mmol, with 5 patients in retinopathy group having uACR >2.5mg/mmol compared to 0.0mg/mmol.

Importantly both groups mean body mass index (BMI) standard deviation score (SDS) were in the overweight category (SDS >+1) and mean total lipids and triglycerides exceeded recommended cut offs of >4mmol/l and >1mmol/l respectively. More patients had high triglycerides (>1.5mmol/l) in the retinopathy group 27.0% (n=10/37) versus 8.3% (n=3/36). Systolic blood pressure (SBP) was comparable.

Conclusion Rates of retinopathy are comparable to previous studies. Those with retinopathy were mostly female, had higher mean HbA1C, lower mean TIR and longer mean duration of diabetes. Those with retinopathy were twice as likely to have a mean HbA1C >80mmol/l. Technology uptake was 10% greater in those without retinopathy, with five times greater HCL use.

Engaging the teenagers with poor control remains a key challenge; those with retinopathy had poorer clinic attendance. The importance of lifestyle intervention has been highlighted.

EMOTIONAL AND PSYCHOLOGICAL NEEDS OF PEOPLE WITH DIABETES (INTERACTIVE SESSION)

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The case presentation is about a diabetic child presenting to the paediatric endocrinology clinic with a history of multiple admissions and DKAs, and an uncontrolled BG profile. The usual MD care takes place and during one of the admissions, the child confides in the psychologist about a history of physical and verbal abuse by the mother happening since many years. Wishes of confidentiality expressed by the child and the ethical concerns come forward to the clinical scene and require MD meetings with social work and legal teams. A decision to report the concern of physical and verbal abuse to the Child Protection Services is taken. The stakes of reporting were discussed, along with the medical, psychological, social, legal and ethical aspects of this clinical presentation. Also the effects of reporting on the care relationship were discussed as well as the effects of physical abuse on diabetes care and the