Abstract:
This 2 Day old female baby was brought to our Institute with complaints of recurrent seizures after an uneventful birth history. Investigations revealed persistent hypoglycemia which on complete evaluation turned out to be Persistent Hyperinsulinemic Hypoglycemia of Infancy earlier referred to as Diffuse Nesidioblastosis. After she underwent a subtotal pancreatectomy she recovered well although she required oral medications to control hypoglycemia.

Keyword: Nesidioblastosis, Persistent Hyperinsulinimic Hypoglycemia of Infancy.

INTRODUCTION:
Persistent Hyperinsuliniminic Hypoglycemia of Infancy is a genetic defect in the regulation of insulin secretion leading to hyperinsulinism. The other hyperinsuliniminic conditions which resemble PHHI are Beckwith-weidemann syndrome, Erythroblastosis fetalis and Infant of diabetic mother, although these conditions present with refractory hypoglycemia, PHHI is the most common and difficult to manage form of persistent hypoglycemia in infancy. Diagnosis depends on a high serum insulin level during hypoglycemia and the diagnosis can be confirmed by Positron Emission Tomography (PET) scan. The condition is usually resistant to medical treatment requiring surgery in which a subtotal (95%) or near total (99%) pancreatectomy is done. Here-with we present a case of PHHI in an infant who was treated in our institute, for its rarity.

CASE REPORT
B/O R, 2 days old female baby was referred to our institute with complaints of recurrent seizures from that morning. Delivered by normal vaginal delivery, this 1st born baby, weighing 3.1 kg ,was said to have cried at birth and was sucking well at breast and retaining feeds soon after birth. Examination of the infant revealed that the baby was apneic, in shock with a heart rate of 170/min. Baby was intubated and connected to ventilator and treated for shock.
Complete evaluation did not reveal any dysmorphic features or abnormal odour. Examination of the systems was essentially normal. Investigations revealed a blood sugar of 17mg/dl warranting a dextrose bolus followed by infusion of dextrose which had to be continuously escalated up to 12mg/kg/min to keep the blood sugar in the range of >45mg/dL.

On day 4, baby’s condition improved, she was extubated and started on measured breast feeds through tube. She however continued to receive glucose infusions in increasing concentrations necessitating central vein cannulation. A diagnosis of refractory hypoglycemia [GIR>12mg/kg/min] was made because her glucose infusion rate [GIR] went up to 15mg/kg/min. She was started on oral diazoxide because hyperinsulinemia was suspected.

To confirm the diagnosis serum insulin [which is normally <2microunits/ml during a hypoglycemic episode] was done and was found to be 36.5 micro units/ml. Evaluation for other causes of hyperinsulinemia, showed, Serum cortisol and thyroid function tests to be within normal limits CT abdomen was normal.

Surgical opinion was sought considering a pancreatic adenoma. When a PET scan was called for, the baby was shifted with IV infusion and an attendant doctor [doing continuous monitoring with glucometer] in an ambulance to Bangalore to have the test done, since the facility for that test was not available in Chennai at that time. PET Scan revealed a diagnosis of diffuse Nesidioblastosis.

Subtotal pancreatectomy was done on day 60 of life. The baby’s blood sugar values gradually normalized and she was euglycemic on direct feeds on the 75th day of life but required small oral doses of diazoxide to maintain euglycemia.

On discharge on day 83 of life her CT brain was normal. She continues to be on regular follow up and except for a mild motor delay she is thriving well.

**DISCUSSION Persistent hyperinsulinemic hypoglycaemia of infancy**

Congenital hyperinsulinism is the most common and difficult to manage form of persistent hypoglycemia in neonates and infants. Severely affected infants usually present with abnormally high birth weight but otherwise normal findings on physical examination. In our study case the baby presented with a birth weight of 3.1kg. Nesidioblastosis is a normal feature of the new born pancreas and that hyperinsulinism is due to genetic defects in the regulation of insulin secretion.

In 1938 Laidlaw coined the term Nesidioblastosis, Later it was called as Persistent hyperinsulinemic hypoglycemia of infancy. The condition has to be suspected when a neonate has refractory hypoglycemia. The other hyperinsulinemic conditions are IDM, Beckwith-Weidemann syndrome and Erythroblastosis fetalis. It has two broad categories: Focal or diffuse, in our study case it was of diffuse category.

So far 250 cases reported in the World literature and 4 Cases have been reported from our institute. To diagnose hyperinsulinism plasma insulin levels have to be greater than 2microunits/ml at the time of hypoglycemia (glucose<50mg/dL. In our study case the baby had insulin level of 36.5 micro units/ml during hypoglycemia. Ultrasound, CT Scan, MRI Scan may not identify the lesion as it may be too small to be picked up. PET CT is 96% accurate in localizing focal or diffuse disease and 100% accurate in
focal or diffuse disease and 100% accurate in localizing focal lesion. In the above study case also it was PET-CT which helped us to identify the diffuse nesidioblastosis.

The first line of treatment for congenital hyperinsulinism is diazoxide, if it fails to control the hypoglycemia then octreotide, a long acting somatostatin analogue may be effective in inhibiting insulin secretion. Patients with severe hyperinsulinism often fail to respond to medical management as it was in our case. Surgery may be required to control the hypoglycemia. This may involve resection of a focal lesion, if identified. If a focal lesion is not found, as happened in our case, a 95% pancreatectomy is done. The remaining beta cells still are not normally regulated so further therapy with diazoxide is often required to prevent hypoglycemia. Following pancreatectomy there is risk for the development of diabetes mellitus.

REFERENCES:


7 Avery’s Disease of the new born 8th edition 1417-1419.
picture 4; baby at the time of discharge