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A Case Report of Full Term Neonate With Kernicterus Treated Successfully At Tertiary Care Centre

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ABSTRACT

Introduction: *Jaundice is categorized by deposition of yellow bilirubin pigments in the skin, mucous membranes and other visible tissues. High levels of bilirubin in the body leads to possible bilirubin induced Kernicterus which is a devastating disorder that can result in lifelong disability or death of a child.*

Case: *A 2.5 kg female child born to Primi-gravida mother via normal vaginal delivery at 38 week of gestation at Rural hospital and discharge on 3rd day of life, she was brought to our hospital on 5th day of life with history of fever, yellowish discoloration of body and not accepting feed since 1 day.*

Conclusion: *Kernicterus is a preventable complication and can be treated in the initial stages of hyperbilirubinemia with early interventions and supervised breastfeeding.*

KEYWORDS : kernicterus, convulsion, exchange transfusion, spasticity.

Introduction

Jaundice is a commonest physical sign observed, categorized by deposition of yellow bilirubin pigments in the skin, mucous membranes and other visible tissues [1]. With abnormally high levels of bilirubin in the body, severe hyperbilirubinaemia sets in and leads to possible bilirubin induced brain injury [2]. Reversible behavioural and neuro-physical changes or permanent structural changes can occur, such as chronic bilirubin encephalopathy or kernicterus, a rare condition characterized by the yellow staining of the basal ganglia in observed isolated plaques [3]. This disorder is associated with athetoid spasticity, sensori-neural hearing loss, gaze and visual abnormalities, along with cognitive impairment and developmental delay [2]. With a higher toxicity of bilirubin, the incidence of kernicterus is increased [3] - the amount and duration of exposure of bilirubin in the brain is the essential determinant of the neurotoxic effects of bilirubin [1]. Through the non-binding with albumin or damage to the blood-brain barrier, bilirubin enters the brain and proceeds to inflict permanent damage impairing nerve conduction and interfering with neuroexcitatory signals [1]. The deposition of bilirubin in the basal ganglia is extremely toxic and alters some brain functions, such as auditory signals [1].

Case

A 2.5 kg female child born to Primi-gravida mother at the age of 25 years via normal vaginal delivery at 38 week of gestation at private hospital. Baby cried immediately after birth and discharged on 3rd day of life. Baby brought to our hospital on 5th day of life with history of fever, yellowish discoloration of body and not accepting feed since 1 day.

On Admission weight was 2.1kg. (20% loss)

On Examination, Baby was euthermic. Cry, Tone and Activity were depressed, skin colour was icteric, Anterior Fontal was sunken, skin turgor delayed. Heart Rate was 142/min, respiratory rate was 46/min, capillary refilling time was =<4sec, blood pressure was 64/42 mmHg. Peripheral pulses well felt. In Systemic examination: MOROs reflex was depressed, abdominal distension with hepatomegaly, opisthotonus posture was present.

Blood investigation And N-USG	Result (On admission)	Result (After exchange transfusion)
Hb	19 gm%	13.6 gm%
TLC	18900/cu.mm	15200/cu.mm
PLT	2.02 Lacs/cu.mm	2.02Lacs/cu.mm
MOTHER'S BLOOD GROUP	'B' Rh +VE	-
BABY'S BLOOD GROUP	'O' Rh +VE	-
CRP	NEGATIVE (1st)	POSITIVE (2ND)
BLOOD CULTURE	NO GROWTH (1st)	NO GROWTH (2ND)
DCT	NEGATIVE	-
SR. BILIRUBIN TOTAL	40gm%	19.94gm%
SR. BILIRUBIN CONJUGATED	3.54gm%	02.87gm%
SR. BILIRUBIN UNCONJUGATED	36.46gm%	17.07gm%
SR.UREA	155gm%	70gm%
SR. SODIUM	161mEq/L	141mEq/l
SR POTASSIUM	4.37mEq/L	4.10mEq/L
SR. CREATININE	0.81gm%	0.99gm%
N-USG	NORMAL STUDY	-

TABLE 1: Blood investigation and N-USG

On admission intravenous line was secured, septic screen and other investigations were sent. Baby was kept nil by mouth, intravenous fluids and base line antibiotics started and put on double surface phototherapy. On 1st hour of admission baby had 2 episodes of Generalized tonic-clonic Seizure type of convulsions, So baby was loaded with anti-convulsant (Inj. Phenobarbital) and continued with the maintenance dose. Serum Bilirubin was 40 mg% so double volume exchange transfusion was considered within few hours of admission. On 5th day of admission child was accepting and tolerating feeds well, MORO's reflex, cry, tone, activity was improved and on 7th day of admission child was discharged on oral anticonvulsant. On discharge MORO'S reflex was improved and opisthotonus posture was present. Parents were advised for BERA and MRI Brain on follow up on 1st month of life

Figure 1: On Admission, baby was Icteric with sunken eyes and show opisthotonus posture.

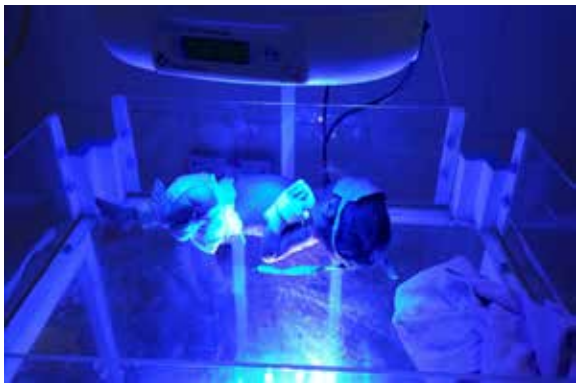

Figure 2: On phototherapy, before exchange transfusion

Discussion

Jaundice is a condition in which 50-60% of new-born infants will suffer from during their first week of life [2]. It is a condition that involves serum bilirubin levels in the body, and it is crucial to identify the most common physical signs and symptoms of jaundice in the neonatal period because increased amounts of bilirubin can impact neuroexcitatory signals and potentially interfere with nerve conduction [2]. In some instances, once a new-born develops severe jaundice, acute bilirubin encephalopathy and kernicterus may occur.

The babies remain in the hospital to receive jaundice treatments including; phototherapy and/or exchange transfusion [4]. After treatment, babies with Kernicterus are routinely followed and referred to the Neonatal Developmental Follow-Up Clinic to determine their outcome at age 18-24 months. The infants are routinely checked and evaluated on their gross and fine motor development, cognitive development, hearing, vision, speech and language development and socio-adaptive behaviour. These evaluations occur at 4, 8, 12 and 18 months of age. It is important and essential to know which children require routine follow up in the Clinic based on the severity of their jaundice, and conversely, which babies can be followed by their community based paediatrician or family physician.

We followed the rational approach to treat the neonate. As soon as the level of serum bilirubin was determined which was very high (40 mg%) we directly took neonate for double volume exchange transfusion & Baby shows improvement from 3rd day. Then on discharge we told the parents to do regular follow up.

Conclusion

Kernicterus is a preventable and can be treated in the initial stages of hyperbilirubinemia with phototherapy and supervised breastfeeding.

In this Case, there was no other finding for hyperbilirubinemia except dehydration which was a rare cause of kernicterus, so it is very important to counsel the parents regarding the importance of breast feeding and danger signs of hyperbilirubinemia.

Parents should be advised for regular follow up to prevent the further complication

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