NEO - 05

SEVERE NEONATAL HYPERBILIRUBINEMIA: A CASE SERIES IN INDONESIA

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BACKGROUND

Severe hyperbilirubinemia is defined as total serum bilirubin (TSB) ≥20 mg/dL in newborns and contributes significantly to neurological complications[1]. Poor management of this disease results death or irreversible brain damage that adds a long term effect for social and economy burden[2]. The prevalence of severe hyperbilirubinemia lately increases in Low-Middle Income Countries (LMICs) therefore needs further investigation and attention[1]. Quality of hyperbilirubinemia management involves the role of health care professionals. The effect of insufficient and substandard therapy could have a role in high burden of this disease in Indonesia compared to other countries[3].In this paper we report two severe hyperbilirubinemia cases with different approach. This report highlights the need to increase awareness to conduct risk assesment, early detection, and prompt treatment on severe hyperbilirubinemia.

CASE 1

Baby D, a term male baby weighing 3105 grams was discharged from the previous hospital without any hyperbilirubinemia risk assessment and came back 6 days later with worsening jaundice. He received phototherapy for 24 hours but did not show any improvement. Then he was referred to Dr. Soetomo General Hospital. From physical examination in Neonatal Intermediate room, he was lethargic, hypotonic, high pitched cry, and difficult to drink. Initial laboratory examination showed: TSB 34,76 mg/dL. This patient received multiple intensive phototherapies and underwent laboratory monitoring every 6 hours.

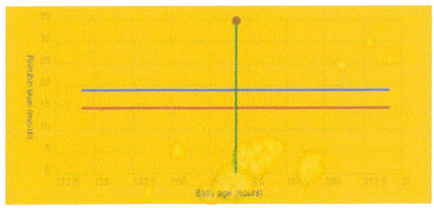


Fig. 1 Recommended treatment for case 1 based on Indonesian Hyperbilirubinemia Guideline

—— = Phototherapy Threshold —— = Exchange Transfusion Threshold

CASE 2

Baby K, a 7 days old preterm male baby weighing 1990 grams was referred to Dr Soetomo General Hospital due to jaundice and cyanosis when crying. He was diagnosed with small PDA and received Paracetamol 10mg-5mg-5mg on day I - III. Physical examination in Neonatal Intermediate room showed lethargic with opistotonus baby with initial laboratory examination; TSB 27,23, Direct Bilirubin 4,29, and Coombs test was negative for both direct and indirect. He received intensive phototherapy as bridging therapy before exchange transfusion. On the next day, he received exchange transfusion using 180 ml FWB.

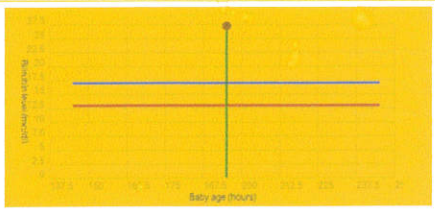
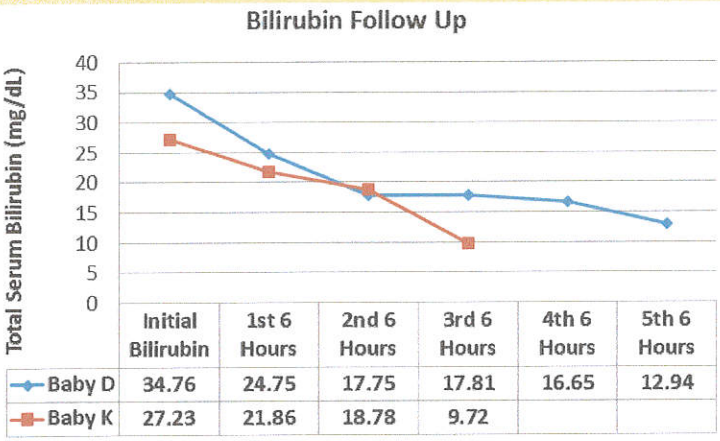


Fig. 2 Recommended treatment for case 2 based on Indonesian Hyperbilirubinemia Guideline

DISCUSSION



	Initial Bilirubin	1st 6 Hours	2nd 6 Hours	3rd 6 Hours	4th 6 Hours	5th 6 Hours
Baby D	34.76	24.75	17.75	17.81	16.65	12.94
Baby K	27.23	21.86	18.78	9.72		

Fig. 3 Comparation of severe hyperbilirubinemia management outcome; intensive phototherapy vs exchange transfusion

Tab 1. Follow Up Examination Results

	BIND-M	BERA	MRI
Place	NICU	Outpatient Clinic	Outpatient Clinic
Baby D	Total score = 4 (Mild ABE)	Sensory-neural hearing loss	Kernicterus (-)
Baby K	Total score = 6 (Moderate ABE)	Sensory-neural hearing loss	Kernicterus (+)

BIND-M = Bilirubin Induced Neurologic Dysfunction-Modified
BERA = Brainstem Evoked Response Audiometry

Fig. 4 Opisthotonus and high pitched crying manifestation in Baby K (case 2)

Late diagnosis and unawareness of health care providers generate progress towards severe hyperbilirubinemia in both cases. According to AAP recommendation, before discharge, every newborn should be assessed for risk factors of severe hyperbilirubinemia[4]. However, all patients in this series were discharged from previous health center without risk assessment and came back on scheduled appointment with lethargic and worsening jaundice. Investigation on risk factors for severe hyperbilirubinemia was done after referral and showed Baby D suffer from G6PD deficiency meanwhile Baby K showed no risk factor.

CONCLUSION

Although guidelines and facilities for hyperbilirubinemia management are available and developed, LMICs especially Indonesia still have a high burden of severe hyperbilirubinemia. The reports of two cases in this series give us lesson learned for health care providers in neonatal unit to increase awareness of the burden of hyperbilirubinemia. Pre-discharge risk assessment, early detection, and prompt treatment are the hallmark in preventing severe hyperbilirubinemia and its neurological sequence, thus need attention to be applied in all neonatal units.

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