

Procatерol for Infantile Sick Sinus Syndrome

Sick sinus syndrome (SSS) is a type of bradyarrhythmia due to abnormal pacemaking of a degenerated sinoatrial (SA) node; the pathophysiology and optimal treatment of neonatal SSS remains unclear [1].

A male neonate was born at the gestational age of 30 weeks by emergency cesarean section due to maternal hypertensive disorders of pregnancy. The patient's body weight and length were 1361 g (−0.80 SD) and 40.0 cm (−0.03 SD), respectively. His Apgar scores were 3, 5, and 8 at 1, 5, and 10 minutes after birth, respectively. After resuscitation, including intubation, he was admitted to the neonatal intensive care unit (NICU). Echocardiography revealed no structural abnormality. After administration of indomethacin for eight times from the 1st to 23rd days, the ductus arteriosus became narrower and asymptomatic. On day 13, the first extubation was performed. Soon after extubation, a recurrent attack of bradycardia with a heart rate of 50 to 80/min was observed, which required re-intubation and mechanical ventilation. Holter electrocardiography (ECG) performed on day 17 showed that an escaped rhythm occurred for 0.7% of the total 24 recorded hours, leading to the diagnosis of SSS. Enteral administration of procaterol via gastric tube with a dose of 0.65 µg/kg for three times/day was initiated on day 21. The frequency of bradycardia reduced, and the minimum heart rate increased above 90 beats/min, whereas his heart rate at rest was elevated to 180–190 beats/min soon after initiating procaterol. Therefore, procaterol was adjusted to 0.65 µg/kg/dose for two times/day on the 22nd day. From the 34th day, procaterol was increased to 1 µg/kg/dose for two times/day for prevention of bradycardia after

re-extubation. Holter ECG performed on day 34 showed disappearance of the escape rhythm, and the patient was successfully extubated on day 38. He is now 6 months of age, and the procaterol therapy has been continued after the discharge. SSS is well controlled and pacemaker implantation was not required.

Although the fundamental treatment for SSS is pacemaker implantation, several problems, such as a small body size and limitation of medical resources makes it difficult to apply it immediately in the neonatal period, especially for preterm infants [1-3]. The present case suggests the efficacy of enteral procaterol in infantile SSS management.

Acknowledgments: Dr Hiroyuki Sato, Dr. Atsushi Kondo, Dr Ayaka Tomita, Dr Yui Miyazawa, Dr Sato, Dr Kondo, Dr Tomita and Dr Miyazawa for participating in treatment of the patient. We also thank Ellen Knapp from Edanz Group (www.edanzediting.com/ac) for language editing.

JUNYA NAKAJIMA* AND KAYO MIZUTANI

*Department of Neonatology,
Kameda Medical Center, Chiba, Japan.
ob1.3po@hotmail.co.jp

REFERENCES

1. Dobrzynski H, Boyett MR, Anderson RH. New insights into pacemaker activity: Promoting understanding of sick sinus syndrome. *Circulation*. 2007;115:1921-32.
2. Epstein AE, DiMarco JP, Ellenbogen KA, Estes NA, Freedman RA, Gettes LS, *et al.* ACC/AHA/HRS 2008 Guidelines for Device-based Therapy of Cardiac Rhythm Abnormalities: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the ACC/AHA/NASPE 2002 Guideline Update for Implantation of Cardiac Pacemakers and Antiarrhythmia Devices): developed in collaboration with the American Association for Thoracic Surgery and Society of Thoracic Surgeons. *Circulation*. 2008;117:e350-408.
3. Jaeggi E, Ohman A. Fetal and neonatal arrhythmias. *Clin Perinatol*. 2016;43:99-112.

Mother-Neonatal Intensive Care Unit – A New Model of Family Participatory Care?

We read with great interest the article on Mother-Neonatal Intensive Care Unit (M-NICU) published in a recent article in *Indian Pediatrics* [1]. This model of care

seeks to operationalize two key concepts that are widely accepted as part of optimal care for newborns—integration of maternal and newborn care, and family engagement.

The Ministry of Health and Family Welfare (MOHFW), Government of India, through its National Health Mission (NHM), has demonstrated exemplary leadership in responding and adapting to the evolving needs of India's program for small and sick newborns. Recent inclusion of Family Participatory Care (FPC) as a national health program innovation in newborn care and