# OLYMPIC CFM™ 6000

## Case Report: Continuous Monitoring of A Critical Newborn
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## Gazi University, Ankara Turkey

Management of the critically ill newborn challenges the neonatologist to obtain timely data, analyze its significance, and adapt care strategies in response to rapid and often unpredictable changes in the child's condition. This report details the contribution of continuous monitoring in the care of one such infant.

This pre-term male infant was delivered at 28 weeks gestation weighing 900 grams, measuring 34 cm in length, with a head circumference of 25 cm. The baby's Apgar scores were $5^{1}$, $3^{5}$, $3^{10}$. Resuscitation was started in the delivery room and the baby was admitted to the NICU. Despite surfactant, vasopressor and antibiotic therapy, there was a decrease in oxygen saturation and the baby was administered high frequency ventilation.

Cranial ultrasonography on the first day was normal, but on the second day of life, bleeding from the umbilical catheter began and he was diagnosed with haemophilia. The newborn's general condition deteriorated. Cranial ultrasonography showed bilateral ventricular dilatation [ventricular width of 14mm on both sides (4mm > 97th percentile)] and right parenchymal hemorrhage. Brain monitoring with aEEG (Olympic CFM™ 6000, Natus Medical Incorporated, Seattle, WA, USA) was initiated. The aEEG recording showed a mainly discontinuous pattern.

The next day, despite the supportive therapy, the patient's condition worsened. After 36 hours of aEEG recording, an abrupt fall of amplitude was seen and the aEEG trace showed a nearly isoelectric pattern with few bursts (Figure I, II). His clinical condition had deteriorated and severe brain edema had developed due to the rising intracranial pressure. Two hours after this sudden deterioration in cerebral activity, doppler sonography showed a marked decreased diastolic flow in the anterior cerebral artery (RI 0.95). The aEEG pattern continued to be a flat tracing for the next 6 hour period. Ten hours after the abrupt change in cerebral activity, the baby expired.

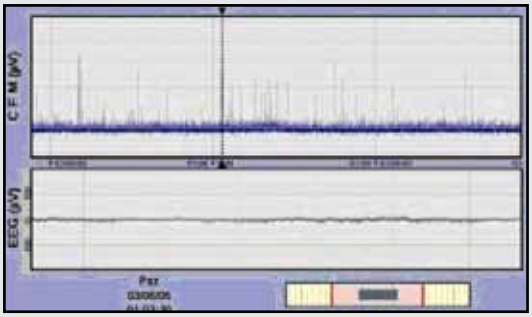


**Figure - I:** The aEEG shows a nearly isoelectric pattern with few seizures and bursts

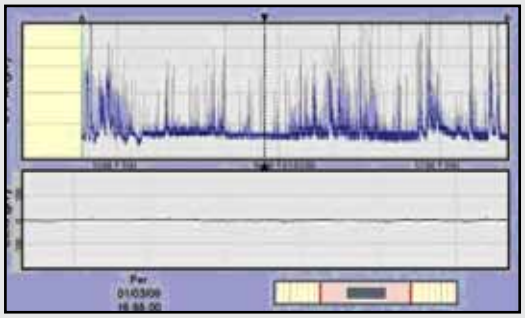

**Figure - II:** The aEEG trace shows a nearly isoelectric pattern with few bursts

This case report demonstrates that continuous monitoring of critical newborns in the NICU with aEEG contributes valuable information about the brain's electrical activity and may help establish the diagnosis of severe brain edema and brain death.

Professor Kıvılcım Gücüyener
Hospital Neonatology & Pediatric Neurology Department
Gazi University, Ankara, Turkey