Bispectral index (BIS) is one of several technologies used to monitor depth of anesthesia. BIS monitors are used to supplement Guedel's classification system for determining depth of anesthesia.

Hernández-Hernández et al. evaluated the bispectral index (BIS) monitoring to detect delayed cerebral ischemia (DCI) after aneurysmal subarachnoid hemorrhage (aSAH).

Materials and methods: A single-center prospective study in patients with aSAH. BIS monitoring was recorded during 25-120 min in two periods, within the initial 72 h (BIS1) and between days 4 and 6 (BIS2) from admission. The median for each exported BIS parameter was analyzed. Transcranial Doppler (TCD) sonography was simultaneously performed with BIS1 (TCD1) and BIS2 (TCD2) monitoring. A multivariate logistic regression model was built to identify the variables associated with DCI.

Results: Sixty-four patients were included and 16 (25%) developed DCI. During BIS2 monitoring, significant differences were found in BIS value (left, p = 0.01; right, p = 0.009), 95% spectral edge frequency (left and right, p = 0.04), and total power (left and right, p = 0.04). In multivariable analysis, vasospasm on TCD2 (OR 42.8 [95% CI 3.1-573]; p = 0.005), a median BIS2 value <85 in one or both sides (OR 6.2 [95% CI 1.28-30]; p = 0.023), and age (OR 1.08 [95% CI 1.00-1.17]; p = 0.04) were associated with the development of DCI.

Conclusions: BIS value is the most useful BIS parameter for detecting DCI after aSAH. Pending further validation, BIS monitoring might be even more accurate than TCD [1)]

Smith MM, Andrzejowski JC. Decrease in bispectral index preceding signs of impending brain death in traumatic brain injury. J Neurosurg Anesthesiol. 2010 Jul;22(3):268-9. doi: 10.1097/ANA.0b013e3181d732c8. PubMed PMID: 20479670.

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Hernández-Hernández MA, Cherchi MS, Torres-Díez E, Orizaola P, Martín-Láez R, Fernández-Torre JL. Bispectral index monitoring to detect delayed cerebral ischemia after aneurysmal subarachnoid hemorrhage. J Crit Care. 2022 Sep 21;72:154154. doi: 10.1016/j.jcrc.2022.154154. Epub ahead of print. PMID: 36152563.