Introduction:
Sepsis associated encephalopathy (SAE) may manifest in up to 70% of adult septic patients. [1] Transcranial Doppler (TCD) may provide important information about cerebral hemodynamics in various disorders. [2] Two indices reflecting cerebro-vascular resistance (CVR) can be calculated; the pulsatility index (PI), and the resistive index (RI). [3] In this study, we aimed to assess the cerebrovascular resistance in septic shock paediatric cases with encephalopathy admitted to the PICU and compare them to a group of critically ill conscious non septic patients.

Methods:
This case-control study included 45 critically ill children with sepsis associated encephalopathy and 30 critically ill non-septic and non-encephalopathic children admitted to a tertiary care paediatric hospital. PRISM III score and neurological assessment, including level of consciousness assessed using the Full Outline of Unresponsiveness (FOUR) score were determined. PI and RI of the middle meningeal artery were done on both sides using TCD to all included patients.

Results:
The study showed that mean PI and RI values of the septic critical cases were significantly higher than those of the control group, CVR increases with the more deepening of coma (the decline in FOUR score). Cerebral CO2 reactivity in septic patients were found disturbed. There were positive correlations between both PI and RI and PaCO2 with high significance.

Conclusion:
Cerebrovascular resistance is increased in cases of sepsis - associated encephalopathy. Carbon Dioxide vasoreactivity is impaired in cases of septic shock.

References: