Media Folia Medica Indonesiana
Volume : 40 - No. 3 Terbit : 07-2004

Penulis :
Teddy Ontoseno

Iron Deficiency, Low Arterial Oxygen Saturation and High Hematocrit Level as a Major Micro-Environmental Risk Factors in the Development of Brain Abscess in Patients with Tetralogy of Fallot

Abstrak :

The two most serious complication of central nervous system resulting from unoperated cyanotic congenital heart disease are cerebral intravascular thrombosis and intracranial suppuration. Brain abscess is a frequent and serious complication of Tetralogy of Fallot (TF). The early diagnosis is often difficult, every patient with TF particularly with highest hematocrit (Hct) level have significant risks of the occurrence of the multiple brain abscesses. Objective: to identify that iron deficiency, oxygen saturation and hematocrit are the major micro-environmetal factors in the occurrence of brain abscess in TF. Methods: This was hospital-based case-control study where all medical records of patients hospitalized in the Dr.Soetomo Teaching Hospital from January 1989 until January 2003 were used. Data in 26 cases of TF and brain abscess were studied and compared with data in a control group with TF without brain abscess. The definitive diagnosis of brain abscess is made with the helping of CT scan. The laboratory data of TF with brain abscess were compared with of control group. The control group consisted of TF patients with a blood oxygen saturation level of less than 94 percent who had undergone routine examination at the same age and in the same year as the subjects under study. Laboratory studies use for comparison included determinations of arterial blood oxygen content and percent of saturation, hemoglobin and hematocrit. The statistical tests employed were t-test, Fischer Exact test and Mann-Whitney test. Result: The arterial oxygen saturation in this group was 67.4 percent (range 42 to 78.4 percent), significantly lower than the control group was 76.2% (range 56.7 to 86.2) (p < 0.01). The hematocrit in study group was 62 percent (range 48.2 to 82.4) significantly higher (p < 0.013) than in the control group 43.1 percent (range 37.3 to 68.9 percent. Hemoglobin values were also assessed and showed a mean of 19.8 g/dl (range 15.3 to 24.3 g/dl) significantly higher (p < 0.016) compared with a control group a mean of 16.7 g/dl (range 15.2 to 18.9 g/dl). Conclusion: Based on the collected data, transferrin saturation values in brain abscess group was 8.7 %, significantly lower than the control was 16.2 % (p < 0.01), the pertinently high prevalence of iron deficiency calls for further study. Therefore, it is strongly recommended that conservative treatment to tetralogy of Fallot patients be continuously monitored while potential occurrence of iron deficiency, low oxygen saturation and high hematocrit be anticipated as early as possible.

Keyword :

brain abscess, tetralogy of Fallot

Daftar Pustaka :

Anderson RH, Mc Carthey FJ, Shinebourne EA, Tunan M. Tetralogy of Fallot. Pediatric Cardiolgy. Vol. 2 Churchill Livingstone 1997 London
Behrman RE Polycythemia. In: Behrman RE, Kliegman RM. Nelson Textbooks of Pediatrics. 14th.ed. WB Saunders Co 1992 Philadelphia