Perbandingan neurodevelopment pada anak dengan gangguan gizi dan anak dengan gizi normal = Associaton of neurodevelopment in children with malnutrition and normal nutrition

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Abstrak

Latar belakang: Malnutrisi berhubungan dengan patologi struktural dan fungsional di otak yang dapat mengganggu maturitas sistem saraf pusat (SSP). Hal ini dapat menyebabkan gangguan belajar dan mempengaruhi kecerdasan anak. Salah satu instrumen untuk menilai maturitas SSP adalah dengan pemeriksaan soft sign neurology yang dapat menilai kelainan motorik atau sensorik tanpa adanya lesi struktural di SSP.
Tujuan: Melihat perbandingan neurodevelopment anak dengan gangguan gizi dan anak gizi normal.
Metode: Penelitian potong lintang secara konsekutif nonrandom sampling pada anak usia 5-18 tahun dengan gizi normal dan ganguan gizi di wilayah Jakarta yang memenuhi kriteria inklusi dan eksklusi, dilakukan wawancara dengan orang tua, recall makanan, dan pemeriksaan soft sign neurology dengan instrumen Physical and Neurological Examination for Soft Sign (PANESS). PANESS terdiri dari 43 aitem untuk menilai gerakan motorik, graphesthesia, stereognosis, keseimbangan, gerakan berkelanjutan, gerakan bergantian dan string test.
Hasil: Dari 170 subyek didapatkan soft sign neurology pada 135 subyek (79,4%) terdiri dari 72 laki-laki (53,3%) dan 63 perempuan (46,7%); 70 subyek (77,8%) kelompok gizi normal dan 65 subyek (81,2%) kelompok gangguan gizi. Terdapat perbedaan yang bermakna secara statistik antara kelompok gizi normal dengan kelompok gangguan gizi usia 5-12 tahun pada penilaian total graphesthesia, total keseimbangan, dan total PANESS (p<0,05). Terdapat perbedaan yang bermakna secara statistik antara kelompok gizi normal dengan kelompok gangguan gizi usia 13-18 tahun pada penilaian gerakan bergantian (p=0,047).
Kesimpulan: Terdapat perbedaan soft sign neurology yang bermakna antara kelompok anak gizi normal dengan kelompok anak gangguan gizi terutama pada kelompok usia 5-12 tahun. Hal ini menunjukkan keterlambatan dalam maturitas SSP.
<hr><i>Background: Malnutrition is associated with structural and functional pathology of the brain, which can disrupt maturity of central nervous system (CNS). Furthermore, this condition will cause learning disability and influence child intellegency. One of instrument to assess maturity of the CNS by using Neurological soft signs (NSSs) which can assess abnormal of motor and sensory findings without a structural lesion in the CNS.
Aim: This study is aimed to assess association of neurodevelopment between malnutrition and normal nutrition children.
Method: This cross-sectional study used consecutive non-randomized sampling by enrolled to children range between 5-18 years old within normal nutrition and undernutrition based at Jakarta regions which had met with inclusion and exclusion criteria, and had undergone interview with their parents, 24 hours recall nutrition, and NSSs examination using Physical and Neurological Examination for Soft Sign (PANESS) instrument. PANESS consist of 43 items was used for the assesment of motor movement, graphestesia, stereognosis, balance, continuity of movement, alternating movement and string test.

Result: From total of 170 subjects, there were 135 subjects (79.4%) have NSSs, consist of 72 boys (53.3%) and 63 girls (46.7%). In normal nutrition group there were found 70 subjects (77.8%) have NSSs and at malnutrition group there were found 65 subjects (81.2%) have NSSs. It showed that there was significant difference between normal nutrition between 5-12 years old compared to malnutrition group in total assessment of graphesthesia, total balance, and total score of PANESS ($P<0.05$). There were significant difference between normal nutrition group of 13-18 years old with malnutrition group at alternating movement ($P=0.047$).

Conclusion: There is significant difference of NSSs between normal nutrition and malnutrition especially for children between 5-12 years old. This finding showed delay of the CNS maturity.</i>