

INTISARI

Latar Belakang: *Stunting* merupakan masalah besar di Indonesia, karena prevalensinya tinggi dan dapat menurunkan kemampuan kognitif. Intervensi nutrisi terhadap *stunting* harus memperhatikan patofisiologi *stunting* atau seringkali gagal. Penelitian ini dilakukan untuk mengetahui peran *mTOR* dan asam amino dalam patofisiologi *stunting*, sehingga intervensi nutrisi dapat dilakukan lebih terarah, serta mengetahui dampaknya terhadap fungsi kognitif anak usia 6-24 bulan. **Tujuan:** melakukan pemeriksaan kadar *mTOR* dan asam amino pada darah anak *stunting* dibandingkan dengan anak normal dan melihat pengaruhnya terhadap kemampuan kognitif. **Metode:** Penelitian ini adalah penelitian potong lintang, sampel diambil dengan cara *purposive sampling* terhadap anak *stunting* dan anak normal berumur 6-24 bulan. *mTOR* dan asam amino diperiksa dari darah. Terhadap subyek dilakukan evaluasi perkembangan kognitif dengan *Bayley Scales of Infant Development* versi III. Lokasi penelitian di wilayah kerja Puskesmas Cipayung Jakarta Timur. **Hasil dan Pembahasan:** subyek penelitian adalah 44 anak *stunting* dan 57 anak normal. Rerata kadar *mTOR* anak *stunting* adalah 10,99 (ng/mL), secara statistik berbeda bermakna dibanding anak normal ($p\ 0.021 < 0,05$. 95 % CI 10.95-16.54). Rerata kognitif anak *stunting* berada pada persentil 24.91 ($P < 50$) sedangkan anak normal pada persentil 25.11 [$P < 50$] yang tidak berbeda bermakna diantara kedua kelompok tersebut ($p\ 0,74 > 0,05$. 95 % CI 18.19-31.56). Proporsi anak *stunting* dengan kemampuan kognitif di bawah persentil 50 sebanyak 38 anak (86,4%) dan anak normal 52 anak (91,2%), yang tidak berbeda bermakna antara kedua kelompok *stunting* dan normal ($p\ 0,53 > 0,05$). Rerata *mTOR* antara kelompok kognitif dibawah persentil 50 adalah 17,40 (ng/mL), sedangkan pada kelompok diatas persentil 50 adalah 14,11 (ng/mL), secara statistik tidak terdapat perbedaan yang bermakna antara rerata *mTOR* antar kelompok kognitif dibawah persentil 50 dan diatas persentil 50 ($p\ 0,41 > 0,05$. 95 % CI 14.47-20.32). Kadar asam amino hanya positif pada satu kasus saja sehingga tidak dapat dianalisis. **Kesimpulan:** terdapat perbedaan bermakna kadar *mTOR* anak *stunting* dan anak normal. Tidak terdapat perbedaan bermakna kadar *mTOR* antara anak *stunting* dengan kemampuan kognitif $>$ persentil 50 dan kemampuan kognitif $<$ persentil 50. Pada penelitian ini fungsi kognitif anak *stunting* maupun normal berada dibawah persentil 50 namun fungsi kognitif anak *stunting* lebih rendah dari pada anak normal secara statistik tidak bermakna.

Kata Kunci: asam amino, *mTOR*, protein, energi dan perkembangan kognitif, *stunting*

ABSTRACT

Background: Stunting is a major problem in Indonesia, because stunting decreases cognitive abilities. Nutrition interventions for stunting should pay attention to pathophysiological stunting or failed varieties. This research was conducted to determine the role of essential amino acids and roles. Mechanical objectives of Rapamycin Complex 1 (mTORC1) in pathophysiological stunting, cherry elements can be carried out more directed as well as knowing the impact on cognitive functions of children aged 6-24 months.

Purpose: To examine the level of mTOR and essential amino acid on the plasma blood of stunting children and normal children and observe the impact on cognitive development of stunting children and normal children. Method: the research used the cross sectional and the sample will be in diagnosis of stunting children and normal children. Furthermore, the blood will be taken to check up profile of mTOR and essential amino acid. The samples will be evaluated toward the cognitive development by Bayley Scales of Infant Development III. The research is located in working area of Clinic in Cipayung, East Jakarta.

Result and discussion: The subjects were 44 stunting children and 57 normal children as controls. The mean level of mTOR of stunting children was 10.99 (ng / mL), statistically significantly different than normal children ($p 0.021 < 0.05$, 95% CI 10.95-16.54). The average cognitive value of stunting children was 25.91 percentile ($P < 50$), while the normal children were in 25.11 percentile ($P < 50$) but this difference was not significant ($p 0.74 > 0.05$, 95% CI 18.19-31.56). The proportion of stunting children with cognitive development below the 50th percentile was 38 children (86.4%) and normal children 52 children (91.2%), which did not significant between the two stunting and normal groups ($p 0.53 > 0.05$) The mean mTOR between the cognitive groups below the 50th percentile was 17.40 (ng / mL), whereas in the group above the 50th percentile was 14.11 (ng / mL), there was no statistically significant difference between the mean mTOR between the cognitive groups below the 50th percentile and above the 50th percentile ($p 0.41 > 0.05$, 95% CI 14.47-20.32). Amino acid levels are only positive in one case so they cannot be analyzed.

Conclusion: there are significant differences in the levels of mTOR of stunting children and normal children. There were no significant differences in the levels of mTOR between stunting children with cognitive abilities > 50 th percentile and cognitive abilities < 50 th percentile. In this study the cognitive functions of stunting and normal children were below the 50th percentile but the cognitive function of stunting children was lower than normal children was statistically meaningless.

Keywords: amino acid, mTOR, protein, energy, cognitive development, stunting.