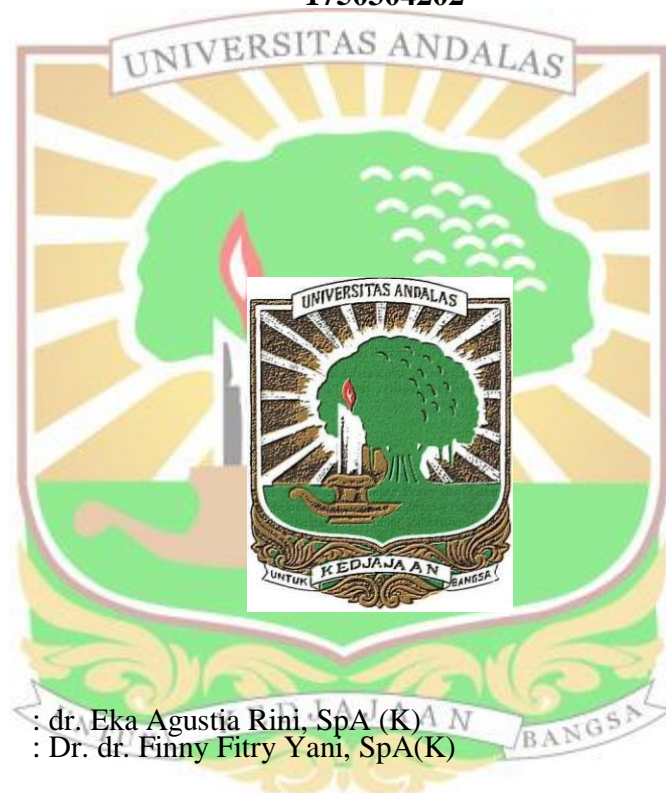


HUBUNGAN 25-(OH)D DENGAN STATUS KONTROL METABOLIK PADA ANAK DENGAN DIABETES MELLITUS TIPE I DI RSUP DR. M. DJAMIL PADANG

TESIS

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ABSTRAK

Hubungan 25-(OH)D dengan Status Kontrol Metabolik pada Anak dengan Diabetes Mellitus Tipe I di RSUP DR. M. Djamil Padang

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Latar Belakang. Diabetes Mellitus tipe 1 (DMT1) merupakan penyakit yang disebabkan oleh proses autoimun terhadap sel β pankreas. Penyakit ini tidak dapat disembuhkan namun dengan kontrol metabolik yang baik diharapkan kualitas hidup yang optimal dapat dicapai. Saat ini HbA1C masih dianggap sebagai parameter kontrol metabolik yang dapat diandalkan. Banyak studi menyatakan vitamin D memiliki peranan dalam mengontrol homeostasis glikemik pada anak DMT1. *Calcidiol* atau 25-(OH)D merupakan parameter terbaik untuk mengetahui kadar vitamin D dalam darah.

Tujuan Penelitian. Mengetahui hubungan 25-(OH)D dengan status kontrol metabolik pada anak DMT1 di RSUP DR.M.Djamil Padang.

Metode. Studi *cross-sectional* dilakukan pada 43 pasien anak dengan DMT1 sesuai kriteria inklusi, melalui metode *consecutive sampling*, di bangsal dan poli anak RSUP DR.M. Djamil Padang dari Juli 2019 - Januari 2021. Kadar 25-(OH)D darah diukur dengan metode *direct Competitive Chemiluminescence Immunoassay* (CLIA) dan kadar ≤ 30 ng/mL dianggap tidak normal, ≤ 20 ng/ml defisiensi, 21-30ng/ml insufisiensi. Kadar *Glycated haemoglobin* (HbA1C) dihitung dengan metode *High Performance Liquid Chromatography* (HPLC) dan diklasifikasikan menjadi kontrol baik (<7 %), cukup (7-8 %) dan buruk (>8 %). Analisis data numerik dilakukan menggunakan uji Anova dan data kategorik menggunakan uji *Chi-square*. Sebelumnya dilakukan uji normalitas data *Shapiro Wilk*. Nilai $p < 0,05$ dianggap signifikan.

Hasil. Mayoritas responden adalah perempuan (53,5%) dengan hampir seluruhnya berstatus gizi baik (90,7 %). Rerata usia saat diagnosis adalah $11,25 \pm 2,85$ tahun dan telah diketahui menderita DMT1 selama $2,95 \pm 1,74$ tahun. Seluruh responden memiliki kadar 25-(OH)D tidak normal (100 %) dimana 28% mengalami insufisiensi dan 72% mengalami defisiensi, 65,1% responden memiliki kontrol metabolik buruk dan 96,4% responden dengan kontrol metabolik buruk mengalami defisiensi 25-(OH)D. Studi menemukan bahwa pada responden dengan kadar metabolik yang buruk hampir seluruhnya mengalami defisiensi 25-(OH)D ($p < 0,001$).

Kesimpulan. Pasien DMT1 yang memiliki kontrol metabolik buruk memiliki kadar 25-(OH)D yang sangat rendah.

Kata Kunci : DM Tipe 1, 25- hydroxyvitamin D, HbA1C, kontrol metabolic

ABSTRACT

The Association between 25-(OH)D Level and Metabolic Control State in Children with Diabetes Mellitus Type 1 in General Government Hospital of M. Djamil Padang

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Background Diabetes mellitus type 1 (DMT1) is a disease caused by the autoimmune process to pancreatic beta cells. This disease cannot be cured, but with good metabolic control, an optimal quality of life can be achieved. Currently, HbA1C is still considered a reliable parameter of metabolic control. Many studies have stated that vitamin D has a role in controlling glycemic homeostasis in children with DMT1. Calcidiol or 25-(OH)D is the best parameter to determine the level of vitamin D in the blood.

Objective Determine the association between 25-(OH)D with metabolic control state in children with DMT1 at RSUP. DR. M. Djamil Padang.

Method A cross-sectional study was conducted on 43 pediatric patients with type 1 DM who fulfilled the inclusion criteria, by consecutive sampling method, in the pediatric outpatient clinic and in-patient ward of RSUP. DR. M. Djamil Padang from July 2019 to January 2021. Blood level of 25-(OH)D was measured by Direct Competitive Chemiluminescence Immunoassay (CLIA) method and level ≤ 30 ng/mL was considered abnormal, ≤ 20 ng/mL deficiency, and 21–30 ng/mL insufficiency. HbA1C level was measured by High Performane Liquid Chromatography (HPLC) method and was classified into good ($<7\%$), moderate (7-8%) and poor ($>8\%$). Numerical data analysis was performed using the ANOVA test and categorical data using the Chi-square test. Normality test by Saphiro-Wilk was conducted previously. P score of $<0,05$ was considered significant.

Results. The majority of respondents were female (53,5 %) with almost all of them having good nutritional status (90,7%). The mean age at diagnosis was $11,25 \pm 2,85$ years and had been known to suffer from type 1 DM for $2,95 \pm 1,74$ years. All respondents had abnormal levels of 25-(OH)D (100%) of which 28% had insufficiency and 72% had deficiency, 65.1% of respondents had poor metabolic control and 96.4% of respondents with poor metabolic control had a deficiency of 25-(OH)D. The study found that respondents with poor metabolic control almost all had 25-(OH)D deficiency. ($p < 0,001$)

Conclusion Type 1 DM patients who have poor metabolic control have very low levels of 25-(OH)D.

Keywords *Type 1 Diabetes Mellitus, 25-(OH)D, HbA1C, metabolic control*