

## Hubungan kadar serum vitamin D Ibu dan tali pusat dengan kadar serum Interleukin-6 (IL-6) tali pusat dan C-Reactive Protein (CRP) bayi prematur = Relationship of maternal vitamin D serum levels and umbilical cord with Interleukin-6 (IL-6) serum cord and C Reactive Protein (CRP) serum premature infants.

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### Abstrak

**Latar Belakang:** Aktivasi mediator inflamasi diketahui menyebabkan kelahiran preterm. Sitokin dan penanda inflamasi yang terbentuk berhubungan dengan imun tubuh. Vitamin D diketahui berperan pada modulasi respon sistem imunitas tubuh. Penelitian ini ingin mengetahui hubungan antara kadar vitamin D serum ibu dan tali pusat, dengan IL-6 tali pusat dan C Reactive Protein (CRP) darah bayi prematur.

**Metode:** Penelitian ini merupakan studi analitik dengan desain potong lintang pada subjek ibu hamil 28-34 minggu yang mengalami kelahiran prematur didahului KPD dan bayi yang dilahirkannya, di Rumah Sakit Umum Pusat Nasional dr. Cipto Mangunkusumo dan Rumah Sakit Umum Pusat Persahabatan, Jakarta pada bulan Januari 2017 sampai Agustus 2018. Subjek diambil secara consecutive sampling. Variabel data adalah kadar serum vitamin D ibu dan tali pusat, kadar serum IL-6 tali pusat dan kadar CRP darah bayi.

Dilakukan kategorisasi dikotomi dan polikotomi (tiga) kadar vitamin D dan dicari hubungannya dengan kadar IL-6 tali pusat dan CRP darah bayi, menggunakan uji Mann-Whitney dan Kruskal Wallis.

**Hasil:** Sebanyak 70 subjek telah memenuhi kriteria penelitian. Pada kategori dikotomi vitamin D ibu, kadar IL-6 tali pusat dan CRP bayi dari kelompok kadar vitamin D kurang, sedikit lebih tinggi (3,89 pg/ml dan 0,45 mg/dl) dibandingkan kelompok kadar vitamin D normal (3,29 pg/ml dan 0,30 mg/dl), tetapi perbedaan tersebut tidak bermakna (IL-6  $p=0,771$  dan CRP  $p=0,665$ ). Pada kategori polikotomi vitamin D ibu, kadar IL-6 tali pusat dan CRP bayi dari kelompok ibu vitamin D defisiensi, lebih tinggi (20,31 pg/ml dan 0,50 mg/dl) dibandingkan kelompok ibu vitamin D insufisiensi (3,34 pg/mL dan 0,45 mg/dl) dan kelompok ibu vitamin D normal (3,29 pg/mL dan 0,30 mg/dl), tetapi perbedaan tersebut tidak bermakna (IL-6  $p=0,665$  dan CRP  $p=0,899$ ). Pada kategori dikotomi maupun polikotomi vitamin D tali pusat, didapatkan perbedaan tidak bermakna yang terbalik dari kadar IL-6 tali pusat dan CRP bayi.

**Simpulan:** Tidak didapatkan hubungan antara kadar serum vitamin D ibu dan tali pusat dengan kadar serum IL-6 tali pusat dan CRP darah bayi prematur.

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**Background:** Activation of inflammatory mediators is known to cause preterm birth. Cytokines and inflammatory markers formed are associated with the body's immune system. Vitamin D is known to play a role in modulating the body's immune system response. This study aimed to find out the relationship between the levels of serum of maternal and umbilical cord vitamin D, with umbilical cord IL-6 and C Reactive Protein (CRP) in premature infants.

**Method:** This research was an analytic study with a cross-sectional design on the subject of 28-34 weeks pregnant women who experience preterm birth preceded by premature rupture of membranes and their babies, at dr. Cipto Mangunkusumo and Persahabatan General Hospital, Jakarta, from January 2017 to August 2018. Data variables were the levels of serum of maternal and umbilical cord vitamin D, umbilical

cord IL-6 and CRP in premature infants. Vitamin D levels were divided into dichotomy and polycotomy categories, and found out their relationship to the levels of IL-6 and CRP using the Mann Whitney and Kruskal Wallis tests.

Result: A total of 70 subjects met the research criteria. In the maternal vitamin D dichotomy category, the umbilical cord IL-6 and infants CRP levels from the group with low level were less slightly higher (3.89 pg/ml and 0.45 mg/dl) compared to the group with normal level (3.29 pg/ml and 0.30 mg/dl), but the difference was not significant (IL-6  $p = 0.771$  and CRP  $p = 0.665$ ). In the maternal vitamin D polycotomy category, umbilical cord IL-6 and infants CRP levels from the deficiency group were higher (20.31 pg/ml and 0.50 mg/dl) compared to the insufficiency group (3.34 pg/mL and 0.45 mg/dl) and the normal group (3.29 pg/mL and 0.30 mg/dl), but the difference was not significant (IL-6  $p = 0.665$  and CRP  $p = 0.899$ ). In both dichotomy and polycotomy categories of umbilical cord vitamin D, we found a non-significant difference inversely related to umbilical cord IL-6 and infants CRP levels.

Conclusion: There was no correlation between between the levels of serum of maternal and umbilical cord vitamin D, with umbilical cord IL-6 and C Reactive Protein (CRP) in premature infants.