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Pengaruh pemberian beta-karoten, vitamin D3 dan seng menyertai terapi steroid antenatal terhadap kejadian penyakit membran hialin dan gangguan toleransi minum pada bayi prematur = The effect of administration of beta carotene, vitamin d3 and zinc accompanying antenatal steroid on hyaline membrane disease and feeding intolerance in premature neonates / Yuyun Lisnawati

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Abstrak

Penyakit membran hialin (PMH) dan gangguan toleransi minum (GTM) merupakan masalah pada bayi prematur dengan morbiditas dan mortalitas cukup tinggi. Pemberian steroid antenatal telah menurunkan angka PMH dan enterokolitis nekrotikans (EKN) komplikasi lanjut dari GTM, tetapi masih belum optimal dan masih didapat luaran yang berbeda pada bayi dengan usia gestasi, berat lahir dan tata laksana antenatalyang sama. Mikronutrien vitamin A, D₃dan seng diketahui memengaruhi organ tersebut. Penelitian ini ingin mengetahui manfaat pemberian vitamin A (beta-karoten), vitamin D₃dan seng menyertai deksametason untuk menurunkan kejadian PMH dan GTM pada bayi prematur.

Uji klinis acak dilakukan pada subjek ibu hamil 28-34 minggu dan bayinya. Ibu hamil dirawat di rumah sakit untuk persiapan kelahiran prematur atas indikasi janin atau ibu. Subjek dibagi dalam kelompok intervensi dan kontrol. Kedua kelompok mendapat deksametason 2 x 6 mg intravena (2 hari). Kelompok intervensi mendapat dosis tunggal beta-karoten 25.000 IU dan vitamin D₃50.000 IU per oral, serta seng 50 mg/hari peroral (3 hari), sedangkan kelompok kontrol tidak. Sampel darah ibu dan tali pusat diambil untuk pengukuran kadar serum retinol, 25(OH)D dan seng. Bayi dipantau selama 4 minggu. Angka kejadian PMH, GTM, PMH-GTM dan hubungan kadar serum retinol, 25(OH)D dan seng pada kedua kelompok dengan luaran PMH-GTM, dianalisis dengan uji Chi-Square atau Fisher, uji t tidak berpasangan atau uji Mann Whitney dan uji t berpasangan atau uji Wilcoxon.

Jumlah subjek 116 pasangan ibu-bayi, terbagi sama di kelompok intervensi dan kontrol. Kejadian PMH dan GTM pada bayi kelompok intervensi 7 (12,1%) dan 9 (16,1%), lebih rendah dan bermakna dibandingkan kelompok kontrol, 16 (27,5%) dan 19 (34,5%). Bayi PMH-GTM kelompok kontrol mempunyai kadar retinol, 25(OH)D dan seng di serum ibu dan tali pusat yang lebih rendah dibandingkan kelompok intervensi. Perbedaan bermakna didapatkan pada kadar 25(OH)D.

Simpulan: Angka kejadian PMH dan GTM pada kelompok intervensi secara bermakna lebih rendah dibandingkan kelompok kontrol. Kadar retinol, 25(OH)D dan seng di serum ibu dan tali pusat berhubungan dengan luaran PMH-GTM.
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Hyaline membrane disease (HMD) and feeding intolerance (FI)are still problems of premature neonatal morbidity and mortality. Antenatal steroid administration has been recognized to reduce HMDand

FImortality rates, but it is still not optimal and there are still different outcomes in neonates with similar gestational age, birth weight and treatment. Micronutrients of vitamin A, D₃and zinc are known to play a roleon the lung and intestines of the fetusand neonates. This study aimed to find out the benefits of administration of vitamin A (beta carotene), vitamin D₃and zinc accompanying antenatal steroids for lung maturation, in order to reduce the incidenceof HMD and FI.

A randomized clinical trial was conducted on pregnant women 28-34 weeks of gestational age who were hospitalized for the preparation of preterm delivery on the indication of the mother or fetus. Both groups received dexamethasone for lung maturation. The intervention group received oral micronutrients, i.e., beta carotene 25,000 IU single dose, vitamin D₃50,000 IU single dose and 50 mg zinc per day for 3 days. The incidence of HMD, FI, HMD-FI and the relationship of serum retinol, 25(OH)D, zinc concentrationsin maternal and umbilical cord with HMD-FI were analyzed by Chi-Square or Fisher test, unpaired t or Mann Whitney test and paired t or Wilcoxon test between the intervention and control groups.

The total subjects were 116 pairs of pregnant mothers and neonates (58 interventions and 58 controls). The incidence of HMDand FIin neonates in the intervention group were 7 (12.1%) and 9 (16.1%),which weresignificantly lower thanthe control group, 16 (27.5%) and 19 (34.5%). The HMD-FI neonates in the control group had lower serum retinol and 25(OH)D concentrations in maternal and umbilical cord than in the intervention group. Significant differences were only found at 25 (OH) D concentration.

Conclusion: The incidence HMD and FI in the neonates intervention group were significantly lower than the control group. There was a relationship betweenserum retinol, 25(OH)D and zinc concentrations with HMD-FI outcome.