

PENGARUH DIET PROTEIN DAN *INTAKE* VITAMIN D3 PADA IBU MENYUSUI TERHADAP KADAR KALSIMUM DAN FOSFOR TULANG MAKSILA ANAK YANG MENGALAMI MALNUTRISI PRENATAL

ABSTRAK

Latar belakang: Malnutrisi akibat kurangnya asupan protein saat kehamilan memengaruhi deposit kalsium dan fosfor dalam tulang, sehingga menyebabkan gangguan kalsifikasi tulang. Kualitas tulang dan gigi dipengaruhi oleh kadar kalsium dan fosfor dalam gigi dan tulang maksila. Protein dan vitamin D3 dapat meningkatkan kadar kalsium dan fosfor tulang maksila pada anak malnutrisi.

Tujuan: Mengetahui pengaruh pemberian protein dan vitamin D3 masa menyusui terhadap peningkatan kadar kalsium dan fosfor dalam tulang maksila anak tikus malnutrisi prenatal.

Metode: Penelitian eksperimental dengan rancangan *post test only control group*. Tiga puluh anak tikus *Rattus norvegicus* galur wistar dibagi ke dalam 5 kelompok ($n=6$) yaitu kelompok kontrol positif, kelompok kontrol negatif dan 3 kelompok dengan perlakuan pemberian diet protein standar dengan vitamin D3, pemberian diet protein rendah dengan vitamin D3 dan pemberian diet protein standar tanpa vitamin D3. Parameter yang diukur adalah kadar kalsium fosfor dalam tulang maksila.

Hasil: Hasil uji *Anova* menunjukkan terdapat perbedaan bermakna rerata kadar kalsium dan fosfor antar kelompok ($p<0,05$). Uji *Kruskal Wallis* menunjukkan terdapat perbedaan bermakna rerata kadar kalsium antara kelompok kontrol dengan kelompok perlakuan 1, namun tidak berbeda pada perlakuan 2 dan 3. Uji *Post Hoc* untuk fosfor menunjukkan terdapat perbedaan bermakna baik antara kelompok kontrol dengan kelompok perlakuan 1, 2 maupun 3.

Kesimpulan: kombinasi pemberian diet protein standar dan vitamin D3 0,36 IU/hari/oral paling optimal dalam meningkatkan kadar kalsium dan fosfor tulang maksila anak tikus malnutrisi.

KATA KUNCI: protein; vitamin D3; fosfor; kalsium, malnutrisi prenatal; tulang maksila

THE EFFECT OF PROTEIN DIET AND VITAMIN D3 INTAKE IN BREASTFEEDING MOTHERS WITH CALCIUM AND PHOSPHORUS LEVELS OF MAXILLARY IN PRENATAL MALNUTRITION'S CHILD

ABSTRACT

Background: Malnutrition due to deficiency of protein intake during pregnancy affects calcium and phosphorus deposits in the bone that effect in bone calcification disorders. Quality of bones and teeth is affected by calcium and phosphorus levels in the teeth and maxillary bones. Protein and vitamin D3 increase calcium and phosphorus levels of maxillary bone in malnourished child.

Objective: To determine the effect of protein and vitamin D3 at nursing period with increasing calcium and phosphorus levels of maxillary bone in prenatal malnutrition mice.

Methods: Experimental study with post-test only control group design. Thirty mice of Rattus norvegicus wistar strain were divided into 5 groups (n=6), namely positive control group, negative control group and 3 groups of malnutrition mice suckle in mother who receive intervention standard protein diet with vitamin D3, low protein diet with vitamin D3 and a standard protein diet without vitamin D3. The parameter measured was calcium and phosphorus levels in maxillary.

Results: Anova test results showed there was differences calcium and phosphorus levels of maxillary between groups significantly ($p < 0.05$). Kruskal Wallis test showed there was differences calcium level between control group and intervention 1, but there wasnt in intervention 2 and 3. Post Hoc test showed there were differences phosphorus level between the control group with intervention 1, 2 and 3 groups.

Conclusion: combination of standard protein diet and vitamin D3 0.36 I /gr BW/day/oral is the most optimum to increase calcium and phosphorus levels of maxillary bone in malnourished mice.

Keyword : protein; vitamin D3; Phosphorus; calcium, prenatal malnutrition; Maxillary bone