INFLUENCE OF VIT D PLASMA LEVEL ON PNEUMONIA OUTCOME IN INSTITUTIONALIZED CHILDREN.

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Vitamin D deficiency is now recognized as a pandemic. Vitamin D deficiency causes rickets in children, has been associated with increased risk of common cancers, autoimmune diseases, hypertension, and infectious diseases, as well as cardiovascular disease, multiple sclerosis, rheumatoid arthritis, and type 1 diabetes mellitus. The relationship between vitamin D deficiency and infections, especially lower respiratory tract infections (RTIs), has been demonstrated in children and newborns too.

Study was aimed to assess the influence of vit D plasma concentration on pneumonia severity in children > 3 months of age placed in orphanages. The evidence on the effects of vit D supplementation on respiratory infections in children has not been assessed systematically

The investigation like this has never done in Georgia.

The cross-sectional study was performed in Tbilisi Infant's Orphanage. Study period 2011-2016 years. Participants were 42 children of both sexes at age >3 month to ≤4 years, hospitalized with clinical diagnosis of acute pneumonia. Every child received 400 IU of vit D up to 1 year. Pneumonia was defined as radiologically confirmed age-specific tachypnea along with local crepitations and with or without wheeze and fever. The study covered the following interventions: vit D plasma concentrations, monitoring the severity and outcomes from pneumonia, duration of illness, effectiveness of recommended treatment, quantity of cases with hospitalization. The calcidiol (25-OH-D) concentrations < 20 ng/mL was defined as vit D deficiency.

D deficiency was diagnosed in 84% of children hospitalized with severe pneumonia. There was no difference with the total lymphocyte and B-cells counts between investigated groups with different disease severity. However the total T-cell count and concentration of CD3 and CD4 were lower in groups with severe cases. There was elevated the number of CD8. Observed changes led to alteration in CD4/CD8 ratio with impact on morbidity.

Conclusion.

Vitamin D has important functions other than Ca metabolism which include modulation of the innate and adaptive immune responses. It affects T cell maturation and facilitates the induction of T regulatory cells. It is recommended some modifications in accepted guidelines for management of CAP in institutionalized children with monitoring vit D level and supplementation if needed.

Study results will give information about vit D plasma level in target group of children, give possibility to estimate the vit D supplementation (400IU per day) sufficiency at infancy for regions with moderate (abundant) ultraviolet radiation for prevention vit D deficiency in later periods of childhood. We hope received data will be valuable for child health improvement in Georgia.