Background

- Vitamin D including its analogues boost innate immunity through the modulating production of anti-microbial peptides (AMPs) and cytokine response mechanisms are playing an increasing role in the management of atopic dermatitis, psoriasis, vitiligo, acne and rosacea
- Vitamin D appears to have systemic antimicrobial effects that may be crucial in a variety of both acute and chronic illness
- It is thought that Vitamin D administration may be beneficial in the future as either optional first line therapy in lieu of antibiotics for many acute infections or used as adjunctive therapy with standard treatment protocols

Purpose

- To identify evidenced-based data to support the hypothesis that Vitamin D is essential to maintaining a healthy immune system, and maintaining serum blood levels within a “normal” reference range which may be one way advance practice nurses can prevent the onset of multisystem disease.
- To prepare a literature review on the subject of Vitamin D and the relationship to immunity on which to build further research in the future in order to establish practice guidelines on Vitamin D supplementation in an effort to prevent disease.

Methods

- Fifty-six articles were selected from a review of literature using key words (Vitamin D, immunity, cardiovascular disease, respiratory disease, cancer, allergies, bone disease and serum Vitamin D levels in humans). CINAHL and PUBMED data bases were explored with a five year date restriction except when establishing significant historical scientific data to capture the range of disease that has been found to have associations with serum Vitamin D levels. Articles were selected based on establishing the best-evidence based guidelines, standards of care, and relevance to advanced practice nursing in providing disease prevention.

Results

- A review of the literature on Vitamin D and immunity supplied evidence that a relationship exists between Vitamin D and innate and adaptive immunity. The literature also supported the hypothesis that low serum Vitamin D levels may be related to the existence of multiple disease states in human beings. Supplementation of Vitamin D was shown to enhance immunity to bacteria such as mycobacteria in Tuberculosis and potentially inhibiting the reactivation of latent Tuberculosis in individuals.

Conclusions

- Clinically efforts should be aimed to supplement Vitamin D levels to boost both innate and adaptive immunity to prevent and alleviate diseases linked to low Vitamin D levels.

Implications

- Further research needs to be done to specifically determine the link between the supplementation of Vitamin D, to keep serum Vitamin D levels within a normal to high normal reference range, which would then likely augment innate and adaptive immune responses in humans to prevent or alleviate multiple disease states and infections.