

FPN23P - Vitamin D deficiency and SNPs in melatonin pathway genes potentiate breast cancer susceptibility: A pilot study

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BACKGROUND AND OBJECTIVE

- Vitamin D deficiency and single nucleotide polymorphism (SNPs) of genes responsible for mediating downstream effects of melatonin with development of breast cancer.
- In India 70 percent of the population suffers from Vitamin D deficiency.
- The objective of this study was to understand the association of Vitamin D deficiency and SNPs in Melatonin genes towards development of breast cancer in Indian population.

METHODOLOGY

- 50 vitamin D deficient breast cancer female subjects from Saveetha Dental College & Hospitals, Chennai were selected as per the approval of Institutional Ethics Committee and written informed consent was obtained from all the participants.
- Gene expression patterns and SNPs of melatonin receptor genes were studied.
- SNPs co-relation coefficient was determined using bonferroni multiple point comparison.
- Age matched breast cancer patients without Vitamin D deficiency and age matched normal subjects i.e without breast cancer served as control.

RESULTS

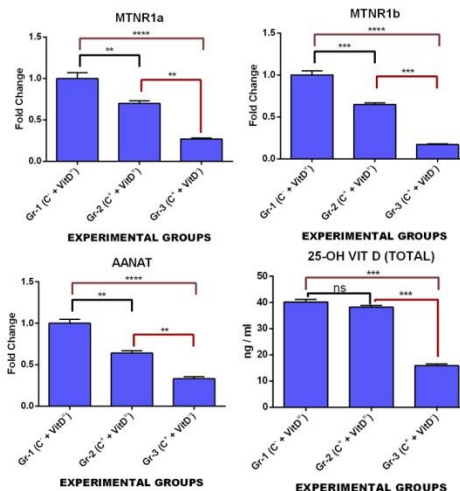


Table 1: SNP Co-relation Coefficient

SNPs	SNP Co-relation Coefficient		
	Gr-1 (C ⁺ + VitD ⁻)	Gr-2 (C ⁺ + VitD ⁻)	Gr-3 (C ⁺ + VitD ⁻)
MTNR1b rs10765576 GG	0.2	0.4	0.6
MTNR1b rs10765576 GA	0.2	0.2	0.6
AANAT rs8150 CC	0.1	0.2	0.4
AANAT rs11077821	0.1	0.3	0.3
AANAT rs12942767	0.2	0.4	0.4
ASMT rs4446909	0.2	0.4	0.7

- Decreased expression MTNR1a, MTNR1b, and AANAT genes in vitamin D deficient breast cancer group.
- Significant co-relation ($p < 0.001$) for MTNR1b rs10765576 GG SNPs for cancer patients with vitamin D deficiency.
- Likewise ASMT rs4446909 ($p < 0.05$) also shows significant co-relation for cancer patients with vitamin D deficiency.

CONCLUSION

- Both Vitamin D and products of Melatonin have strong correlation with development of breast cancer and its invasiveness.
- Significant increase in SNPs of melatonin related genes under conditions of vitamin D insufficiency leads us to the contention that vitamin D and melatonin have additive effect in development of breast cancer.