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Protective effect of MBL-2 Y/X single nucleotide polymorphism in vulvovaginal infections

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Introduction: VVI is a frequent complaint of women of child bearing age. Common causes of VVI include bacterial vaginosis, vulvovaginal candidiasis and trichomoniasis. Toll-like receptors and C-type lectins (CLR) play a major role in recognition of molecular patterns of these pathogens. Mannose Binding Lectin-2 (MBL-2) is a soluble CLR which triggers the complement cascade by binding to carbohydrate moieties on the surface of microorganisms. The MBL-2 codon 54 polymorphism has been associated with increased rate of recurrent vulvovaginal candidiasis. The objective of the present study was to evaluate promoter polymorphism of MBL-2 gene in VVI patients.

Materials & Methods: Blood samples were collected from 203 VVI patients as well as matched healthy subjects in EDTA-coated vials. Three single nucleotide polymorphisms (SNPs) in promoter region i.e., H/L, Y/X and P/Q were analyzed by Amplification Refractory Mutation System-PCR (ARMS-PCR). The odds ratios (ORs) were calculated using MedCalc software.

Results: Significant differences were observed in genotypic as well as allelic frequencies of Y/X polymorphism ($p < 0.01$). X allele was found to be a protective factor for VVI patients (OR: 0.5553, 95% CI: 0.4147 to 0.7436, $p < 0.001$). The dominant and co-dominant models gave the most parsimonious fit for MBL-2 Y/X polymorphism ($p < 0.001$). However, no significant differences were observed in genotypic as well as allelic frequencies of H/L and P/Q polymorphisms ($p > 0.05$).

Conclusion: The present study showed that Y/X polymorphism of MBL-2 gene may be a protective factor for VVI.

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Expression of $\beta 3$ and $\alpha 2A$ adrenergic receptor in the hypothalamus and pancreas of high fat simple carbohydrate fed C57BL/6J male mice

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Metabolic syndrome (MetS) characterized by abdominal obesity, insulin resistance and dyslipidemia with increased risk for cardiovascular complications, fatty liver disease and cognitive dysfunction has reached epidemic proportions worldwide. Previous studies from our lab have shown an increase in Nor-epinephrine in plasma, brain and urine of high fat simple carbohydrate fed C57BL/6J mice which served as a model for diet induced MetS. In the present study, we have tried to evaluate the status of adrenoceptors in the hypothalamus and pancreas of MetS induced C57BL/6J mice by real time PCR. The experimental group was divided into control and test and was fed with respective diet for a period of six months and samples were collected at regular intervals. Control was fed with standard lab chow and water *ad libitum* and test was fed with high fat simple carbohydrate diet and water *ad libitum*. The qReal time PCR was performed with hypothalamus and pancreas by using primers for $\beta 3$ and $\alpha 2A$ and SYBR green reagent according to the manufacturer's protocol. A melt curve was also included to confirm the presence of non specific amplification and primer dimer formation. Fold change was found out by comparative Ct method. The study has shown an up-regulation of $\beta 3$ and $\alpha 2A$ adrenoceptor in pancreas after six months of feeding. In contrast to pancreas, there is down-regulation of $\beta 3$ and $\alpha 2A$ adrenoceptor in hypothalamus after six months of feeding. Understanding the adrenoceptor functional correlation in MetS may serve as a molecular target for drug discovery for metabolic syndrome.

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