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Inflammatory microbiota associated maternal-fetal receptors as promising immunotherapeutic targets in mycobacterium tuberculi and human papillomavirus positive infertile women of north Indian ethnicity: Public health impact

Abstract:

Objectives: Infertility is a major public health problem globally, including India; the etiopathogenesis of reproductive disorders amongst ethnically disparate populations is indeed complex. Cost-effective, evidence-based intervention strategies are essential for infertility control/prevention. I aimed to identify cellular/molecular/genetic molecular regulatory networks/cross-talks in the inflammatory microbiota associated maternal-fetal complex labyrinth for developing innovative Toll-like receptors (TLR) and Progesterone receptors (PR)-based immunotherapeutic targets in Mycobacterium tuberculi and Human Papillomavirus positive infertile women of North Indian ethnicity in a prospective single center hospital-based clinical research study.

Methods: North Indian infertility patients (N=910) were enrolled from Indira-IVF Hospital, Lucknow, UP, India; M. tb.-positivity was assessed using Gene-Expert/TB-Gold-PCR-testing and endometrial thickness using Color-Doppler-imaging. HPV-positivity was evaluated using FDA-approved hybrid capture (hc)-2 assay. Tobacco-usage (chewers vs smokers) and psychosexual distress were assessed amongst infertile women with diminished ovarian reserve by structured questionnaires and awareness/counseling sessions. Written informed consent of patients was taken at initial enrollment.

Results and Conclusions: Mean age and endometrial thickness of North Indian infertile women were 34.1 years (s.d.±0.8) and 9.1 mm/(s.d.±0.2) respectively; average BMI/AMH levels were 25.0 kg/m2 and 2.2 ng/ml. M. tb. (55.6%)/HPV-positivity (12.0%) and self-reported tobacco-usage (100% response rate) were significantly associated with aberrant fetal cardiac activity, higher trends of intrauterine growth restriction and still-births. This exploratory study provides fascinating avenues for development of cost-effectiveTLR/PR predictive biomarkers in stratifying M. tb./HPV-positive infertile patient-populations, and identifying aberrant microbiome at the maternal-fetal interface tilting the “embryonic/fetal fate” towards still-births and/or autophagy-mediated cell death.

Biography

Saumya Pandey possesses brilliant academic credentials with earned Post-Doctorate: Biochemistry-Molecular Biology, Graduate School of Biomedical Sciences, University of Texas Medical Branch (UTMB), Galveston, TX, USA/Visiting Scientist: Urology (Robotic-Prostatectomy), Department of Urology, New York Presbyterian-Weill Cornell Medical College, New York, NY, USA/Doctorate: Ph.D. Life Sciences, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, UP, India–Chhatrapati Shahuji Maharaj University, Kanpur, UP, India/Doctoral Research Fellowship: Biomedical Sciences, Creighton University, Omaha, Nebraska, USA/M.Sc. Biochemistry, University of Lucknow, Lucknow, UP, India, and recently worked as Head-Clinical Research, IndiraIVF-Hospital, Udaipur-Lucknow, India with 65 first authorship scientific publications in international journals.