BioMed Research Journal
BMRJ, 3(S1): 35
www.scitcentral.com

ISSN: 2578-8892

Abstract: Open Access

Evaluation of the Clinical Role of Testis Expressed Protein 101 (TEX101) and Extracellular Matrix Protein 1 (ECM1) as Novel Predictive Markers in Relevance to Testicular Sperm Retrieval and Differentiation of Obstructive from Non-Obstructive Azoospermia

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Published November 01, 2019

ABSTRACT

Seminal Plasma (SP) proteins are rich with many proteins of different genital tract origin so the fields of proteomics were promise for the development of novel male infertility biomarkers. Seminal plasma proteins Testis Expressed Protein 101 (TEX101) and Extracellular Matrix Protein 1 (ECM1) assay are already available or under final development for clinical use, so the aim of study, evaluation of TEX101 and ECM1 Seminal Plasma (SP) proteins for assessment the predictive of sperm retrieval rate (SRR) in testicular sperm retrieval and diagnosis obstructive from non-obstructive azoospermia.

A case control study was included 65 infertile azoospermic men were subjected to clinical examination, seminal fluid analysis, hormonal investigation and SP proteins TEX101 and ECM1 assessment by Enzyme Linked Immuno-Sorbent Assay (ELISA) as well as they were subjected to the conventional Testicular Sperm Extraction (TESE) technique, mincing with searching for sperm.

The result of study included mean age of 65 men were recorded 33.37 ± 6.99 years which were divided into 10 (15.38%) obstructive type (OA) and 55 (84.62) non-obstructive (NOA) type. The SRR account 36 out of 65 patients (55.4%) were divided into OA (100%) and NOA (47.3%) and the difference was significant (P=0.014). The TEX101 and ECM1 were a significantly (P<0.001 and P=0.007, respectively), higher in NOA than OA. The receiver operating characteristic curve or ROC curve show that the SP TEX101 cut-off values above 0.9 ng/ml is candidate to sperm retrieval technique. The ECM1 protein, the cutoff values (>943.11 pg/ml for differentiation of NOA versus OA.

Keywords: Proteomics, TEX101, ECM1, Sperm retrieval technique, Reproductive hormones, Testicular histopathology

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Citation: Al Dulaimy HKK, Al Mossa H & Alkawaz U. (2019) Evaluation of the Clinical Role of Testis Expressed Protein 101 (TEX101) and Extracellular Matrix Protein 1 (ECM1) as Novel Predictive Markers in Relevance to Testicular Sperm Retrieval and Differentiation of Obstructive from Non-Obstructive Azoospermia. BioMed Res J, 3(S1): 35.