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Abstract

Immunocytochemical detection of Krebs cycle enzyme in infertile male

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Abstract:

The aim of the study was to evaluation of succinic dehydrogenase in human semen samples. A total of 45 asthenozoospermia infertile patients and 25 fertile males participated in this study. Immunocytochemical detection was used to localize succinic dehydrogenase (SDH) in the head & mid-piece of spermatozoa by fluorescent microscope. The study revealed dispersed SDH activity in the semen of asthenozoospermic subjects in comparison to control semen samples. While the stain intensity varied from cell to cell in controls as well as in patients, it was predominantly localized with in mid-piece of spermatozoa in healthy individuals. In contrast, in semen of infertile male, the diffused and dispersed SDH immuno-reactivity was observed in head as well as in mid-piece region of spermatozoa. A comparison of staining intensity revealed negative, dispersed-mild, moderate and intense staining in 8.9%, 17.8%, 33.3% and 40% of

sperm cells asthenozoospermic males, respectively. Dispersed expression of mitochondrial SDH in the sperm head & mid piece of human spermatozoa of infertile subjects is indicative of mitochondrial damage due to metabolic or genetic factors affecting the energy production in the spermatozoa and may be responsible for disturbed motility of spermatozoa in

cases of asthenozoospermia and thus could be pathologically significant. Present investigation highlights need for detailed mitochondrial SDH immunolocalization studies to establish a role of deranged Krebs cycle in causation of male infertility.

Biography:

Dr. Rashmi Rana, PhD

She has received her PhD in Biochemistry from National Institute of Pathology, ICMR affiliated to GGSIP University, Delhi where she developed new mass spectrometry methods for analyzing phthalates in semen. She did her post-doc from All India Institute of Medical Sciences on Evaluation of antibiotic side effects: identification of gentamicin binding secondary drug targets. After post-doctoral training, she worked in Analytical Chemistry and Nutrition Division for one year at Defense Institute of Physiology and Allied Sciences, DRDO. Currently she is working as Scientist at Sir Ganga Ram Hospital, New Delhi. She has various publications on her name. She received Young Scientist Award in Proteomics conference held at Dubai, UAE.

She is recipient of Three Best Oral presentations award and two Best Poster award, and also awarded travel student award winner of Society of Toxicology PPTOXII conference held in Miami FL, U.S.A, Dec 2008, awarded student winner of air pollution and health conference held in San Diego, California, U.S.A, March 2010. She is a member of many societies national as well as International. Her main research interest is to quantitatively identify the protein signatures involved in human diseases including various cancers with state-of-the-art and highly sensitive mass spectrometry-based proteomic approaches. Presently she is working on identification of protein-based biomarkers for early diagnosis / post-treatment surveillance and therapeutics of brain tumor (Glioma) and biliary tract cancer.

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