OC-13

THE IMPACT OF INTRACELLULAR Sperm CATALASE Activity ON IV IN VITRO FERTILIZATION RATES.

A. Lissak, B. Grach, O. Klein, M. Dirnfeld, R. Auslander, S. Goldman, H. Gruner, H. Abramovici
Dept. OB&GYN, Carmel Medical Center, Haifa, Israel

Reactive oxygen species originating in spermatozoa and leukocytes have been repeatedly reported to exert a negative effect on sperm functions. Catalase activity in semen has been reported to play a major role in protecting spermatozoa against generation of free radicals. However seminal plasma catalase is removed with semen during the washing procedure prior to IVF.

The purpose of the present study was to find out:
1) The association between post washed, processed intracellular catalase activity and sperm count and motility.
2) The impact of intracellular catalase activity on fertilization in vitro.

Intracellular catalase activity was evaluated in the pellet of 31 centrifuged sperm samples. Catalase activity was quantitated by observing changes in absorbance at 240nm after adding hydrogen peroxide. Twenty normospermic and 11 oligospermic patients were evaluated prior to their IVF treatment cycle, using the WHO criteria.

Results

Intracellular catalase activity was observed to be 47 ± 6.4 nmol/mg/min and 12.6 ± 2.0 nmol/mg/min in normospermic and oligospermic sperm samples respectively (p<0.05).

In semen samples with motility < 20% and > 20% catalase activity was found to be 50.5 ± 9.6 nmol/mg/min and 16.4 ± 4.0 respectively (p<0.05). Correlation between catalase activity and in vitro fertilization rates using Pearson correlation coefficient test was 0.60 (p=0.07). Four pregnancies were achieved in patients with catalase activity within normal range.

Conclusions

Intracellular sperm catalase activity is highly correlated to sperm concentration and motility. A trend of improved fertilization and pregnancy rates were observed in vitro.

OC-14

MORPHOMETRIC ANALYSIS IN THE EPIDIDYMIS OF MEN WITH DIFFERENT FORMS OF OBSTRUCTIVE AZOOSPERMIA: IS THERE A RELATIONSHIP BETWEEN EPIDIDYMPAL MORPHOMETRIC PARAMETERS AND FERTILIZATION RATE.

F. Perrotin, S. Hamamah, D. Royerel, L. O. Haillot, F. Felissart, J. Lassac
Reproductive Biology Unit, Dept of Obs & Gyn, Bretonneau Hospital, Service d'Urologie, Service d'Anatomie-Pthologie, Faculté de Médecine, 37044, Tours, Centre de Stéthologie Masculine, Hôpital la Grave, 31052 Toulouse, France

Recently, we have shown that the 31H-NMR on human seminal plasma in male infertility evaluation may be used to differentiate spermatogenic failure from obstructive azoosperma. The purpose of this study was to determine whether 31H-NMR analysis of some biochemical markers such as glycyrophosphorylcholine (GPC), choline, citrate, and lactate in human seminal plasma of spermatogenic failure as well as obstructive azoosperma can be of additional value to traditional biochemical analysis in male infertility diagnosis.

Human seminal plasma samples from 58 spermatogenic failure men, 17 obstructive azoosperma were investigated. 31H NMR spectrum, and traditional biochemical analysis were used. The peak area ratios choline/citrate as well as choline/lactate between spermatogenic failure and obstructive azoosperma groups were significantly different (choline/citrate: 2.6±0.3 vs 1.6±0.2, choline/lactate: 8.4±0.6 vs 6.9±0.9 respectively). Regression analysis showed a positive correlation (p<0.01, r=0.42 and 0.68) between seminal fructose and peak area ratio choline/lactate in secretory and excretory azoosperma groups. We have also found significant difference in GPC/choline peak intensity ratio between spermatogenic failure men and obstructive azoosperma patients (0.14±0.01 vs 0.08±0.01, p<0.001). This ratio appears to be a very important parameter to differentiate spermatogenic failure from obstructive azoosperma.

These results demonstrate the potential use of 31H NMR on human seminal plasma in male infertility evaluation and such analysis may be used to elucidate the molecular basis of the human seminal plasma perturbation.

OC-15

1H NUCLEAR MAGNETIC RESONANCE (NMR) OF HUMAN SEMINAL PLASMA OF PATIENTS WITH SPERMATOGENIC FAILURE OR OBSTRUCTIVE AZOOSPERMIA.

S. Hamamah1, F. Seguin2, B. Bujan3, R. Mieusset4, D. Royerel and J. Lassac1

1Reproductive Biology Unit, Dept of Obs & Gyn, Bretonneau Hospital, 2Labo de Bioph Cell & RMN-INSERM U316, Faculté de Médecine, 37044, Tours, 3Centre de Stéthologie Masculine, Hôpital la Grave, 31052 Toulouse, France

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