

HYPERACTIVATION OF HUMAN SPERM CORRELATES WITH SPERM ROS LEVEL

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Purpose: The aim of our study was to investigate the relationship between human sperm hyperactivation and sperm ROS level.

Materials and Methods: Seventy patients undergoing IVF/ICSI in the Lee women's hospital were examined (Aug. 2008~Oct. 2008, IRB no. LWH08001). After PureSperm wash, sperm samples were resuspending in HTF medium and divided into two parts. One part was hyperactivated by cultured at 37°C X2h. Then, sperm motion characteristics, such as VAP (average path velocity), VSL (straight line velocity), STR (straightness) and ALH (amplitude of lateral head) were analyzed by computer assisted semen analysis (CASA). The other part was measured the ROS level of sperm, semen plasma and sperm resuspending medium (HTF) using luminometer. Pearson correlation was used to assess the statistical relationship between the data.

Results: Sperm ROS level was significantly correlated with semen plasma ROS level ($r=0.53$, $p=0.001$) and sperm resuspending medium (HTF) ROS level ($r=0.262$, $p=0.029$). Interestingly, only sperm ROS level was significantly correlated with sperm ALH after hyperactivation ($r=0.37$, $p=0.002$). HTF medium ROS level did not effect the ALH after hyperactivation ($r=-0.045$, $p=0.712$).

Conclusion: Hyperactivation can occur in vivo during transportation of sperm in the female reproductive tract, and also in conditioned media during in vitro culture. Sperm ROS level may participate in the signal transduction of sperm hyperactivation.