

PROSTAGLANDIN D SYNTHASE IN HUMAN SEMEN: A MARKER TO DIFFERENTIATE OBSTRUCTIVE FROM NON-OBSTRUCTIVE AZOOSPERMIA. William P Arnett, Armand Zini, Keith Jarvi, Eleftherios P Diamandis. Toronto, Ontario, Canada. (Presented by Mr. William P Arnett)

Objectives: Prostaglandin D Synthase (PGDS) is a member of a family of extra-cellular transport proteins known as lipocalins. PGDS catalyzes the conversion of prostaglandin H₂ to prostaglandin D₂ and is involved in a variety of biological functions. Previously, we found human seminal plasma to possess large quantities of PGDS and that it is a product of the Sertoli cells. The objectives of this study were to correlate levels of this marker with the more common etiologies of male infertility.

Design and Methods: Semen samples (n=893) were obtained from men presenting for infertility at our institution or from men pre- and post-vasectomy. Standard semen parameters (density, motility and WHO morphology) were obtained. Samples were stored at -20°C and prior to use, were thawed and then centrifuged at 7000 g for 10 minutes to separate spermatozoa from seminal plasma. PGDS concentration was measured in the seminal plasma by an immunofluorometric assay developed in our laboratory (Clin Chem 1996; 42:1984-91).

Results: The mean PGDS concentrations in normospermic, azoospermic, and vasectomized men were 10.44, 1.75, and 0.15 ng/L, respectively. Pre-vasectomy patients had a mean PGDS concentration of 10.60 ng/L. These same patients had a mean concentration of PGDS of 0.082 ng/L post-vasectomy. Those individuals that had been diagnosed with post-testicular obstruction by testicular biopsy had a mean concentration of 0.26 ng/L. Although patients diagnosed with varicoceles did have a significantly lower concentration of PGDS, the mean concentration was still greater than 10 times that of the post-vasectomy and post-testicular obstruction patients. One individual with congenital bilateral absence of the vas deferens (CBAVD) had a seminal plasma PGDS concentration of 0.064 ng/L.

Conclusions: The virtual lack of PGDS in the semen of post-vasectomy, post-testicular obstruction, and CBAVD patients suggests that this a useful marker of obstructive azoospermia. The measurement of PGDS in semen could replace the testicular biopsy in the diagnosis of such patients and would ultimately reduce the cost and morbidity associated with our current evaluation of infertile men.