

## NMA/AGSM/2022/BCS/004 - Is Serum Prostate Specific Antigen (PSA) A Predictor of Male Hypogonadism? Testing the Hypothesis.

\*Amadi Collins<sup>1</sup>, Green I. Kinikanwo<sup>2</sup>, Odum P. Ehimen<sup>3</sup>

<sup>1</sup>Department of Chemical Pathology, Rivers State University, Port Harcourt, Nigeria. <sup>2</sup>Department of Obstetrics & Gynecology, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria. <sup>3</sup>Department of Chemical Pathology, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria

### Abstract

**Background:** Male hypogonadism (MH) is common among infertile men. Besides serum testosterone, limited MH biomarkers exist, while researchers have suggested the use of prostate-specific antigen (PSA) to aid MH diagnosis. Herein, we evaluated PSA's potential to aid MH diagnosis and predict MH-related clinical features among relatively young men with infertility.

**Methodology:** The study prospectively included 707 male partners (35–44 years) in infertile couples seeking infertility evaluation at the University of Port Harcourt Teaching Hospital, Nigeria. MH was diagnosed using standard guidelines and receiver operating characteristics (ROC) including regression analyses were utilized as statistical parameters.

**Results:** In all, 29.7% had MH (MH+ve). MH+ve group had lower mean values of fPSA and tPSA than those without MH (MH-ve). The best fPSA threshold of  $<0.25\mu\text{g/L}$ , compared with the best tPSA threshold of  $<0.74\text{ /L}$ , had higher accuracy (ROC area under the curve [ROC AUC] 0.908 versus 0.866, respectively), sensitivity (87% versus 83%, respectively), and specificity (42% versus 37%, respectively) for MH diagnosis. Following adjustment for confounders, fPSA level  $\leq 0.25\mu\text{g/L}$  was more likely to predict MH-related decreased libido (odds ratio [OR] 2.728,  $p<0.001$ ) and erectile dysfunction (OR 3.925,  $p<0.001$ ) compared with tPSA  $\leq 0.74\mu\text{g/L}$  in the MH+ve group.

**Conclusion:** For MH diagnosis, fPSA and tPSA had good sensitivities but poor specificities, though fPSA had better MH diagnostic potential in association with predicting MH-related clinical features than tPSA. fPSA could complement other biomarkers to aid MH diagnosis in men within 35–44 years. However, further studies are recommended to confirm these findings.

**Keywords:** Prostate Specific Antigen; PSA; Male Hypogonadism.

**Corresponding Author:** \*Collins Amadi, Department of Chemical Pathology, Rivers State University, Port Harcourt, Nigeria. [collins.amadi@rsu.edu.ng](mailto:collins.amadi@rsu.edu.ng)

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