

ASSESSMENT OF LIPIDS AND ITS ARTERIOGENIC INDEX IN FEMALE INFERTILITY IN OWERRI, SOUTH EAST NIGERIA

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ABSTRACT

Female infertility has been a global problem. Dyslipidemia have also seen associated with infertility. This study aimed to evaluate the serum lipid profile and its atherogenic index in female infertility. This is a cross-sectional study that involved the recruitment of 220 female subjects (age 20-45 years) attending Federal Medical Centre (FMC), Owerri Nigeria. They include 110 already diagnosed infertile women and 110 of apparently healthy fertile women served as the control subjects. Total cholesterol (TC), triglycerides (TG), high density lipoprotein cholesterol (HDL-c), low density lipoprotein cholesterol (LDL-c) and very low density lipoprotein cholesterol (VLDL-c) were determined. Atherogenic indices, TC/HDL-c, LDL-c/HDL-c and log (TG/HDL-c) (AIP) was calculated. Mean serum concentration of TG, VLDL-c, AIP were significantly lower in the infertile group when compared to the fertile group ($P < 0.05$), but there was no significant difference in TC/HDL-c and LDL-c/HDL-c between the two groups. Furthermore, the mean concentrations of TC, HDL-c, and LDL-c were all higher in the infertile group compared to fertile group and were all statistically significant ($P < 0.05$). Correlation analysis showed significant positive associations between TC and LDL-c, TC/HDL-c, LDL/HDL-c in infertile women while the fertile group also showed the same pattern of association of TC and LDL-c, VLDL-c, TC/HDL-c, LDL/HDL-c and AIP ($P < 0.05$). The TG also shows a significant positive association with VLDL-c, TC/HDL and AIP ($P < 0.05$) in infertile group and the same in fertile group including TC. There were negative significant correlations in both infertile and fertile group when HDL-c was correlated with TC/HDL-c, LDL-c/HDL-c, and AIP ($P < 0.05$). LDL-c shows a positive significant association with TC/HDL-c and LDL-c/HDL-c in infertile women while in fertile group it is positively associated with TC/HDL-c, LDL-c/HDL-c and AIP ($P < 0.05$). In both infertile and fertile group, the same pattern of association was seen in VLDL-c with TC/HDL-c and AIP; TC/HDL-c with LDL-c/HDL-c and AIP; and LDL-c/HDL-c with AIP ($P < 0.05$). In conclusion, infertile women have almost the same pattern of lipid distributions and atherogenic risk predicting factor with the fertile women. A triglyceride based index (AIP) can significantly add value when assessing the risk of developing atherosclerosis in Nigeria than other atherogenic indices.

Keywords: Lipid profile, atherogenic index of plasma (AIP), female infertility, dyslipidaemia, atherosclerosis.