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Determination of Medians of Biochemical Maternal Serum Markers in Healthy Women Giving Birth to Normal Babies

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Abstract : Background: Screening plays a major role to detect chromosomal abnormalities, Down syndrome, neural tube defects and other inborn diseases of the newborn. Serum biomarkers in the second trimester are useful in determining risk of most common chromosomal anomalies; these test include Alpha-fetoprotein (AFP), Human chorionic gonadotropin (hCG), Unconjugated Oestriol (UE3)and inhibin-A. Quadruple biomarkers are worth test in diagnosing the congenital pathology during pregnancy, these procedures does not form a part of routine health care of pregnant women in Pakistan, so the median value is lacking for population in Pakistan. Objective: To determine median values of biochemical maternal serum markers in local population during second trimester maternal screening. Study settings: Department of Chemical Pathology and Endocrinology, Armed Forces Institute of Pathology (AFIP) Rawalpindi. Methods: Cross-Sectional study for estimation of reference values. Non-probability consecutive sampling, 155 healthy pregnant women, of 30-40 years of age, will be included. As non-parametric statistics will be used, the minimum sample size is 120. Result: Total 155 women were enrolled into this study. The age of all women enrolled ranged from 30 to39 yrs. Among them, 39 per cent of women were less than 34 years. Mean maternal age 33.46±2.35 SD and maternal body weight were 54.98±2.88. Median value of quadruple markers calculated from 15-18th week of gestation that will be used for calculation of MOM for screening of trisomy21 in this gestational age. Median value at 15 week of gestation were observed hCG 36650 mIU/ml, AFP 23.3 IU/ml, UE3 3.5 nmol/L, InhibinA 198 ng/L, at 16 week of gestation hCG 29050 mIU/ml, AFP 35.4 IU/ml, UE3 4.1 nmol/L, InhibinA 179 ng/L, at 17 week of gestation hCG 28450 mIU/ml, AFP 36.0 IU/ml, UE3 6.7 nmol/L, InhibinA 176 ng/L and at 18 week of gestation hCG 25200 mIU/ml, AFP 38.2 IU/ml, UE3 8.2 nmol/L, InhibinA 190 ng/L respectively.All the comparisons were significant (p-Value <0.005) with 95% confidence Interval (CI) and level of significance of study set by going through literature and set at 5%. Conclusion: The median values for these four biomarkers in Pakistani pregnant women can be used to calculate MoM.

Keywords : screening, down syndrome, quadruple test, second trimester, serum biomarkers
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