

ABSTRACT

The aims of this study were : 1) to find out the difference of plasma total testosterone level between overweight infertile men and non-overweight fertile or infertile men, 2) to find out the differences of semen parameters values between overweight infertile men and non-overweight fertile or infertile men, 3) to determine correlation between BMI and plasma total testosterone level, and correlation between BMI and semen parameters values, 4) to determine correlation between waist circumferential and plasma total testosterone level, and correlation between waist circumferential and semen parameters values, and 5) to determine correlation between plasma total testosterone level and semen parameters values.

Descriptive observational cross-sectional design was used in this study. Sample was patients visited Andrology Clinic, IRJ RSU Dr Soetomo with infertility problems, whose BMI ≥ 23 , age 21-59 years (n=103), which divided into 3 sub groups as follows : *at risk*, obese I and obese II. Controls were patients visited Andrology Clinic, IRJ RSU Dr Soetomo with infertility problems, whose BMI < 23 , age 21-59 tahun (n=27), and volunteers which had children, whose BMI ≥ 23 (n=56), or BMI < 23 (n=34), age 21-59 years. *Paired t-test*, *Analysis of varians* and *Pearson's correlation test* were used to examine the hypothesis in datas with normal frequency distribution. *Mann-Whitney test*, *Kruskall-Wallis test* and *Pearson's correlation test* were used to examine the hypothesis in datas with skewed frequency distribution.

The conclusions were 1) plasma total testosterone level in obese I and obese II sub groups were very significantly lower than infertile non-overweight men group ($p < 0,01$); plasma total testosterone level in obese II sub group was significantly lower than at risk sub group ($p < 0,05$), 2) sperm total count in obese I sub group was significantly lower than at risk sub group ($p < 0,05$); sperm concentration, total count and morphology in infertile overweight men group, were very significantly lower than overweight volunteer group ($p < 0,01$), 3) there was very significant negative correlation between BMI and plasma total testosterone level, and very significant negative correlation between waist circumference and plasma total testosterone level in infertile overweight men group ($p < 0,01$); there was very significant negative correlation between BMI and total testosterone level in overweight volunteer group ($p < 0,01$), 4) there was very significant negative correlation between BMI and total sperm count in infertile overweight men group ($p < 0,01$), there were significant negative correlations between BMI and semen volume, sperm concentration and morphology in infertile overweight men group ($p < 0,05$), but no significant difference between BMI and sperm motility in infertile overweight men group ($p > 0,05$),

5) there were significant ($p < 0,05$), or very significant ($p < 0,01$) differences between plasma total testosterone level and all of semen parameters in infertile overweight men; there were significant ($p < 0,05$), or very significant ($p < 0,01$) differences between plasma total testosterone level and all of semen parameters in infertile non-overweight men.

Key words :

1. *At risk*
2. *Body Mass Index (BMI)*
3. *Infertility*
4. *Non-overweight*
5. *Obese I*
6. *Obese II*
7. *Overweight*
8. *Plasma total testosterone levels*
9. *Semen parameters*
10. *Waist circumferential*