



SUMMARY

Premature ovarian failure (POF) is the occurrence of amenorrhea in conjunction with raised serum follicle stimulating hormone (FSH) above 40m IU/mL before the age of forty years. It has been estimated that POF affects 1% of the population. A wide spectrum of pathogenic mechanisms may lead to the development of POF including chromosomal, genetic, autoimmune, metabolic, infectious and iatrogenic. In a large proportion of cases no cause is found and they are classified as idiopathic or karyotypically normal spontaneous ovarian failure. Between 5 and 10 percent of women with POF may spontaneously become pregnant.

Ovarian reserve is a term used to describe the functional potential of the ovary and reflects the number and quality of oocytes within it. It is now realized that an accelerated decline of ovarian function begins much earlier than previously thought, most likely in the mid-thirties.

The human ovary contains a fixed pool of primordial follicles, maximal at five months of intrauterine life, and numbering around 701,000 at the time of birth. From this number, the pool reduces to 250,000-300,000 at the time of menarche and then declines. It has been suggested that the normal rate of oocyte depletion follows a biphasic pattern, accelerating below a number of 25 000 at a mean age of 37–38 years based on histological analyses of ovaries.

AMH is a glycoprotein that belongs to the transforming growth factor- β superfamily. Recently has been proposed as a promising marker of the ovarian follicular status, which reliability surpasses that of inhibin B, E2 and FSH on cycle day 3 . In young normal ovulatory women, early follicular phase hormone measurements at 3-year intervals revealed that serum AMH levels decline significantly whereas serum levels of FSH and inhibin B and the number of antral follicles do not change during this interval .

Lead exposure and many other factors can affect male and female fertility, there appears to be a relationship between higher occupational lead exposure levels and adverse pregnancy outcomes. Studies illustrated that trace metals such as lead, cadmium and mercury have the potential to disrupt ovarian function From high to low doses of lead exposure, there are different responses of lead including reduced fertility, spontaneous abortions, low birth weight, impairment in folliculogenesis, and even damage to the ovaries are also reported.

This thesis studies the value of serum AMH measuring & plasma lead level in the blood in cases of premature ovarian failure in comparison with normal women as a predictive tool for assessment of the risk for premature ovarian failure.

This study was conducted in Fayoum university hospital outpatient clinic after approval of the research and ethical committee in period from December 2012 to December 2013. The study included 50 candidate women with Premature Ovarian Failure and another 50 normal candidate women.



All candidates were subjected to full history taking, physical examination, routine laboratory investigation; the level of follicular stimulating hormone in serum was estimated in the 3rd day of the cycle. The level of serum AMH was estimated by a single venipuncture sample.

The level of lead in the plasma was estimated by a single sample Blood was collected by venipuncture, in tubes containing anticoagulant (EDTA).AMH levels were measured by ELISA technique and plasma lead level was measured by Atomic absorption spectrophotometer. After statistical analysis of the results, the range and mean values for the age for the control and test groups didn't significant difference between the 2 groups.

It was found that there were highly significant differences in the mean values of (serum FSH, AMH, and plasma lead) in the group of premature ovarian insufficiency in comparison with the control group. So, from the serum level of FSH we can diagnose the cases of premature ovarian insufficiency.

There is significant decrease in the serum AMH with age in both groups. So, this study concluded that AMH could be used to predict the ovarian reserve more than prediction of premature ovarian failure cases.

This study concluded that there is highly significant difference between the plasma lead and in the case group especially rural group.