SUMMARY AND CONCLUSION

Polycystic ovary syndrome (PCOS) is a common disease that affects up to 10% of women of reproductive age; characterized by hyperandrogenism, enlarged cystic ovaries, and chronic anovulation. ***(Ciampelli and Lanzone; 1998).***

Insulin resistance and hyperinsulinemia are now recognized as common features in women affected by PCOS. Chronic hyperinsulinemia may be a risk factor for several clinical pathologies. Furthermore, in vivo data seem to confirm that insulin might influence ovarian as well as adrenal steroidogenesis ***(Fulghesu, et al; 2002).***

The in vivo actions of IGF-I are modulated by a system of circulating binding proteins (IGFBPs). IGFBP-1 has a unique role in the dynamic regulation of serum IGF-I bioavailability. In serum, IGFBP-1 has been found to correlate inversely with estimates of the free fraction of IGF-I, a relationship that has not been reported for the other IGFBPs. Serum and follicular fluid IGFBP-1 concentrations are decreased in PCOS, presumably due to hyperinsulinism and consequent suppression of IGFBP-1 synthesis. Although the levels of total serum IGF-I are normal in PCOS, the decreased IGFBP-1 concentrations could lead to elevated levels of free IGF-I, which may then stimulate ovarian androgen synthesis (***Van Dessel, et al; 1999).***

N-acetylecysteine (NAC) is the acetylated precursor of both the amino acid L-cysteine and reduced glutathione (GSH). Historically it has

been used as a mucolytic agent as well as an antidote for hepatotoxicity due to acetaminophen overdose.

More recently, animal and human studies of NAC have shown it to be a powerful antioxidant and a potential therapeutic agent in the treatment of cancer, heart disease, HIV infection, heavy metal toxicity, and other diseases characterized by free radical, oxidant damage ***(Chiao, et al; 2000).***

The preliminary results on the effectiveness of the antioxidant drug NAC suggest that it may be a new treatment for hyperinsulinemia in patients with PCOS, which is of note also because of the absence of side effects. This drug may be an alternative to other insulin-lowering drugs such as metformin or troglitazone ***(Fulghesu, et al; 2002)***.

Furthermore, NAC adjuvant therapy in subjects with PCOS resistant to clomiphene citrate gives a significant increase of both ovulation and pregnancy rates ***(Rizk, et al; 2005).***

As the aim of this work is to study the changes in IGF-I before and after use of NAC as an adjuvant to clomiphene citrate in PCOS women.

The study was conducted in Benha university hospital on a total number of 80 (eighty) women diagnosed with clomiphene citrate resistant PCOS, aged 22-34 years undergoing therapy for infertility.

Patients subjected to this study were divided into the two groups:

Group I: 50 patients received NAC 1.2 gm / day with clomiphene citrate 100 mg / day for 5 days starting at day 3 of the cycle.

Group II: 30 patients received placebo with clomiphene citrate 100mg/day for 5 days starting at day 3 of the cycle.

Results show that serum insulin like growth factor-I (IGF-I) levels were significantly lower in group I, after NAC received as compared with before NAC, but in placebo group (group II) there was no difference in serum levels of IGF-I before and after placebo.

Similarly significantly higher pregnancy rates were noted in the NAC group (group I), as compared with placebo group.

In conclusion administration of N-Acetyl cystiene as an adjuvant therapy to clomiphene citrate in patients with PCOS resistant to clomiphene citrate, leads to significant reduction in serum levels of insulin like growth factor-I with significant increase in pregnancy rates.