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INFLUENCE OF INCRETIN SYSTEM WITH POLYCYSTIC OVARY SYNDROME IN OBESE WOMEN

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Polycystic ovary syndrome (PCOS) is also known as Stein-Leventhal syndrome which is hetero-endocrine and polygenic metabolic disorder in women, affects 1 in a 10 women worldwide. It is also most common cause of hirsutism and an ovulation in females. It is characterized by ovulatory dysfunction, increased androgens and polycystic ovaries (unruptured follicles). PCOS leads to several complications including hirsutism, menstrual dysfunction, infertility, acne, metabolic syndromes and obesity. Females who have history of 1st degree relatives with PCOS, history of premature adrenarche, insulin resistance, obesity, diabetes mellitus or anti epileptic drug users have high risk for developing this condition and it can lead to several cardiovascular problems. The main cause is still unknown but many studies suggest the influence of lifestyle and strong genetic theories. The main Pathogenesis of PCOS is by genetic susceptibility, lifestyle, increased LH/FSH ratio, increased insulin resistance. Rotterdam criteria is widely used for diagnosis based on morphological characteristics on ultrasound that is more than 12 follicles size of 2-9 mm or volume more than 10ml unilaterally or bilaterally also clinical and biological signs of hyperandrogenism and oligo or anovulation.

Main aim is to introduce incretin system as a new pharmacological target in obese women with polycystic ovary syndrome and to ascertain the relation of incretin system and postprandial insulin secretion in obese women with polycystic ovary syndrome.

Women suffering from PCOS, majority (38% - 88%) of them are overweight or obese it does not mean that only obese women are having this syndrome, even women with lower BMI can suffer from PCOS but the amount is negligible therefore we can estimate according to higher ratio of obese women that obesity can be the main culprit in this situation. We can notice specific eating behaviour in PCOS. Majority of populations having PCOS, controlling mechanism from gut- brain axis is disbalance. It suggests that androgen have appetite stimulating effects and they could impair the impulse control of eating behaviour. It need neurological control also on eating behaviour. Incretin hormones GLP-1 shows direct inhibitory effect on homeostasis center of appetite and indirect inhibitory effect on gastric emptying rate & GIT motility. By this mechanism it decreases food intake and consequently reduce weight. It also increases glucose dependent insulin release and protective effect on beta cells.Weight reduction is necessary for obese women to improve hyperandrogenism and reproductive function. Weight reduction also plays an important role in cardiovascular risk factors including hypertension and hyperlipidemia. In order to treat obesity and diabetes factor, lifestyle modifications with/ without metformin is required but those who did not respond to that we can introduce totally new aspect of pharmacological management by acting on GLP-1 receptors agonist (Liraglutide, Semaglutide) which can help in decreasing insulin resistance, decrease visceral fat, increase satiety with cardio protection. Incretin is a new drug for treatment of diabetes mellitus that can also be used in the treatment of this ovarian pathology. It can give better result if we introduce incretin with some lifestyle modification to the women with PCOS.

There is a relation between incretin system and eating behavior/ insulin sensitivity in obese women suffering from PCOS, therefore we can introduce new aspect in pharmacology to target on incretin receptors and manage the most common factor (obesity) to get good results.