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Oral Presentations

O-8
LncRNA XIST/ miR-132/ HMGA2 axis modulate Insulin Resistance in PCOS: A molecular signature for prediction

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Background: Polycystic ovary syndrome (PCOS) is a common heterogeneous endocrine disorder. Studies showed that insulin resistance (IR) appeared in only 60% women with PCOS and seems to be independent of obesity.
Objective: It was hypothesized that dysregulation of HMGA2/miR-132-3p/ lncRNA XIST axis may correlate with IR.
Materials and Methods: In this case-control study, four groups participated including 20 healthy controls, 30 having only PCOS, 20 only IR+ and 30 PCOS+/IR+. None of them suffered from any syndroms, no pregnancy and no history of hormonal therapy. Real-Time PCR, ELISA and chemilumenisce recruited to assess the level of studied factors.
Results: The 87% and 63% reduction in level of lncRNA XIST and HMGA2 observed in IR+, but interestingly, both showed significant increase more than 3.3 fold in groups with PCOS+. Conversely, miR-132 expression levels increased about 3.3 and 4.0 fold in groups of PCO+/IR+ and IR+, respectively. The expression of miR-132 in PCOS+ group was significantly reduced by 98% compared to the normal group. HMGA2 is post-trancrptionally targeted and controlled by miR-132, which can explain down-regulation HMGA2 in IR. In the other side HMGA2 function in cell proliferation and its over-expresion can justify in PCOS. Taken together, these results introduced another molecular mechanism involved in onset of IR in PCOS. ROC curve analysis showed that HMGA2/miR-132/lnc-XIST have 100% sensitivity and specificity to predicate IR in PCOS patients.
Conclusion: lncRNA XIST/miR-132/HMGA2 axis can be candidated as a panel of differentiative signature to predict IR not only in women with PCOS, but also could be applicable even in healthy individuals.
Key words: *PCOS, IR, HMGA2, miR-132, lncRNA XIST.*