

## Endometrial expression of anti-müllerian hormone and its receptor in obese women with PCOS- a lifestyle intervention study

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**Context:** Polycystic ovary syndrome (PCOS) is associated with higher serum levels of anti-müllerian hormone (AMH) and endometrial abnormalities. Although AMH was found to negatively affect viability of cultured endometrial stromal cells, however little is known about expression of AMH and anti-müllerian hormone receptor II (AMHR) in the endometrium of women with PCOS.

**Objective:** To study endometrial expression of AMH and AMHR in women with PCOS.

**Method(s):** Immunohistochemistry.

**Patient(s):** Obese women with PCOS (OB-PCOS, n=18) before and after lifestyle intervention and their BMI-matched controls (OB-C, n=10), normal weight women with PCOS (NW-PCOS, n=11), and normal-weight controls (NW-C, n=11).

**Intervention(s):** Combined dietary management and physical exercise for three months.

**Main outcome:** Endometrial immunostaining of AMH and AMHR on cycle days 6-8.

**Results:** Before lifestyle intervention, serum levels of AMH were higher in women with PCOS compared with their BMI-matched controls ( $p<0.05$ ). After lifestyle intervention and weight loss, menstrual pattern improved in 12 out of the 18 obese PCOS women. However, serum levels of AMH remained unchanged and were still higher in the group of obese women with PCOS than in the controls ( $p<0.05$ ). Cytosolic immunostaining of AMH was observed in all endometrial compartments while cytosolic protein expression of AMHR was mainly localized in the stroma of proliferative endometrium. There were no differences in either AMH or AMHR immunostaining between the groups on cycle days 6-8. Moreover, intervention did not significantly affect protein expression of AMH or AMHR in obese women with PCOS. In all groups, stromal immunostaining of AMH correlated positively with protein expression of AMHR in stroma ( $r=0.48$ ,  $p=0.001$ ).

**Conclusions:** Although PCOS is associated with increased serum levels of AMH, protein expression of AMH and its receptor in proliferative endometrium of women with PCOS are not different to controls.

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