Endometrial αvβ3 Integrin expression in obese women with polycystic ovarian syndrome (PCOS) following progesterone therapy

Muhammad Azrai Abu1,2, Fazilah Abdul Hamid1,2, Mohd Helmy Mokhtar1, Abdul Kadir Abdul Karim2,3, Nor Haslinda Abd Aziz4, Azantee Yazmie Abdul Wahab4, Ahmad Mohd Faizal2,3

1Department of Physiology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia, 2Advance Reproductive Centre, Hospital Canselor Tunku Muhriz, Cheras, Kuala Lumpur, Malaysia, 3Department of Obstetrics and Gynaecology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia, 4Department of Biomedical Science, Kulliyyah of Allied Health Sciences, International Islamic University Malaysia, Indera Mahkota Campus, Kuantan, Pahang, Malaysia

ABSTRACT

Introduction: We aimed to determine the expression of the endometrial αvβ3 Integrin in women with polycystic ovarian syndrome (PCOS) during implantation window following progesterone therapy. Methods: A total of 40 participants aged 18-40 years old were recruited. The participants were divided into the obese PCOS, normal-weight PCOS, obese fertile and normal-weight fertile groups. The first blood collection was done before ovulation. Then, daily oral micronised progesterone (Utrogestan 200 mg) was given to the PCOS group for 10 days. The treatment was followed by a second blood collection and endometrial tissue sampling by using a Pipelle de Cornier catheter. In the fertile group, ovulation was confirmed by using ultrasound, and a second blood sample was collected on days 7 to 9 post-ovulation. The serum levels of FSH, LH, DHEA, progesterone and oestradiol were measured in all participants. Result: Serum FSH levels were lower in obese women in their follicular phase than in women with normal weight regardless of their PCOS status, whereas serum LH/FSH ratios and DHEA levels were higher in women with PCOS than in women without PCOS. However, endometrial αvβ3 Integrin expression was significantly lower in the obese group either PCOS or the control group. Conclusion: Different patterns of hormonal levels and endometrial αvβ3 Integrin expression levels were seen between the studied groups. However, further in-vitro and in-vivo studies are needed to investigate the mechanism underlying the changes in FSH, LH/FSH ratio, DHEA and Hb-EGF expression in PCOS after progesterone treatment.