Obesity results in lower integrin expression in women with polycystic ovarian syndrome during the window of implantation

By Hamid, FA (Hamid, Fazilah Abdul) ; Mokhtar, MH (Mokhtar, Mohd Helmy) ; Karim, AKA (Abdul Karim, Abdul Kadir) ; Ahmad, MF (Ahmad, Mohd Faizal) ; Abd Aziz, NH (Abd Aziz, Nor Haslinda) ; Wahab, AYA (Abdul Wahab, Azantee Yazmie) ; Abu, MA (Abu, Muhammad Azrai)

View Web of Science ResearcherID and ORCID (provided by Clarivate)

Source FRONTIERS IN ENDOCRINOLOGY
Volume: 16
DOI: 10.3389/fendo.2025.1590716

Article Number 1590716

Published OCT 21 2025

Indexed 2025-11-07

Document Type Article

Abstract Objective Polycystic ovary syndrome (PCOS) is a common endocrine disorder that is characterized by hormonal imbalances and ovarian dysfunction. Obesity is also a prevalent issue that has been linked to the development of PCOS. The present study aimed to investigate the gene expression of alpha v beta 3

integrin, mucin-1, and E-cadherin in obese and non-obese women with and without PCOS.Methods This prospective study was undertaken at the Advanced Reproductive Centre at Hospital Canselor Tuanku Muhriz (Universiti Kebangsaan Malaysia) from January 2019 to June 2021. A total of 40 women were recruited for the study and divided equally (n = 10) into four groups, namely, i) control with normal body weight, ii) control obese, iii) PCOS with normal body weight, and iv) PCOS obese. An endometrial tissue sample was collected after 10 days of daily oral micronized progesterone (Utrogestan 200 mg) in the PCOS group. In the fertile or control group, midsecretory phase endometrial biopsy was performed following 7 days post-ovulation. Then, total RNA was isolated from the endometrial tissue. Gene expression was analyzed using RT-qPCR.Results The results showed that the mRNA expression of alpha V beta 3-integrin was significantly decreased in the PCOS obesity group compared to the PCOS normal body weight group and the control normal body weight group. No significant differences were observed in mucin-1 and E-cadherin expression between the groups.Conclusion alpha v beta 3 integrin plays an important role in the development of the window of implantation in obese PCOS individuals. Further research is needed to confirm these results and to identify the potential mechanisms underlying this association.Clinical trial registration ClinicalTrial.gov, identifier NCT04175002.

Keywords

Author Keywords: gene expression; integrin; implantation window; obese; polycystic ovary syndrome; obesity

Keywords Plus: ALPHA-V-BETA-3 INTEGRIN; GENE-EXPRESSION; ENDOMETRIUM; MECHANISMS; PROTEIN

Addresses

[1] Univ Kebangsaan Malaysia, Fac Med, Dept Physiol, Kuala Lumpur, Malaysia

[2] Hosp Canselor Tunku Muhriz, Adv Reprod Ctr, Kuala Lumpur, Malaysia

[3] Univ Kebangsaan Malaysia, Fac Med, Dept Obstet & Gynaecol, Kuala Lumpur, Malaysia

[4] Int Islamic Univ Malaysia, Kulliyah Allied Hlth Sci, Dept Biomed Sci, Kuantan, Pahang, Malaysia

Categories/ Classification

Research Areas: Endocrinology & Metabolism