P-286 Uterine vascularity in women with previous caesarean section and its potential role in implantation failure: a retrospective cohort study

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Study question: Does a previous Caesarean section affect uterine vascularisation the day of embryo transfer?

Summary answer: 3D vascularisation parameters show less uterine irrigation in patients with previous Caesarean section

What is known already: A recent retrospective cohort study demonstrates that previous Caesarean section impairs live birth rates after assisted reproductive treatment (ART) compared to a previous vaginal delivery. Furthermore, it has been hypothesized about the mechanisms by which post-cesarean section niche may diminish clinical pregnancy rates. One of the hypothetical process mentioned has been a distorted contractility of the uterus caused by fibrosis, which can influence in the vascularisation of the endometrium.

Study design, size, duration: We retrospectively studied the uterine contractility and 3D vascularisation parameters in women who had an embryo transfer at the Instituto Bernabeu of Alicante, between 2018 and 2020 with one recurrent implantation failure (at least two good quality blastocysts transferred from egg donation treatment).

Participants/materials, setting, methods: Patients with large myomas (more than 4 cm), adenomyosis or polyp were excluded. In total, 196 patients were assessed on the day of embryo transfer which 12 patients had a previous caesarean section. Uterine contractility was analyzed using 4D ultrasound after 6 minutes of video recording. Vascularisation index and vascularisation flow index were assessed after the endometrial volume definition.

Main results and the role of chance: Baseline characteristics of both groups were comparable. 3D vascularization parameters were significantly lower in women with a previous caesarean section. Vascularization Index (VI) reached 0,8% in caesarean section group (CS group) versus 2,3% (p=0,038) and vascularization flow index (VFI) was 0,2 in CS group versus 0,8 (p=0,038) Despite uterine peristalsis showed less contractility in those patients with previous caesarean section (0,8 contractions per minute versus 1,1 contractions per minute), non-statistical differences were demonstrated (p=0,154)

Limitations, reasons for caution: This study is limited by its retrospective design and the low number of cases.

Wider implications of the findings: The lower 3D vascularisation indexes support a post-Caesarean section vascular-related impaired perfusion as a hypothetical mechanism. Its correlation with a possible impairment in the embryo implantation after fertility treatments warrants further studies.

Trial registration number: Not applicable