Increased levels of angiogenic and proteolytic factors have been described in the endometrium from patients with endometriosis compared to those from control women. Moreover, angiogenesis-related microRNAs (angiomiRNAs) have also been found dysregulated in eutopic endometrium and ovarian endometrioma in comparison to endometrium from controls. miRNAs are non-coding RNAs that regulate translation. The aim of the present study has been to assess the role of some angiomiRNAs as predictors of recurrence.

Material and methods: endometrial-EU (n=42), ovarian endometrioma-OMA (n=30) and rectovaginal nodule-RVN (n=13) from patients with endometriosis were studied. VEGF-A, TSP-1, uPA and PAI-1 protein levels were measured by ELISA. miRNA-21-5p, -373-3p, -424-5p and -556-3p were quantified by miRCURY LNA (EXIQON). Incidence of recurrences (surgically confirmed) occurred during the following 17 years have been collected.

Results: A significant reduction in VEGF-A was found comparing EU from women who suffered recurrences to those who did not (288.88±59.39 vs 136.48±48.84; p<0.05) and PAI-1 levels (7.12±1.53 vs 2.91±0.97; p<0.05). miR-21-5p (1.11±0.18 vs 0.56±0.08; p<0.05) and miR-424-5p (0.49±0.08 vs 0.81±0.13; p<0.05) were differently expressed in recurrent patients. PAI-1 levels were significantly higher in OMA from recurrent women (18.28±4.42 vs 37.12±11.85; p<0.05). Moreover, RVN from recurrent women, miR-373-3p (1.35±0.53 vs 0.12±0.04; p<0.05) and miR-556-3p (2.56±0.90 vs 0.01±0.00; p<0.05) presented significantly lower levels.

Conclusions: Women who suffered recurrences presented lesions with lower angiogenic activity than those tissues from women who did not recur suggesting an inefficient accession of drugs to the surrounding tissue and allowing its survival. This study suggests a new possible role of angiomiR-21-5p, -373-3p, -424-5p and -556-3p as biomarkers for prevention of recurrence, as well as VEGF-A and PAI-1. The study of a larger cohort of samples would be required in order to validate these results and define an algorithm including all described parameters able to prevent recurrences in endometriosis.

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