

CHAPTER 30

LOCAL ENDOMETRIAL INJURY

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Local endometrial injury regulates the function of endometrial epithelial sodium channel (NAC)

Minimal fluid release and maximal fluid absorption is required for successful embryo implantation (1). Fluid absorption from the endometrial cavity into the systemic circulation is realized by NaC (2). NaC is located along the endometrial epithelium of human (3). This channels are responsible for fluid absorption in the endometrium similar to lung and kidney (4). All NaC contain Na⁺/K⁺-ATP ase enzyme that absorbs intra-lumina Na⁺ into the circulation. By increasing endometrial NaC during WOI period progesterone decreases endometrial fluid and increases implantation rates. Blastocyst release serine protease that stimulate NaC initiates decidualization (5). Since NaC is stimulated by mechanical factors such as biopsy, hysteroscopy, the established role of NaC in decidualization process may also provide an explanation for the increased pregnancy rates in spontaneous and ARTcycles after local endometrial injury (6).

What are the types of local endometrial injury?

1. Mechanical manipulation
2. Scratching
3. Suturing the uterine horn
4. Intra-uterine oil injection
5. Biopsy
6. Curettage
7. Use of hysteroscopic medium
8. Uterine scar formation secondary to C/S, myomectomy or perforation
9. Polypectomy
10. ERA test (local injury during specimen retrieval)
11. Radio-opac medium for HSG
12. Metilen blue test during L/S (7-13).

Which is a more accurate naming “local injury” or “endometrial manipulation” ?

The effect of local injury on implantation depends on the complete restoration of endometrial cavity. In order to achieve an endometrial cavity with sufficient volume and triangular shape must be the main objective of endometrial manipulation. Unfortunately, local endometrial injury alone does not allow us to realize our goal. Instead of local endometrial injury widespread and deeper cavity damage and restoration are required in cases with abnormal EISS for successful implantation. Therefore it would be more accurate to say “endometrial manipulation” instead of local injury.

Does the time of local injury affect success rates of procedure?

So far, there is no consensus regarding the timing of the endometrial injury that are needed for achieving the improvement in implantation rates. To ensure optimal benefit from hysteroscopic injury the assessment of the cavity shape is critical. In the presence of intense decidua it is not easy to see the tubal ostia, and myometrial bulge which extending into the endometrial cavity. Also due to increased decidualization and secretions it will be difficult to determine the depth of injury. Moreover, one of the basic criteria of adequate endometrial manipulation is to visualize the both ostium simultaneously. This can only be determined in a clear endometrial cavity being. For all these reasons local injury in the late follicular phase seems to be logical (20-21).

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