Purpose: to reveal the most effective micronized progesterone (MP) regimen for simple endometrial hyperplasia (SEH) treatment and propose the mechanism of its action.

Materials and methods: 64 patients with SEH (mean age: 40.8±7.02, mean IBM 27.3±2.1) were examined and treated with MP (400 mg/day). They were subdivided into 2 groups: the group A was treated during 14 days (n=31), the group B - during 21 days (n=33). The endometrium was morphologically and immunohistochemically assessed before and after the treatment. Expression of estrogen and progesterone receptors (ER and PgR), Ki-67 and BIRC 5 was investigated in endometrial glands. The control group involved patients with normal endometrium (proliferative phase (PP), n=8 and secretory phase (SP), n=7)

Results: SHE regression was observed in both groups (group A - 75%, group B - 84.6% (>0.05), secretory transformed endometrium (STE) developed in 47.2% and 38.5% accordingly, endometrial decidualization (ED) - in 46.1% and 27.8% accordingly. Because either STE or ED were registered in both groups, immunohistochemical results depended only on the endometrial reaction, but didn't depend on MP regimen. Thus, ER expression was 137.5±45.5 in SHE, 65±10 in STE, 39.5 ±8.4 in ED (the control group 175.1±12.2 in PP, 55.1±23.6 in SP). PgR expression was 139.4±44.3 in SHE, 79±7.4 in STE, 80.7±6.7 in ED (the control group: 236.4±1.9 in PP, 74.1±7.8 in SP). Ki-67 expression was 25.6±10.5 in SEH, 7.6±1.3 in STE, 2.7±0.8 in ED (the control group: 73.5 in PP, 3.4 in SP). BIRC 5 expression was 75.9 ±17.8 in SHE, 60±10 in STE, 37.2±4.5 in ED (the control group: 75.7±16.3 in PP, 77.5±21.2 in SP).

Conclusion: SHE treatment with MP leads to ER, PgR, Ki-67 and BIRC5 expression decrease while this reduction was twofold-fourfold more in ED than in STE . Thus, 21-days regiment suppresses proliferation and impacts apoptosis more powerfully then 14-days regimen.