

39.9 kg/m² (left) and BMI > 40 kg/m² (right). The deviations are again the most significant in women with BMI >40 kg/m² operated by the conventional technique.

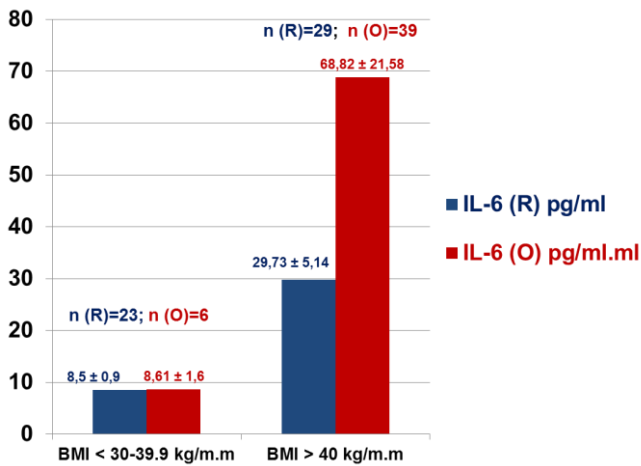


Figure 3: Correlation between body mass index (BMI) and measured levels of IL-6 during the third hour after the operating period in women with stage I endometrial carcinoma operated by minimally invasive surgery (R) and conventional (O) operating techniques.

Demanding attention is also the tracing of the cytokine profile of IL-10 (cytokine synthesis-inhibitory factor) that binds to the antigenic immune response of the organism. In this case IL-6, plays the role of a "trigger" factor for IL-10. The "inclusion" of IL-10 in the immune regulation has a dual effect. On the one hand, it promotes the phagocytic activity and T2-helper lymphocytes and, on the other, inhibits the proinflammatory response and function of T1-helper lymphocytes.

Notwithstanding the individual variations in cytokine levels, the results obtained by tracing the profile of IL-10 follow the previous trend, Figure 4. The cytokine level was increased at the third hour after the intervention, as in patients operated by the method of open surgery the level remained high even after the third day following the intervention.

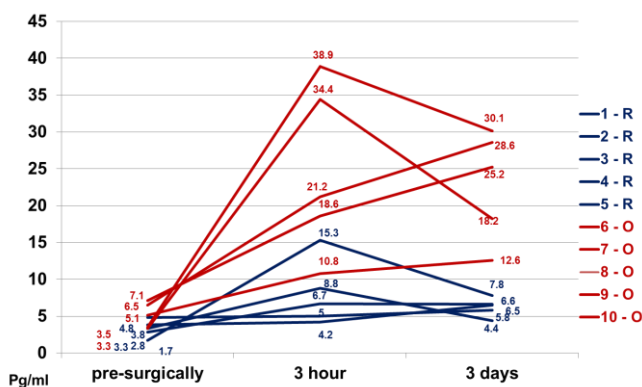


Figure 4: Recorded values of the serum level of IL-10 in women with stage I endometrial carcinoma operated with minimally invasive (R, n=5) and conventional (O, n=5) operating techniques.

A faster approach to the baseline cytokine levels was

observed only in women operated by the robotic surgery method. The profile established is correlated with the ratio between the body mass index (BMI) of the patient and the levels of IL-10 measured in both types of performed interventions, Figure 5.

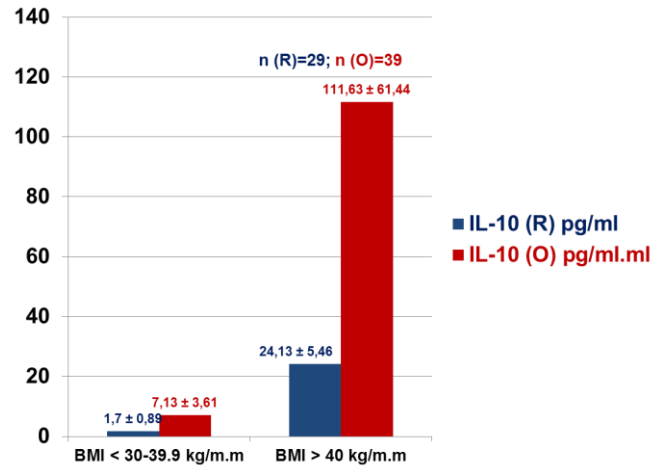


Figure 5: Correlation between body mass index (BMI) and measured levels of IL-10 during the third hour after the operating period in women with stage I endometrial carcinoma operated by minimally invasive (R) surgery and conventional (O) operating techniques.

The study performed was focused on the immunopathological changes in stage I endometrial carcinoma, when these changes are much smaller as compared to the advanced stages of the disease, but these observations open an opportunity for a basic complex immunological assessment of individual immunological deviations and the surgery's high technological capabilities. The minimally invasive surgery demonstrated a reduced acute-phase response as compared to open procedures and better preservation of the cellular immune mechanisms. Robotic operations of endometrial carcinoma entail less blood loss as compared to open surgical interventions, Table 1.

Table 1: Post-surgery characteristics in women with stage I endometrial carcinoma operated by minimally invasive (R) and conventional (O) operating techniques.

Parameters	R n=62	O n=35	P
Uterine size in SD/g	101,45 ± 24,96	121,48 ± 31,00	P<0,001
Blood loss in SD/ml	96,93 ± 26,86	435,71 ± 108,85	P<0,001
Surgical time in SD/min	95,96 ± 29,76	139,85 ± 30,13	P<0,001
Hospital stay in SD/d	3,37 ± 0,27	10,8 ± 0,26	P<0,001

4. Summary

The high-tech surgical capabilities of minimally invasive surgery and the immunological changes at cytokine level in level I endometrial carcinoma enable the increasingly successful treatment of this neoplastic disease and its prevention. Research confirms the view that minimally invasive surgery reduces the so-called "cytokine burst", which presupposes the decrease of postoperative risk and days of intensive care and hospitalizations. In this particular

case, it is important that we have an obese patient with neoplastic problem and possibilities for new angiogenesis and spreading of the neoplastic process.

The adoption and implementation of Da Vinci minimally invasive surgical system (Intuitive Surgical System, Inc., Sunnyvale, CA) in Bulgaria for treatment of endometrial carcinoma (stage I) reduces the so-called "cytokine burst", thus lowering the post-surgery risk and postoperative days of intensive care and hospitalizations. The findings listed as a result of our study are important for the pathogenetic clinical diagnostic thinking, for the selection of surgical approach, postoperative care, short-term and more distant prognosis.

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