Background and Aim of Study
The anesthetic management of radical robotic prostatectomy using da Vinci System (dVP) presents challenges of managing the effects of pneumoperitoneum in Trendelenburg position. The transperitoneal access (TP) is the most frequent approach during dVP, although the extraperitoneal approach (EP) is frequently used. This prospective randomized study compared the effects of CO2 insufflation during TP and EP dVP on hemodynamics and oxygen transport.

Materials and methods
62 patients were randomly assigned to TP (32) and EP (30) dVP. Of all patients were prospectively collected age, Body Mass Index and prostate volume; in all cases clinical stadiation has been performed considering PSA, DRE, biopsy Gleason score, abdominal CT scan. Time for segmental steps of intervention were recorded. Hemodynamic, respiratory and oxygen transport parameters were taken for each patient at the moment of induction of anesthesia (T0), after starting CO2 insufflation (T1), and after 60 (T2) and 120 minutes (T3) after insufflation. The parameters are shown in Fig. #1. In all cases the same automatic ventilator has been used (Drager, mod. Zeus) and the intracavity pressure has been set at 15 mmHg.

Results
Demographic characteristics of patients of two groups were comparable. Analysis of time for segmental steps of dVP demonstrated only a difference considering time for trocar positioning, that was significant higher in EP (median 30 min.) than TP (median 10 min.). From the analysis of intraoperative anesthesiologic parameters has emerged that during EP partial pressure CO2 is significantly higher than during TP, with a consequent decrease of arterial pH.

Discussion
Considering time for trocar positioning, EP dVP is resulted longer than TP, while all other segmental steps are resulted comparable. This study demonstrates that EP dVP determines a significantly higher absorption of CO2 than TP, with consequent more rapid acidosis. Parameters of ventilation have been intraoperatively modified to maintain the pressure of ventilation under 30 mmHg and pH >7.3, increasing Tidal Volume and Respiratory Frequency. Other analyzed parameters are similar in two groups.

Conclusions
This prospective randomized study demonstrates that during dVP, from the anesthesiologic point of view, TP approach is preferable to EP.