COMPARING EFFECTS OF COMBINED GENERAL/EPIDURAL ANESTHESIA AND GENERAL ANESTHESIA ON SERUM PRO AND ANTI-TUMORIGENIC CYTOKINES IN MAJOR UROLOGIC SURGERY

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Background: Surgical stress combined with general anesthesia (GA) suppresses the immune system and leads to cancer cell growth and premature metastasis in major oncologic interventions. Epidural analgesia decreases the need for inhalation agents and opioids during surgery by suppressing sympathetic and neuro endocrine responses in the post-surgical period. The aim of the present study is to compare the effects of combined general/epidural anesthesia (GEA) + patient-controlled epidural analgesia (PCEA) and GA + IV patient-controlled analgesia (PCA) on serum IL-6, IL-10, TGF-β levels in patients undergoing radical cystectomy.

Materials and Methods: Sixty-five patients were enrolled in this prospective study. Patients were randomly enrolled to group GEA which is combined GEA + PCEA (0.1% bupivacaine+1 µg mL⁻¹ fentanyl) and group GA which is combined GA + IV PCA (0.03 mg mL⁻¹ morphine). To evaluate the cytokine response, blood samples were collected at preoperative, postoperative 1st and 24th hours. Twenty-nine patients from both of the groups completed the study.

	Group GA (n:29)	Group GEA (n:29)	P
Age	65,1+9,7	64,8+7,5	0,9
Sex (F/M)	2/27	5/24	0,4
Weight	75,5+11	74,4+7,8	0,6
Duration of operation (min)	272+60	295+86	0,2
Duration of anesthesia min)	290+64	318+88	0,1
Duration of hospital stay (day)	12,21+3,07	9,13+2,15	0,001*

Table1. Demographic and operative data of patients

References:
1.Grivennikov SI, Greten FR, Karin M, Immunity, Inflammation and Cancer. Cell 2010; 140:883-99

Results: There was no statistically significant difference in serum IL-6, IL-10, TGF-β levels between groups GA and GEA at preoperative and postoperative 1st and 24th hours. Total remifentanil consumption was significantly lower in group GEA than group GA (287±403, 596±349) (p<0.05). There was no statistically significant difference between the groups in terms of VAS values at postoperative 15th minute and 1st, 2nd, 6th and 24th hours (p>0.05). Duration of hospital stay was significantly shorter in group GEA than group GA (9.13±2.15, 12.21±3.07) (p<0.001).

Figure 1. Serum cytokine levels

	Group GA (n=29)	Group GEA (n=29)	P
Erythrocyte suspension (IU)	1,6+1,2	1,75+1,35	0,6
Fresh frozen plasma (IU)	1+0,8	1+1	0,7
Cristalloid (mL)	4725+1190	4820+1450	0,8
Colloid (mL)	600+410	500+400	0,3
Total Remifentanil consumption (µgr)	596+349	287+403*	0,03*

Table2. The total amount of intraoperative fluid, blood products and remifentanil consumption

Conclusion: In our study, VAS values were below 4 in both groups undergoing intravenous morphine and epidural analgesia at all times. This suggests both techniques provide efficient analgesia. Similar serum cytokine levels in two groups can be explained with this efficient analgesia. There is no difference between two anesthesia methods in terms of serum cytokine levels, however combined GEA + PCEA technique is seemed to be superior to GA + IV PCA due to lower intraoperative narcotic analgesic consumption and shorter hospital stay.