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Clinical study and safety analysis of propofol and fentanyl on painless gastroscopy examination.

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Abstract

Objective: To study clinical application/effects of propofol and fentanyl on painless gastroscopy examination and evaluate its safety.

Methods: This study selected 130 patients with gastroscopy in our hospital. They were randomly divided into the observation group and the control group, each 65 cases. The control group was given anesthesia of venous injection propofol before gastroscopy examination. The experiment group given anesthesia before surgery by venous injection of propofol and fentanyl. Then we observed and record index changes of medication, heart rate, average arterial pressure, oxygen saturation, body movement and respiratory depression in various groups.

Results: Average artery pressure, heart rate, oxygen saturation all decreased obviously in two groups, which decreased stably in the observation group. Medication in the observation group lower than the control group obviously (P<0.05); during treatment, body movement in experimental group lower than the observation group obviously, there were statistical differences (P<0.05).

Conclusion: Medication dose of propofol and fentanyl on painless gastroscopy is little. Clinical effects are better, which has functions of analgesia, sedation etc. Adverse reactions less. The safety is higher, it deserves importance and generalization.

Keywords: Propofol, Fentanyl, Painless gastroscopy examination, Clinical study, Safety.

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Introduction

Gastroscopy examination also calls endoscopic examination upper alimentary tract, it is one symbol for modern medical progress, through it, we can detect problems of gastric organs of patients with gastric patients. Gastroscopy examination can be divided into routine gastroscopy examination and painless gastroscopy examination. Routine gastroscopy will cause adverse reactions of nausea, vomiting and etc., which make gastroscopy difficult. In recent years, painless gastroscopy begin to be applied to examination of patients with gastric diseases, which make patients accomplish examination without sensation, can avoid mechanical injury of great degree caused by body movement during surgery. Patients are more likely to accept it, also which is convenient for gastroscopy of patients [1-5]. It has advantages of obvious effects, high comfort, safety and high successful rate of surgery. This study gives clinical effects safety of anesthesia of gastroscopy on propofol, propofol and fentanyl to study the best administration method for painless gastroscopy examination.

Data and Methods

General data

This study selects 130 patients from Yantaishan hospital of Yantai City in Shandong province who willing to participate in this study. All patients were divided according to Grading Standards of American Anesthesiologist, they all had not important tissue and organ lesion of heart, brain, liver and kidney, allergy for anesthesia drugs, analgesia abuse and positive pregnant of female patients. Computer system divided patients into the observation group and the control group randomly, each 65 cases, of which, there were 32 male patients in experimental group, 33 female patients. The age was from 24 to 83 y old. The average age was 54.04 ± 13.10. Weight range was from 45.2 kg-83.4 kg. Average weight was 62.40 ± 9.82 kg. There were 34 male patients in the control group, 31 female patients. The age was from 24 to 83 years old. The average age was 54.04 ± 13.10. Weight range was from 44.8 to 83.8 kg. Average weight was 62.6 ± 9.73 kg. There were no

significant differences of general data of patients in two groups, it had compatibility (P>0.05) (Table 1).

Table 1. General data.

The control	patients	Age (y)	Average age (y)	Weight (kg)	Average weight (kg)
The control group	65	24-83	54.04 ± 13.10	44.8~83.8	62.6 ± 9.73
The observation group	65	24-83	54.04 ± 13.10	45.2~83.4	62.40 ± 9.82

Methods

This study was consented by medical ethics committee in our hospital. Patients were given fasting and drinking forbidden. There were no abnormal conditions in various physiological indexes of patients and medication before surgery. Patients were given oxygen uptake by nasal tube. Oxygen flow was 4.0 L/min. This study monitored pressure, heart rate, oxygen saturation from time to time. The control group given 1.5 mg/kg propofol injection of venous injection in upper limb properly [6], then we did gastroscopy examination after slowly injection until to patients cannot be awakened and had no eyelash reflexes. Upper vein of upper limb of patients in the observation group were given 1.5 μg/ml fentanyl, a certain dose propofol for surgery until patients had no awakened conscious and eyelash reflexes. If patients had body movement during surgery, then given 0.2 mg/ml propofol for maintaining anesthesia state to the accomplishment of surgery. Then we strictly observed and record various physiological indexes of patients in two groups, including average artery pressure, heart rate, oxygen saturation, body movement and respiratory inhibition rate. There were patients had obvious respiratory inhibition, should be given oxygen operation [7] and given record about medication of patients in two groups. Heart rate less than 50 times per min. Oxygen saturation less than 92%. The decreased degree of average artery pressure more than 30%, it meant respiratory inhibition had clinical significance [8].

Observation indexes

Observation of physiological indexes: This study record change conditions of before administration, endoscopy insertion surgery, Heart Rate (HR), Mean Arterial Pressure (MAP), Blood Oxygen Saturation (SpO_2) of patients in two groups, medication dose of anesthesia from the beginning of surgery to the end of surgery in various groups.

Observation of adverse reactions: This study observed and record the time from eyelash disappearance to awaken time of patients in two groups, body movement reaction conditions of patients in two groups during surgery. SpO_2 less than 92%, it meant clinical adverse reactions. HR less than 500 times per min, it meant clinical adverse reactions. Decreased degree of mMAP less than 30%, it meant clinical adverse reactions. Body movement degree was II and III, it meant clinical adverse reactions and remembers ability after patients come to consciousness.

Statistical methods

All record data adopted SPSS 18.0 to do management. Enumeration data used χ^2 test. Measurement data represented by $\bar{x} \pm s$. Measurement data among groups used t-test. P<0.05, there were statistical differences.

Results

Comparison of physiological indexes change of cases in two groups

There were no significant differences in MAP of cases in two groups before medication (P>0.05). After 2 min of surgery, MAP of cases in the observation group lower than the control group, P<0.05 (there were statistical differences), after 30 min of surgery, MAP increased in two groups, but there were no statistical differences (P>0.05). There were no significant differences in heart rate, oxygen saturation in two groups before and after surgery, there were no statistical differences (P>0.05). It was found that MAP in two groups and HR before administration higher than after the beginning of surgery by within group comparison, there were significant differences (P<0.05). Oxygen saturation before administration lower than after the beginning of surgery, there were statistical differences (P<0.05) (Table 2).

Table 2. HR, SpO_2 and MAP change conditions before administration, during surgery and after surgery of cases in two groups.

Group	Physiological indexes	Before administration	After surgery began 2 min	After surgery began 3 min	Can be awakened
The control group	MAP (mmHG)	87.9 ± 7.9	74.2 ± 7.0*	74.8 ± 6.3*	82.1 ± 8.3*
The observation group		89.0 ± 7.8	70.4 ± 8.2*	75.9 ± 9.2*	81.9 ± 10.1*
The control group	HR (times/min)	79.4 ± 9.5	78.2 ± 12.4*	74.9 ± 10.6*	73.8 ± 9.2*

The observation group		79.0 ± 9.3	76.4 ± 8.3*	73.8 ± 6.0*	74.0 ± 6.0*
The control group	SpO_2 (%)	96.3 ± 0.8*	97.9 ± 1.9	97.8 ± 0.3	98.7 ± 0.2
The observation group		97.0 ± 0.6*	97.9 ± 1.9	97.8 ± 0.4	98.9 ± 0.3

Note: Compared with before administration, *P<0.05

Observation conditions of adverse reaction of cases in two groups

Oxygen saturation of cases all less than 92%, there were 12 cases in the control group, 14 cases in the observation group, there were no significant differences in two groups (P>0.05). There were no heart rate of patients in two groups before and after surgery less than 50 times per min. Compared MAP change conditions in two groups, there were 6 cases who more than 30% in the observation group, but there were no statistical differences (P>0.05). Body movement monitor found that reaction number of I and II grades in the observation group less than the control group, the differences were obvious, there were statistical differences (P<0.05, Table 3).

Table 3. *Comparison conditions of adverse reaction of cases in two groups.*

Group	SpO_2 (%)		HR (time/min)		MAP change		Body movement reaction		
	<92%	≥ 92%	<50	50	≤ 30%	>30%	I	II	III
The control group	12	53	0	65	65	0	32	15	18
The observation group	14	51	0	65	59	6	50	5#	10#

Note: Compared with the control group, #P<0.05

Discussion

Gastroscopy is one of important methods for diagnosing diseases of alimentary tract [9], also one of common and important medical methods at present. But painless gastroscopy has been accepted because of its high comfort degree. Therefore, it is vital that do drug anesthesia in painless gastroscopy during examination. Propofol has been applied to gastrosopy examination surgery widely because of its stable anesthesia, rapid effects and no drug saving [10], we must increase medication of propofol for patients cannot be awakened during surgery, better analgesia and sedation effects, at the same time, it also increase anesthesia risk of patients [11]. This study often uses receptor analgesia of propofol compound pill to reduce propofol medication and adverse reactions of body movement [12], this study finds that anesthesia administration of propofol and fentanyl can reduce anesthesia medication of propofol, lower anesthesia risk under the basis of guaranteeing patients cannot be awakened during surgery and no pain during surgery. Propofol has obvious inhibition for cardiovascular system, which can lower artery pressure obviously [13]. This study finds that average artery pressure all decrease in two groups after the beginning of surgery. The decreased degree of average artery pressure in the observation group higher than the control group, but the degree is stable, there are statistical differences (P<0.05), it may be related to fentanyl, as opium receptor agonist, one of strong-effective anesthesia [14,15]. Through comparison within groups, SpO_2 higher than before administration, the descending degree of observation group more stable, it will not influence SpO_2 obviously, there are statistical differences (P<0.05). HR in two groups after medication decreases, it decreases more obviously within two minutes of the beginning of surgery in the observation group. But HR never lower than 50 times per min, it shows propofol and fentanyl after anesthesia are more rapid and safe. It needs to point out that there are no this phenomenon in the observation group. It relates to rapid treatment after propofol and fentanyl, it not harms health in a certain degree. Adverse reaction monitor comparison finds that SpO_2 of a small amount of cases during surgery less than 92%. SpO_2 in the observation group less, but there are no statistical differences (P<0.05). HR of patients in two groups before and after surgery all more than 50%, there are no abnormal conditions. Body movement reaction monitor finds that body movement cases of I grade in the observation group higher than the control group, there are no statistical differences (P>0.05). Body movement cases of II and III grades in the observation group higher than the control group, differences are obvious, there are statistical differences (P<0.05). It shows propofol and fentanyl can reduce adverse reactions of gastroscopy surgery, improve anesthesia safety. Propofol has coordination with fentanyl [16]. They two as anesthesia, not only can increase effects of drugs, relieve adverse reaction of nausea and vomiting caused by fentanyl [17,18], reduce dosage of single drug use and adverse reaction rate [19].

In conclusion, propofol and fentanyl in painless gastroscopy examination not only has more administration methods comparing with single propofol in clinical effects, and it has more high safety, which needs further generalization and importance.

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