Annals of the University of Oradea, Fascicle: Ecotoxicology, Animal Husbandry and Food Science and Technology, Vol. XVII/B 2018

Analele Universitatii din Oradea, Fascicula: Ecotoxicologie, Zootehnie si Tehnologii de Industrie Alimentara, Vol.XVII/B 2018

STUDY OF INFLUENCE OF PERIPHERAL MYORELAXANT ADMINISTRATION

Osser Gyongyi*, Jirgiu Corina, Ioana Movileanu Pletea***, Maria Orodan****, Morgovan Claudiu*, Marian Gelu Movileanu***** , Anca Oarcea***

*"Vasile Goldiş" Western University, Faculty of Pharmacy , Arad, L. Rebreanu street, Romania
** Ioan Slavici Secondary School Siria, Arad, Romania.
***University of Medicine and Farmacy Carol Davila Bucharest, Romania
****"Vasile Goldiş" Western University, Faculty of Medicine , Arad, L. Rebreanu street, Romania
*****Valahia University of Targoviste, Al. Sinaia, nr. 13, Targoviste, Romania
e-mail: dr.movileanu@yahoo.com

Abstract

Muscle relaxants are drugs that relax the striated muscles and are used to create an artificial myopletic in anesthesia.

On January 23, 1942, Tococurarine Chloride was first used in the clinic, and in the Hospital of Montreal, Dr. Harold Griffitts, and his resident Enid Johnson, used Tococurarine Chloride during an apendicectomy surgery, that is revolutionary for anesthesiology, since that time anesthesia began to function as an independent specialty.

There are many differences between muscle relaxants, which can be grouped according to the mechanism of action, the speed of onset of the effect and the duration of action.

The long-term exertion of the relaxants leads to some complications: after the discontinuation of myorelaxants, the remission of the neuro-muscular block increases or the neuromuscular block prolongs due to the accumulation effect of the metabolites or miorelaxants.

Another complication is manifested by acute paresis, normal electrocardiogram, muscle necrosis with increased serum creatine phosphokinase.

Key words: muscle relaxants, electrocardiogram, neuromuscular, miorelaxants, receptors

INTRODUCTION

Miorelaxants have particular mechanisms of action in the various actions of particular importance.(Coakley JH et al.,1998) In the postsynaptic membrane, the increase in acetylcholine receptors over a long period of time is due to the release of low acetylcholine. (Agoston S. et al.,1973).

Resistance to non-depolarising miorelaxants is given by the type of autoregulation by blocking a large number of receptors and leads to an increase in the effects of depolarizing miorelaxants.(Bencini A et all 1983)

Increased effects of non-depolarising miorelaxants may be increased when acetylcholine receptors are lower in the case of myasthenia gravis. (M Ifrim et all, 2008) In the case of Gullain-Barre Syndrome, post-

stroke plexia, by increasing the synthesis of immune cholinergic receptors, these lead to the loss of motor activity of the neurons.(Payne JP et all 1962)

Immature receptors are located not only in the postsynaptic membrane, they have an opening time of 2 to 10 times longer ion channels, migrating along the entire synaptic membrane, having a short life span, being more resistant to the effects of miorelaxants nondepolarizing and much more sensitive to the effects of depolarizing miorelaxants. (Boyd AH et all 1996) In the long-term use of non-depolarizing miorelaxants, tachyphilaxis occurs due to the increase in the number of immature receptors. (A.N.Cristea 2006)

Muscle relaxants are powerful bases because they contain one, two or three quaternary ammonium groups that bind to the neuromuscular blocking effect. (DavidW.et all 1998) The presence of these quaternary ammonium groups explains the high solubility of these agents, which are present in ionized form irrespective of the pH of the biological fluid(Duvaldestin Pet all 1982)

This property explains why muscle relaxants are mostly excreted in the urine without being transformed, and renal insufficiency is the main cause of the prolonged effect of muscle relaxants. (D.Dobrescuet all 2018)

Despite the role that the liver performs in eliminating muscle relaxants, several anomalies about excretion have been reported previously for patients with liver disease.(L Dobjanschi 2007, C Mraz et all, 2012) An increase in d-tomocurarine and pancuronium has been reported in cirrhosis patients.(Meijer DKF et all1979) These observations suggest that muscle relaxants have a greater role than is currently believed in eliminating muscle relaxants.(Prielipp RCet all 1994) The structure of their duration of action in the case of vecuronium can be explained by the fact that they are eliminated to a substantial extent by biliary excretion.(Vonk RJ,et all 1980)

MATERIAL AND METHOD

The patients were evaluated for 10 men and 15 women, ie 40% men and 60% females, aged 24 to 59 years, which makes it very toxic that it can be administered to young people and the old ones.

Patients admitted to the surgical department and who underwent surgery at Deta Town Hospital, Timis County.

The following were included:

- age of patients aged 24-59;
- patients admitted to the surgery department to undergo surgery;
- patients who received single dose esmeron 10 mg / ml before surgery.
-evaluating the values of some biochemical parameters at the patient's hospitalization and discharge

RESULTS AND DISCUSSION

The gender distribution of the patients evaluated was 10 males and 15 females, ie 40% males and 60% females, aged 24 to 59 years, which makes it very toxic that it is not toxic and can be administered both to young and old people.

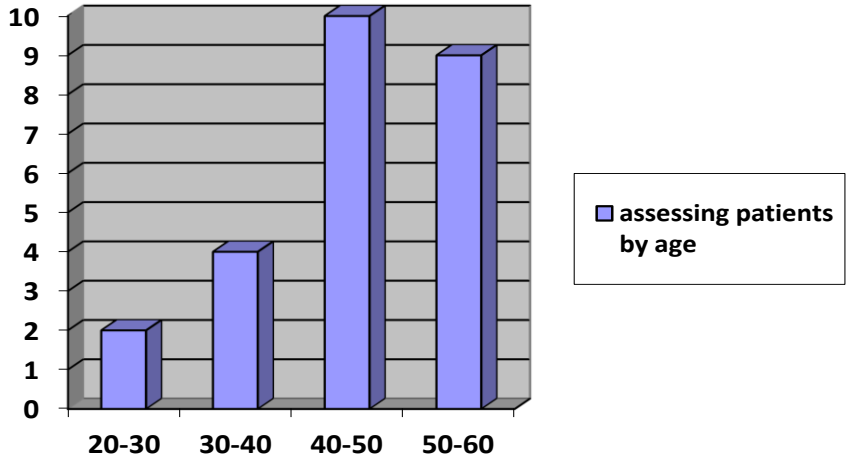

Fig.1. Asseing patients by age

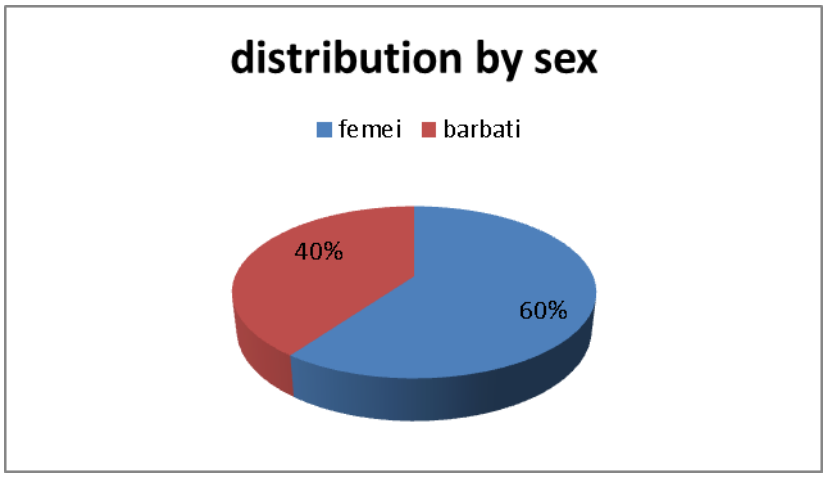

Fig. 2. Repartition by sex

Statistical analysis was performed on patients who were admitted to the surgical department, data from clinical observation sheets for some biochemical analyzes both at admission and after surgery after single dose

esmeron 10 mg / ml, to see if this drug influences the liver parameters: TGO, TGP, total bilirubin.

Patients must complete and sign a consent form for admission to surgery and be informed in case of anesthesia by the anesthetist. The general clinical observation sheet is completed by the surgeon, and the anesthesiologist's medical information and consent sheet is anesthetized.

Patient treatment prior to surgery should be considered to avoid drug interactions followed by adverse effects as well as possible liver disease or renal insufficiency that may influence the pharmacokinetic and pharmacodynamic properties of esmerone.

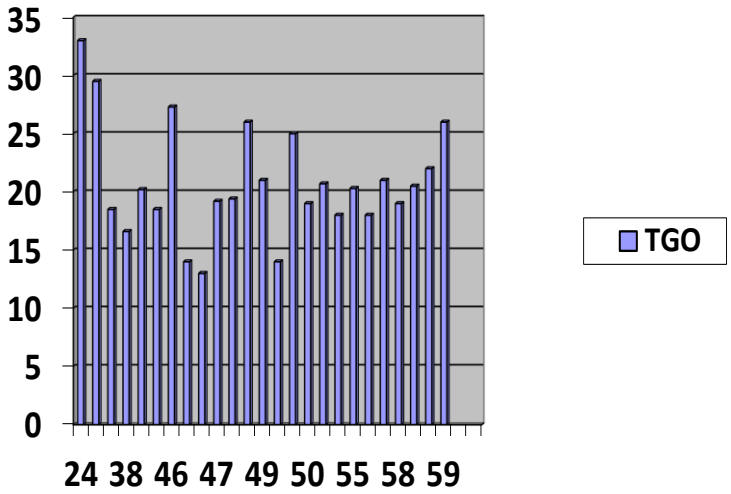

Fig.3. Graphical representation of TGO-admissions values

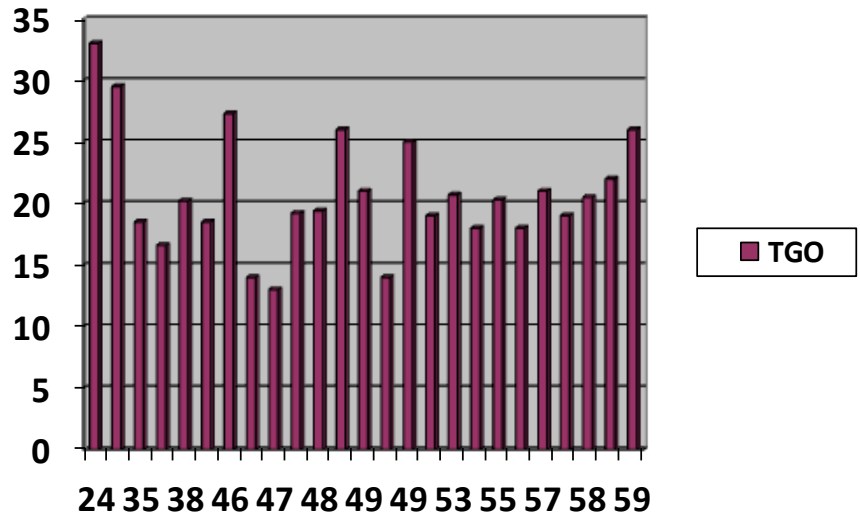

Fig.4. Graphical representation of TGO-discharge values

It can be seen from the above table and graphical interpretation that the TGO parameter values are within normal limits both at the patient's hospitalization and after the dosing of esmeron, that is after surgery, which is different for each patient.Normal values of glutamic oxalate transaminase are between 0-37UI / l, the highest value being a 24-year patient, TGO is 33 IU / l and the lowest is observed in the 47-year-old patient, TGO is on admission 13 IU / L, with a slight increase at discharge of 16 IU / l.

From the data we can see that the glutamino-oxalacetic transaminase values were not influenced by the age or sex of the patients, nor by the peripheral miorelaxant administration, being within the normal limits, the differences being very small, in most cases the values being maintained.

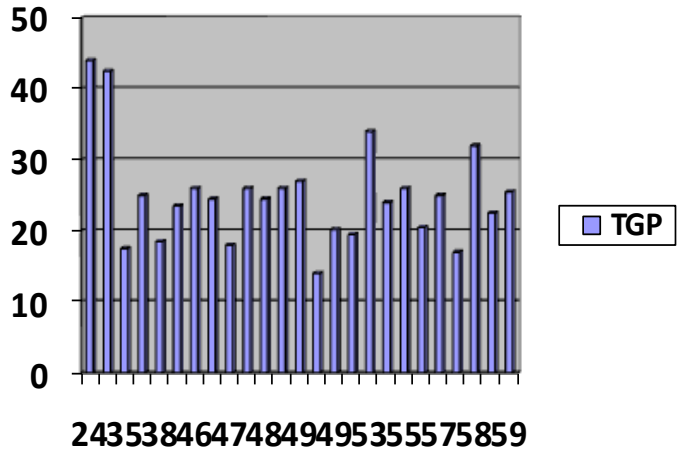

Fig.5.Graphical representation of TGP-admissions values

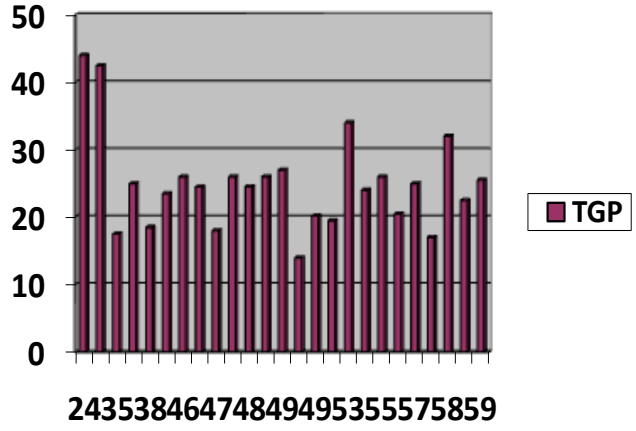

Fig.6. Graphical representation of TGP-discharge values

Normal values of glutamic-pyruvic transaminase are between 0-40 IU /L, it can be seen from the table and graph above that only two patients have values above the admitted limit, 24-year-old patients with 44 IU TGP /L, respectively, the 26-year-old patient with a TGP of 42.5 IU /L, these patients were hospitalized with a literal cholecystect. These values remain unchanged after the esmeron dose, respectively, after surgery.

Elevated glutamate-pyruvate transaminase levels can be found in acute viral hepatitis, ie the increase in enzyme activity is directly

proportional to the lean tissue mass; chronic hepatitis, toxic liver necrosis, hepatic metastases, active cirrhosis, infectious mononucleosis.

These high values may also occur following treatment with salicylates, barbiturates, morphine, tetracyclines, tuberculostases or phenytoin

CONCLUSIONS

The values for TGO - glutamico-oxalacetic transaminase in the 25 patients studied are between 13U / L and 33 IU / L, as these values are within the normal range of 0 - 37 IU / L, we can say that this hepatic parameter was not influenced by the administration of esmerone 10 mg / ml nor by any other factor during hospitalization.

The values for TGP - glutamico-pyruvic transaminases in patients under study are between 14 IU / L and 44 IU / L, with normal values ranging from 0-40 IU / L, here we have two patients with values above the admitted limit: female patient aged 26 years, operated with acute cholecystitis, 42.5 IU / L, respectively, the female patient aged 24 years, operated by a lithiasis cholecystect, 44 IU / L at but also after 10 mg / ml of esmeron, these values remain unchanged

Esmeron (rocuronium bromide) 10 mg / ml being a single-dose medication, in anesthesia, we have shown that it has no influence on liver parameters, being well tolerated by all patients, is not liver toxic and can be administered with confidence in anesthesia in all age groups

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