ISR Journal of Applied Medical Science (ISRJAMS)
Homepage: https://isrpublisher.com/isrjams/
Volume 01, Issue 01, July 2025 ISSN: XXXX-XXXX (Online)

Prevalence of Postoperative Complications in Myasthenic Patients: About 30 Cases

A. Monteiro[1]*, M. Ngelesi[1], Y. Lombe[1], P. B. Mavoungou[1], Y. El Ouardi[1], M. Khallouki[1]

[1]Experience of the Anesthesia and Intensive Care Unit of the MOHQMMED VI University Hospital, IBN Tofail Hospital, Marrakech, Morocco

***Corresponding author:** A. Monteiro
[1]Experience of the Anesthesia and Intensive Care Unit of the MOHQMMED VI University Hospital, IBN Tofail Hospital, Marrakech, Morocco

Article History

Received: 28-05-2025

Accepted: 09-06-2025

Published: 05-07-2025

Abstract: **Original Research**

Myasthenia gravis is an autoimmune disease responsible for weakness and fatigue of the skeletal musculature. It is more common in women. The objective of our study is to highlight the perioperative management modalities for thymectomy for myasthenia gravis. We conducted a retrospective descriptive study of patients who underwent thymectomy for myasthenia gravis in the central operating room of Ibn Tofail Hospital in Marrakech between January 2022 and March 2025. Treatment is based on anticholinesterases and immunosuppressants. During acute attacks, none of our patients required intravenous immunoglobulins or plasma exchange. The thymus is responsible for triggering and maintaining autoimmunization in all our patients. In our study, perioperative management was multidisciplinary, with preoperative assessment of various severity scores based on the Osserman and Leventhal scores, which modified the patterns of anesthetic agent use (particularly neuromuscular blocking agents). In most cases, the postoperative course was uneventful, comparable to a normal population. However, the risk of postoperative complications is documented and primarily concerns respiratory function. In our series, postoperative respiratory complications were not recorded. Nevertheless, all our patients operated on under general anesthesia were extubated on the table; extubation occurred after complete reversal of the neuromuscular block for patients in whom neuromuscular blocking agents were used. Postoperatively, a 24- to 48-hour intensive care stay was routinely required for all patients for postoperative monitoring. Myasthenic treatment was systematically resumed 6 hours after the end of the procedure. In our series, all our patients remained stable during their post-operative stays in intensive care, whether they were patients in whom curare was used or those in whom curare was not used.

Keywords: Myasthenia gravis, Anticholinesterases, Thymectomy, Anesthesia, Curare, Intensive care.

INTRODUCTION

Myasthenia gravis is a chronic autoimmune disease affecting the neuromuscular junction, characterized by the production of IgG autoantibodies directed against nicotinic acetylcholine receptors at the postsynaptic membrane on the motor endplate [1, 2]. It causes dysfunction of neuromuscular transmission mainly affecting skeletal striated muscles [1, 2]. Myasthenia gravis is a rare disease with an annual incidence of 8 to 10 cases per million and a prevalence of 150 to 500 cases per million. In women, myasthenia gravis most often occurs between the ages of 20 and 30, while it has a bimodal distribution in men with a peak at 30 years and a second peak between 60 and 70 years [3]. Thymus involvement is the most commonly implicated cause of myasthenia gravis (hyperplasia or thymoma) [2]. The affected patient complains of muscle fatigue aggravated during physical exertion, which may be generalized or

localized to a specific muscle group (ocular, bulbar, respiratory) or generalized and disappears after a period of rest [3]. The use of anesthesia can thus be carried out in the context of a thymectomy but also for any scheduled surgical procedure or urgent surgery.

Patient and Method

We conducted a descriptive retrospective study of patients who underwent thymectomy for myasthenia gravis between January 2022 and March 2025 in the central operating room of the Ibn Tofail Hospital in Marrakech at the MOHAMMED VI University Hospital, on 30 patients with myasthenia gravis and operated on for scheduled interventions. We excluded from our study all operated patients who did not have myasthenia gravis. During pre-anesthetic consultations, the following elements were taken into account: the patients' history as well as those relating to myasthenia gravis, namely, age, sex, onset of symptoms, duration of symptoms, treatment followed, the notion of myasthenic crises, the number of crises, notion of thymus involvement, notion of hospitalization related to myasthenia gravis. The severity assessment was done using the OSSERMAN classification and the Leventhal score. A neurological, cardiovascular, respiratory assessment, intubation and ventilation criteria were systematically carried out in all patients included in the study, paraclinical assessments namely, a blood count, an ionogram, a hemostasis assessment, renal and hepatic assessments, an exploration of respiratory function, an electroneuromyogram, a thymus scan, imaging assessments according to the surgical indications.

RESULT

The patients included in our study had a mean age of 30 years, or 67% for women, and a mean age of 58 years, or 33% for men, with a sex ratio of 3/2 in favor of women.

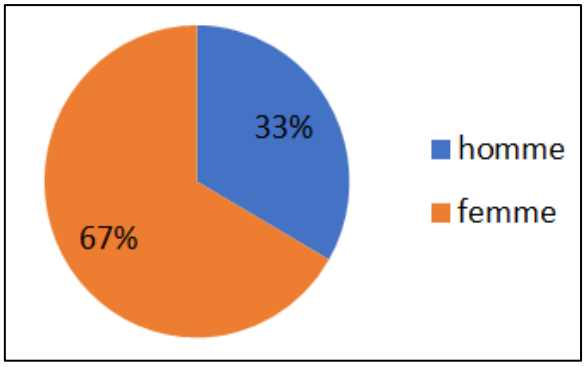

Figure 1: Distribution of patients by sex

The average duration of myasthenia gravis was 3 years. All patients were receiving treatment, mainly with an immunosuppressant, a systemic glucocorticoid, and an antihistamine.

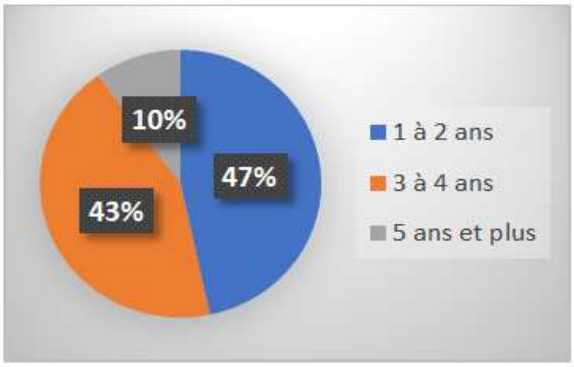

Figure 2: Distribution according to the duration of the pathology's development in years

The notion of myasthenic crisis was reported in 7 patients or 23%, and 23 patients or 77% did not present myasthenic crises; the thymus was the main recorded involvement.

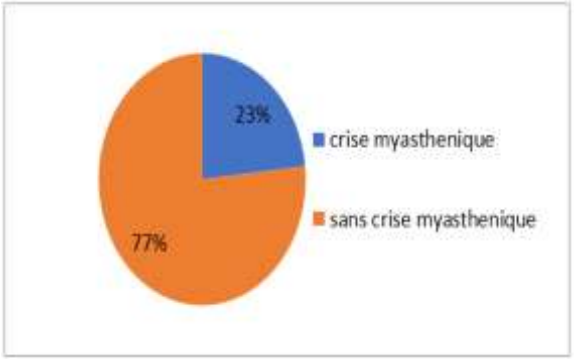

Figure 3: Distribution of patients with respect to history of myasthenia crises

One of the patients had pulmonary and bone tuberculosis with Pott's disease (3%), and 7 patients (23%) had hypertension, 11 patients (37%) had diabetes, 5 patients (17%) had heart disease and 37% of the patients had no other associated comorbidities.

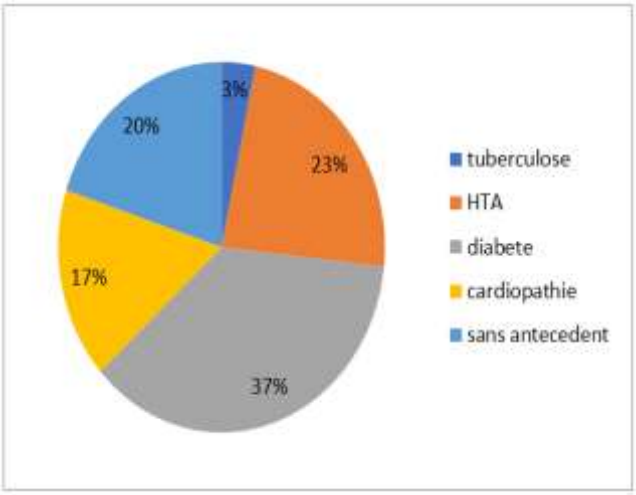

Figure 4: Distribution of patients according to comorbidities

The surgical indications were essentially thymectomy. Preoperatively, the stability of myasthenia was assessed using the LEVENTHAL and OSSERMAN scores. 12 patients, or 40%, had an OSSERMAN score of 2 and 18 patients, or 60%, had an OSSERMAN score of 1.

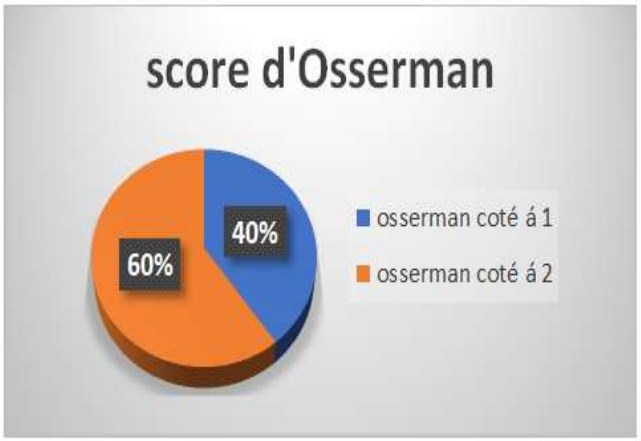

Figure 5: Distribution of patients according to the Osserman score

The Leventhal score was less than 10 for all patients. The ASA score was 2 in 21 patients and 3 in 9 patients. Antimyasthenic treatment was continued until 6 hours before surgery. The anesthetic strategy during the procedures consisted of general anesthesia for 24 patients and locoregional anesthesia for 6 patients depending on the surgical context. Anesthetic induction consisted of balanced anesthesia for patients operated under general anesthesia with drugs such as fentanyl as morphine, propofol as hypnotic, and curare was used only in 16 patients for whom curarization was deemed necessary. We used rocuronium, reducing the doses by half, under monitoring of curarization at the train of four. Loco-regional anesthesia was performed by spinal anesthesia with the drug bupivacaine combined with fentanyl.

Anesthetic maintenance was performed with propofol in AIVOC and fentanyl in titration. All patients operated under general anesthesia were placed on mechanical ventilation with adaptation of the parameters according to the patient's ventilatory needs. All patients operated under general anesthesia were extubated on the table, extubation was performed after complete reversal of the curares used. Postoperatively, a stay in intensive care of 24 to 48 hours was systematic for all patients for postoperative monitoring. Resumption of myasthenic treatment was systematically done 6 hours after the end of the intervention. All patients remained stable during their postoperative stays in intensive care, whether they were patients in whom curares were used or those in whom curares were not used.

DISCUSSION

The use of anesthesia in myasthenic patients can be carried out in the specific context of a thymectomy but also for any other scheduled surgery, in emergency or obstetric surgery. The intraoperative management of the myasthenic patient takes into account in particular the severity of the patient, based on a clinical score which leads to modifying the use of anesthetic agents, in particular curares and requires post-operative monitoring in continuous care or intensive care [4, 5]. In most cases the post-operative evolution is

simple, superimposable on a normal population, nevertheless the risk of post-operative complication is documented and mainly concerns respiratory function. Paraclinical assessments, namely the exploration of respiratory function, make it possible to highlight the respiratory impact. Loco-regional anesthesia should be preferred when possible; if general anesthesia is essential, curares and halogenated agents should be avoided. If curares are essential, monitoring of curarization is systematic.

The choice is made on the curares of duration of action in particular atracurium, vencurium. It is necessary to avoid factors which potentiate the neuro-muscular block [4]. During our study we used rocuronium as non-depolarizing curare with intermediate duration of action for all patients, the decurarization was complete at the end of each intervention after 90 min which is close to the results obtained by J.Y LEPAGE et al. In their study carried out on the curarization of the myasthenic patient by atracurium, with a complete recovery after 83 min at the dose of 0.15 mg/kg [6].

CONCLUSION

Myasthenia gravis is a pathology that presents an anesthetic challenge, and preoperative management requires close attention to both the patient's condition and the anesthetic strategy to prevent any complications that may arise perioperatively. Mandatory postoperative monitoring should be based on the avoidance of all substances that could cause postoperative complications and on the search for these complications in order to manage them in a timely manner. The use of muscle relaxants and inhaled anesthetics must be performed under medical supervision and requires intra- and postoperative monitoring.

REFERENCES

1. Manuel pratique d'anesthesie et reanimation 4e edition.
2. Ali, T. (2015). PRISE EN CHARGE PERI-OPERATOIRE DE LA THYMECTOMIE CHEZ LE PATIENT MYASTHENIQUE (A propos de 19 cas).
3. Dépret, F., Deniau, B., & Plaud, B. (2023). Anesthésie et maladies neuromusculaires: myopathies et myasthénie. *Anesthésie & Réanimation*, *9*(2), 139-147.
4. Malinovsky, J. M., Hamidi, A., Lelarge, C., & Boulay-Malinovsky, C. (2014). Spécificités de la prise en charge anesthésique chez les patients souffrant de maladie neurologique: éclairage sur l'anesthésie locorégionale. *La Presse Médicale*, *43*(7-8), 756-764.
5. Hamma, N. F., Lemai, S., Sifi, Y., & Benhabiles, A. (2016). Spécificités de la prise en charge anesthési que chez les patients souffrant de maladies neuromusculaires. *journal algérien de médecine*, *24*(5), 228-233.
6. Lepage, J. Y., Juge, C., Cozian, A., Malinge, M., & Souron, R. (1987, January). Curarisation du patient myasthenique par l'atracurium. In *Annales Françaises d'Anesthésie et de Réanimation* (Vol. 6, No. 5, pp. 460-461). Elsevier Masson.