Micro vascular decompression for trigeminal neurologia

Dr. Kahtan Adnan Abood
M.B.Ch.B. \ F.I.B.M.S (**Neurosurgery**) \ F.W.F.N.S.
Ministry of Higher Education and Scientific Research, College of Medicine, University of Anbar, Anbar, Iraq.
Qahtan1000@uoanbar.edu.iq

Dr. Osamah Abdulhameed Aleewe
M.B.Ch.B.\ F.I.C.M.S. (**Neurology**)
Iraqi Ministry of Health and Environment, Baghdad Al-Rusafa Health Directorate, Dr. Saad AL Witry Hospital for Neuroscinces, Baghdad, Iraq.
Oah2726@yahoo.com

Dr. Temeem Majid Nassir
M.B.Ch.B.\ F. I. B. M. S. **(Neurology)**
Neurologist
Iraqi Ministry of Health, Maysan Health Office, Maysan Teaching Hospital, Maysan, Iraq.
drtemeem@gmail.com

ABSTRACT

This paper aims to Microvascular decompression for trigeminal neuralgia pain in Iraqi patient80 patients were collected from different hospitals in Iraq, where a survey was conducted to the surgical operations of patients with the fifth neuritis from 4- march - 2019 to 2- February – 2020

In this study, patients were divided according to age. Where a comparison is made between the ages of more than 60 years and those under 60 years

Microvascular decompression is the "gold standard" for treating trigeminal neurologic. The main purpose of surgery is to relieve symptoms caused by pressure on the nerve by an artery or vein and

categorize pain

Trigeminal neuralgia according to several criteria: the nature of occurrence, the nature of the pain, and the affected area (localization).

The most common complications after surgery are Hearing decrease/deafness and intracranial hypotension. The development of this complication is due to a significant loss of cerebrospinal fluid during surgery. Clinical manifestations: headache, nausea, single or recurrent vomiting, general weakness, dizziness. These symptoms are more common in older patients.

Keywords: Neurologic, Trigeminal, Decompression, Vascular, Vomiting.

Introduction

Trigeminal neuralgia (trigeminal neuralgia) is more common in medical practice. This chronic disease is manifested by bouts of sudden, severe, burning, and burning pain, usually on one side of the face. The occurrence of unbearable pain forces patients to stop active activity, refuse to eat, and neglect the rules of personal hygiene, which leads to moral and physical depression [1,2].

Often, at the beginning of the treatment of inflammation of the trigeminal neurologia, drugs are used to relieve pain. Such treatment is basic - and its effect is short-lived.

When conservative means do not bring relief or have a pronounced side effect, it is necessary to treat the disease surgically. Up to 80% of fifth nerve patients require surgery [3].

The techniques that are practiced in many clinics in IRAQ lead to the destruction of the roots of the trigeminal nerve, which leads to numbness, a violation of the sensitivity of the face [4,5,6].

But among the many surgical techniques, there is a microvascular decompression operation on the root of the trigeminal nerve, which allows to get rid of the pain and preserve the nerve [7,8,9]

Microvascular decompression is a neurosurgical treatment for trigeminal neurologia that is based on the principle of eliminating the "conflict" between the cranial nerve root that emerges from the brainstem and its adjacent vessels.

In accordance with modern concepts, reflected in the official guidelines for neurosurgery, the cause of the classical [10,11]

Trigeminal neuralgia (TNN) is neurovascular compression, most commonly of the superior cerebellar artery. Microvascular surgery decompression (MVD) is considered the most effective surgical method of treatment [12,13,14]

Material and method

Patient sample

80 patients were collected from different hospitals in Iraq, where a survey was conducted to the surgical operations of patients with the fifth neuritis from 4- march -2019 to 2- February – 2020

Study design

A survey was conducted to 80 patients undergoing surgeries for the treatment of trigeminal neuralgia. Information and demographic data were collected and statistically analyzed based on the IBM SPSS statistical analysis program, as well as Microsoft Excel 2013 to anlyze by figures.

In this study, patients were divided according to age. Where a comparison is made between the ages of more than 60 years and those under 60 years

Microvascular decompression is the "gold standard" for treating trigeminal neurologia. The main purpose of surgery is to relieve symptoms caused by pressure on the nerve by an artery or vein.

This neurosurgical intervention is indicated for patients who cannot cope with the disease with the help of drug therapy. Surgery is also necessary if neuralgia returns after radiosurgery or stereotaxic percutaneous radiculotomy.

The process takes from 2 to 3 hours. It is performed under general anaesthesia. The patient is turned on his side, and his head is fixed, then the area behind the ear is treated and prepared for surgery

An incision of 5-6 cm is made then, with a drill, making a hole in the occipital bone with a diameter of up to 2 cm to access the nerve; all structures are gently moved away.

Study period

This study lasted for a full year after obtaining the required approvals from the relevant committees, and the study period was from 4-march -2019 to 2- February – 2020

Aim of study

This study aims to Microvascular decompression for trigeminal neuralgia pain in Iraqi patient.

Results

	N	
Age <60	**N**	**Chi –square**

40-44	3	2.33
45-49	5	
50-54	10	
55-60	22	
Age ≥60		**Chi-square**
60-64	12	3.11
65-69	15	
70-74	7	
75-80	6	
P	N	P Value
Comorbidities		
Hypertension	35	0.001
T2D	13	0.023
OSA	5	0.42
Carotid stenosis	4	0.33
CVD	3	0.01
Other	20	0.001
Gender		
F	48(60%)	0.023
M	32(40%)	0.01
Rd before treatment (years)		
2	10	0.67
3	20	0.01
4	40	0.001
5	10	0.77

Fig 1- a result of a patient according to Trigeminal branch affected

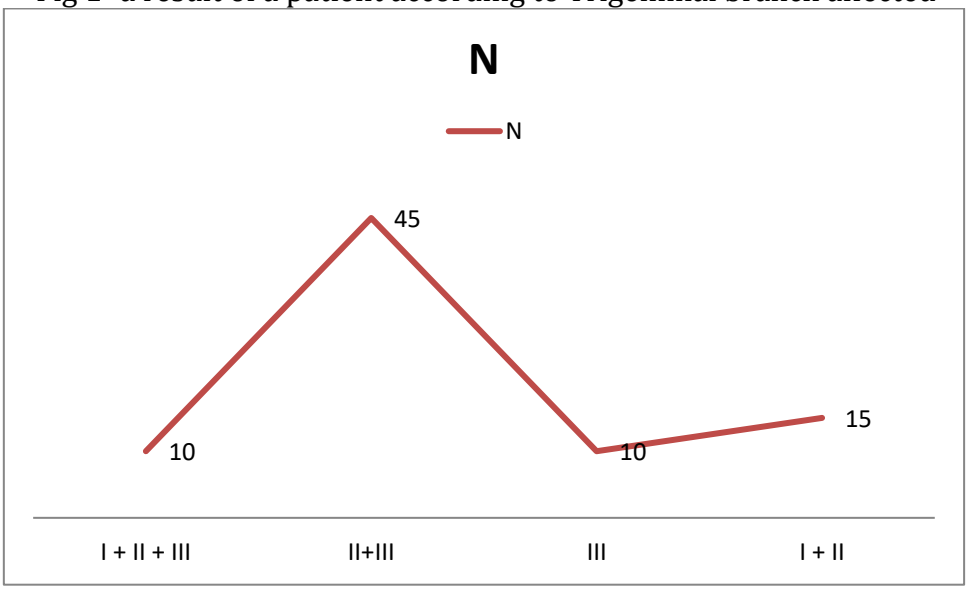

Fig 2- results of patients according to Slide

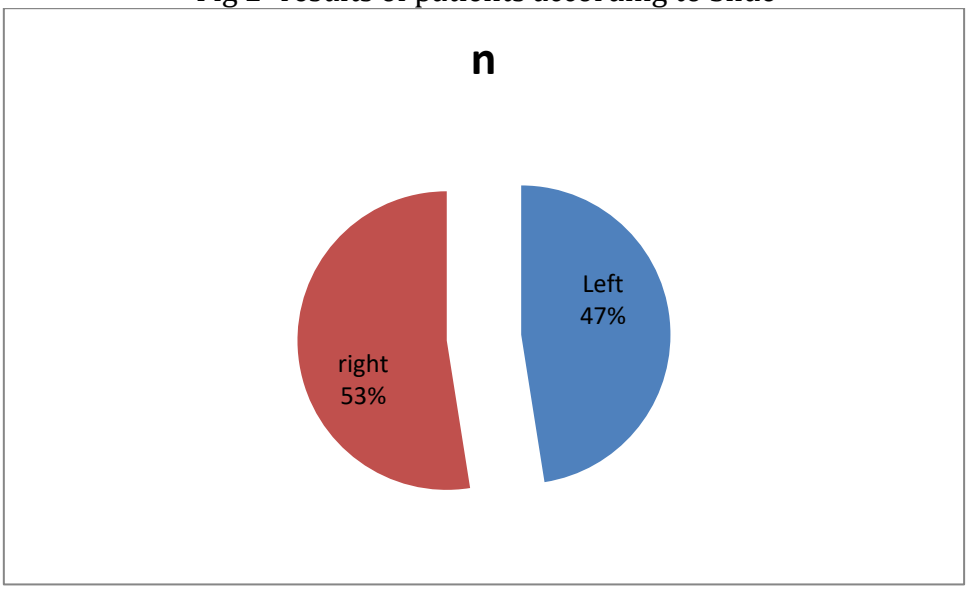

Table 2- length of surgery(m)

	N	P value	Chi square
140-149	45	0.001	1.44
150-159	20	0.045	
160-170	15	0.023	

Table 3- Postoperative BNI score

P	Postoperative	Follow-up patient
Postoperative BNI score		
class I	50	30
class II	15	2
class III	10	2
class IV	3	1
class V	2	1

Table 4- Complications of clinical outcomes of microvascular

Type	N (20)
Hearing decrease/deafness	5
intracranial hypotension	4
Persistent hearing impairment	4
Cerebellar sign	3
Wound infection requiring surgical revision	2
Hearing decrease	1
Diplopia	1

Discussion

This suffering most often occurs in patients on the right half of the face at the age of 50-70 years. Various vascular, endocrine, metabolic, and allergic disorders, as well as psychological factors, contribute to the development of the disease, but most often, the cause of the disease cannot be found.

Episodes of pain in the face (lips, eyes, nose, upper and lower jaw, gums, tongue) experienced by the patient can occur spontaneously or be provoked by speaking, brushing teeth, or touching certain areas of the face, and their frequency varies from one to tens and hundreds per day. During the period of exacerbation, attacks often become more frequent.

Currently, many researchers believe that nerve pain can be caused by a blood vessel (artery or vein) pressing on part of the nerve, causing a change in the nerve sheath (demyelination). The change in the nerve sheath, in turn, leads to a change in the passage of nerve impulses, which causes the appearance of pathological excitability of the nerve and, ultimately, pain. A local change in the nerve sheath can also be caused by tumor pressure on the nerve, pressure from the wall of the narrow bony canal through which the nerve passes. [15,16] The cortex can also be damaged in viral diseases (herpes) or multiple sclerosis.

The most widely used method of surgical treatment in the world is the decompression of the microvascular on the root of the trigeminal nerve. Microvascular decompression consists of puncturing the posterior cranial fossa and reviewing the connection between the trigeminal nerve root, the superior and inferior anterior cerebral arteries, and the superior petrosal vein. When the root is compressed by the vessels, they are isolated, and a gasket is placed between the vessels and the root, which prevents contact between them and the effect of the vessel on the root [17].

This method is the most effective, practically does not have any serious complications, and radiofrequency destruction is based on the physical principle of thermocoagulation. It is based on the effect of the release of thermal energy during the passage of high-frequency currents through biological tissues.

Indications for each of them depend on the duration of the disease, the age of the patient, and the presence of concomitant diseases. The success of surgical treatment depends on a clear diagnosis, careful selection of patients, and strict adherence to surgical techniques.

Currently, new approaches to the treatment of the fifth neuritis are actively being developed, in particular, non-surgical brain stimulation. The Department of Neurological Rehabilitation and Physiotherapy of the Scientific Center of Neurology is recruiting patients with trigeminal neurologia for a study to study the efficacy of transcranial rhythmic magnetic navigation stimulation.

Vascular disturbances after MVD deserve special attention, as they can lead to a permanent disability in the patient and a prominent complication is the low percentage of hearing loss.

Conclusion

The most common complications after surgery are Hearing decrease/deafness and intracranial hypotension. The development of this complication is due to a significant loss of cerebrospinal fluid during surgery. Clinical manifestations: headache, nausea, single or recurrent vomiting, general weakness, dizziness. These symptoms are more common in older patients. Hypotension syndrome prolongs bed rest and significantly affects the patient's quality of life in the early postoperative period. Prevention of hypotensive syndrome should contribute to the rapid activation of patients, improving their quality of life.

Recommendation

1. With a milder course of the disease, drug therapy can help; in advanced stages, in large areas of damage, surgical treatment is used. It also helps to overcome the nature of the disease directly.
2. Surgical procedures are most effective in combating trigeminal neurologia. They allow not only to eliminate the pain but also to eliminate the chain of impulses, to influence the conflict between the cranial nerve root emerging from the brainstem and the vessels adjacent

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