

An Option for Good Outcome of Intracerebral Hematoma

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Abstract

Background: Intracerebral hematoma affects about 2.5 per 10,000 people each year. The incidence is more in males and older people. The mortality rate is about 44% in the first month. 20% of cases has a good outcome. Symptoms can include headache, one-sided weakness, vomiting, seizures, decreased level of consciousness, and neck stiffness. Often symptoms get worse over time. In many cases bleeding occurs in the brain tissue and the ventricles at the same time. Many procedures and techniques have been introduced for the management of intracerebral hematoma and debate always exist about the management of sizable intracerebral hematomas especially if the conscious level isn't markedly affected.

Aim of Study: To evaluate the role of early evacuation of sizable intracerebral hematomas even if the conscious level isn't markedly deteriorated.

Method: This is a retrospective study of 30 cases of intracerebral hematoma operated in Kasr El-Aini Hospitals and Bani Suef University Hospitals by evacuation assisted by microscope with a Glasgow Coma Scale more than 10 in most cases with a sizable intracerebral haemorrhage more than 30cc in the volume.

Results: This study results was 22 (73%) male patients and 8 (27%) was female patients. The age group was 4 patients (13%) under 30 years, 22 patients (73%) were from 30-45 years and 4 patients (13%) were more than 45 years old. The Glasgow Coma Scale (GCS) on admission was 14-15 in 4 patients (13%) patients, from 10-13 was 14 patients (46%), and from 9 and less was 12 patients (41%). 20 patients (67%) case was diabetics, 23 patients (46%) cases was hypertensive, 2 patients (7%) had chronic renal failure on regular dialysis, 1 patient (3%) case was pregnant. The GCS post-operative was 14-15 in 20 patients (70%), 10-13 in 5 patients (16%), and from 9 and less in 5 (24%) cases. The operation done was evacuation in all cases, decompressive craniectomy in 8 patients (26%), ventriculosubgaleal shunt done (VSG) in 3 patients (10%). The side of the hematoma was left sided in 7 patients (24%), right in 23 patients (76%). Good out come in 25 cases (83%), recollection in 3 (10%) cases, residual hematoma in 2 (6%) of the cases, re evacuation done in 1 patient (3%). Mortality were 4 patients.

Conclusion: Sizable intracerebral hematoma (volume more than 30cc) in good Glasgow coma scale mostly obeying orders, spontaneous eye opening, and aphasic or not, to obtain a good outcome is to evacuate the hematoma not to wait for conservative management.

Key Words: Intracerebral hematoma – The Glasgow coma scale (GCS).

Introduction

INTRACEREBRAL hematoma affects about 2.5 per 10,000 people each year. The incidence is more in males and older people. The mortality rate is about 44% in the first month. 20% of cases have a good outcome. Strokes are divided into two major types, ischemic (due to insufficient blood flow) and hemorrhagic (due to bleeding).

When due to high blood pressure, intracerebral hemorrhages typically occur in the putamen (50%) or thalamus (15%), cerebrum (10-20%), cerebellum (10-13%), pons (7-15%), or elsewhere in the brain-stem (1-6%).

Symptoms can include headache, one-sided weakness, vomiting, seizures, decreased level of consciousness, and neck pain. Symptoms get worse over time. In many cases bleeding occurs in both the brain tissue and the ventricles.

Other causes for intracerebral hemorrhage include brain trauma, aneurysms, arteriovenous malformations, and brain tumors. High blood pressure and amyloidosis are the main risk factors for spontaneous bleeding. Other risk factors include alcoholism, high cholesterol, blood thinners, and cocaine use. Diagnosis is typically by CT scan. Ischemic stroke may have the same presentations.

Both Computed Tomography Angiography (CTA) and Magnetic Resonance Angiography

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(MRA) are commonly used to diagnose intracranial vascular malformations after ICH.

Treatment may include both medication and surgery and it depends substantially on the type of ICH which is determined by Rapid CT scan and other diagnostic measures.

Tracheal intubation is indicated if the conscious level is markedly affected.

Treatment is better to be carried out in an Intensive Care Unit with recommendations to decrease the blood pressure to a systolic of 140 mmHg. Blood sugar kept in the normal range. A ventricular drain may be used to treat hydrocephalus but corticosteroids are not recommended. Surgical evacuation of the hematoma is used in some cases.

Patients and Methods

This is a retrospective study of 30 cases of intracerebral hematoma operated in Kasr El-Aini Hospitals and Bani Suef University Hospitals (between January 2019 and January 2020) by evacuation assisted by microscope with a Glasgow

Coma Scale more than 10 in most cases with a sizable intracerebral hematoma more than 30cc in the volume.

Management: When the patient came to ER in the hospital neurosurgery doctor assess him and call for CT brain as soon as possible, then ICU admission, blood pressure assessed, full laboratory investigations and images done, if the CT showed sizable intracerebral hematoma, the patient was prepared for urgent surgery. The main role is to do intracerebral hematoma evacuation beside a large bone flap as a decompressive craniectomy to the patient, as it helps to decompress the brain (in some cases). Intracerebral hematoma evacuation to be done completely as much as possible, a good hemostasis must done. The patient dural closure by duroplasty by pericranium or fascia lata, the bone flap is fixed loose to decompress the brain. Good blood pressure control after surgery to prevent recollection of the hematoma. Follow-up CT brain was done immediately after surgery. Close observation of the patient by GCS.

The following items are assessed in the post-operative period: GCS, ICU period of stay, post-operative complications and the estimated cost.

Table (1): The master table.

	Age	Sex	GCS admission	DM/HTN	GCS post	Operation	Deficits	F-up CT	Side of hematoma
1	45	M	13	Yes	15	Evacuation	RT side G3	Good	Left
2	55	M	8	Yes	14	DECOP/EVC	Lt sided G0	Good	Right
3	48	F	12	Yes	15	DECOMP/EVC	LT sided G0	Good	Right
4	52	M	9	Yes RF	9	DOMP/EVC	Rt Sides G0	Residual	Left
5	38	M	13	MVR	15	DECOP/EVC	LT G0	Good	RT
6	27	F	13	H PREG	15	Evacuation	Lt sided G1	Good	RT
7	55	M	13	Yes	15	Evacuation	LT sided G2	Good	Right
8	68	F	9	Yes	9	EVC/DEC/VSG	LT sided g1	Good	Right
9	60	M	9	Yes	9	EVC/DC/VSG	LT sided g2	Good	RT
10	50	M	13	Yes	14	EVC/DC	LT sided g2	Good	RT
11	45	M	12	Yes	15	EVC	LT G3	Good	RT
12	50	M	14	Yes	10	EVC	LT G2	REC	RT
13	18	F	13	No	15	EVC	LT G3	REC	RT
14	64	M	14	Yes	15	EVC	RT G0	Good	RT
15	70	M	9	Yes	7	EVC	RT G0	REC/R EV	LT
16	64	F	9	Yes	12	VSG	FMP	Good	No
17	75	M	10	Yes	12	EVC	LT G0	Good	RT
18	51	M	15	No	15	EVC	NO	Good	RT
19	18	M	15	No	14	EVC	NO	Good	RT
20	40	F	12	Yes	15	EVC	LT S HEAV	Good	RT
21	55	M	13	Yes	15	EVC	LT	Good	RT
22	65	M	9	Yes	13	EVC	LT	Good	RT
23	59	M	10	Yes	13	EVC	RT	Good	LT
24	55	F	8	HTN	9	EVC	RT	Good	LT
25	67	M	12	CR yes	14	EVC	RT	Good	LT
26	54	M	9	HTN	9	EVC/DEC	LT	Good	LT
27	6	M	9	No	14	EVC	NO	Good	RT
28	50	F	9	Yes	9	EVC	NO	RESI	ML
29	65	M	9	Yes	14	EVC	LT	Good	RT
30	60	M	11	Yes	15	EVC	LT	Good	RT

Results

This study results was 22 (73%) male patients, 8 (27%) was female patients. The age group was 4 patients (13%) under 30 years, 22 patients (73%) was from 30-45 years and 4 patients (13%) was more than 45 years old. The Glasgow coma scale (GCS) on admission was 14-15 in 4 patients (13%) patients, from 10-13 in 14 patients (46%) patients, and from 9 and less in 12 patients (41%) cases. 20 patients (67%) were diabetics, 23 patients (46%) were hypertensive, 2 patients (7%) had chronic

renal failure on regular dialysis, 1 patient (3%) was pregnant. The GCS post-operative was 14-15 in 20 (70%) cases, 10-13 in 5 (16%) cases, and from 9 and less in 5 (24%) cases. The operation done was evacuation in all cases, decompressive craniotomy in 8 cases (26%), ventriculosubgaleal done (VSG) in 3 cases (10%). The side of the hematoma was left sided in 7 patients (24%), right in 23 patients (76%). Good out come in 25 cases (83%), recollection in 3 (10%) cases, residual hematoma in 2 (6%) of the cases, re-evacuation was done in 1 (3%) case. 4 cases died.

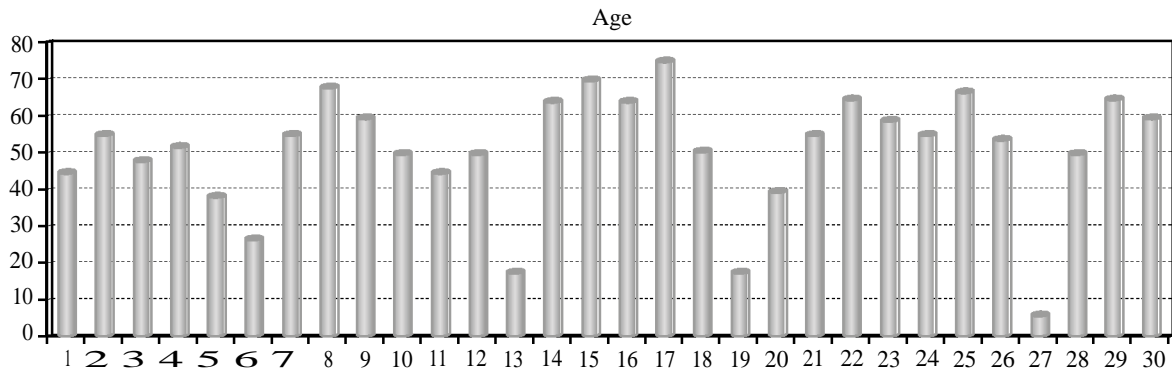


Fig. (1): The age.

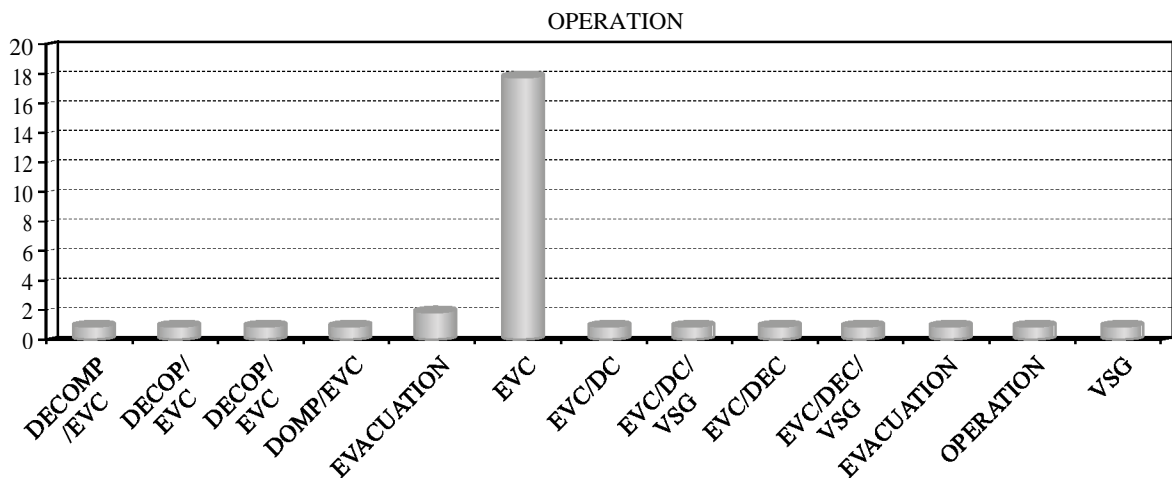


Fig. (2): The operations done.

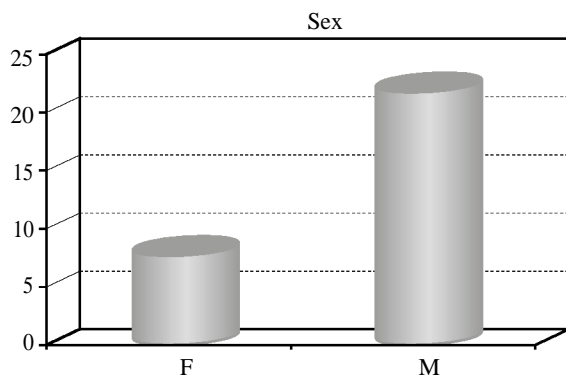


Fig. (3): The sex.

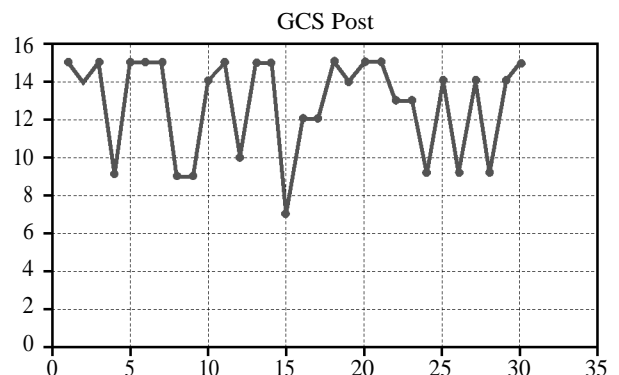


Fig. (4): Post-operative GCS.

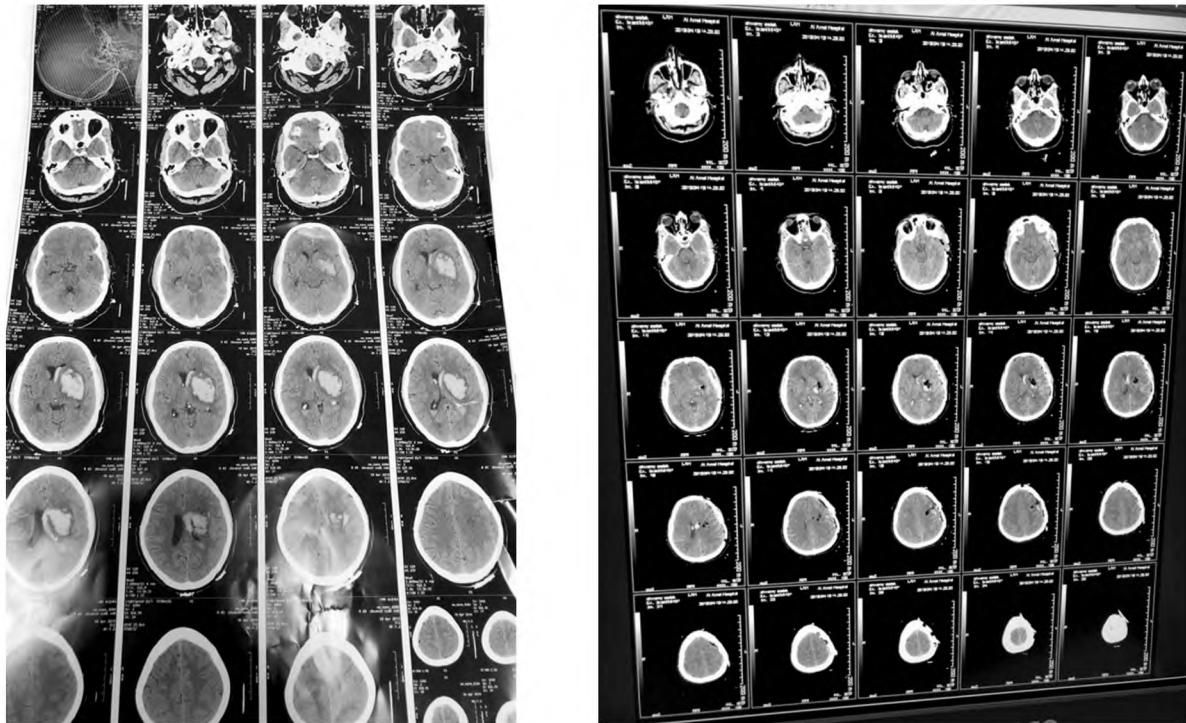


Fig. (5): Pre-operative CT scan post-operative CT scan.

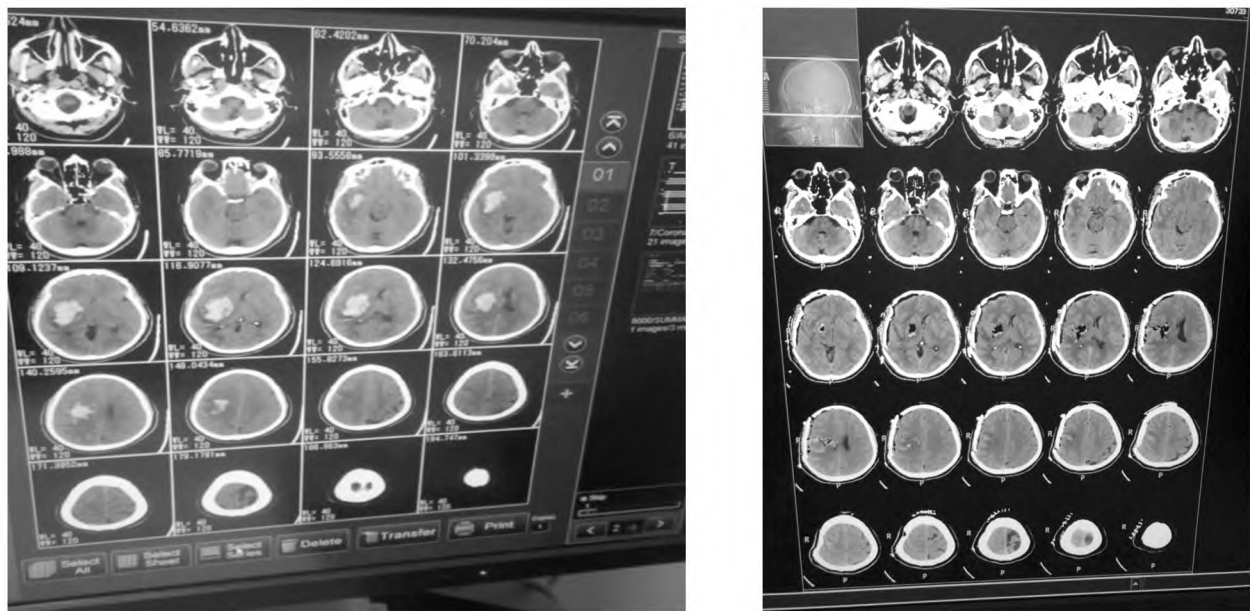


Fig. (6): Pre-operative CT scan post-operative CT scan.

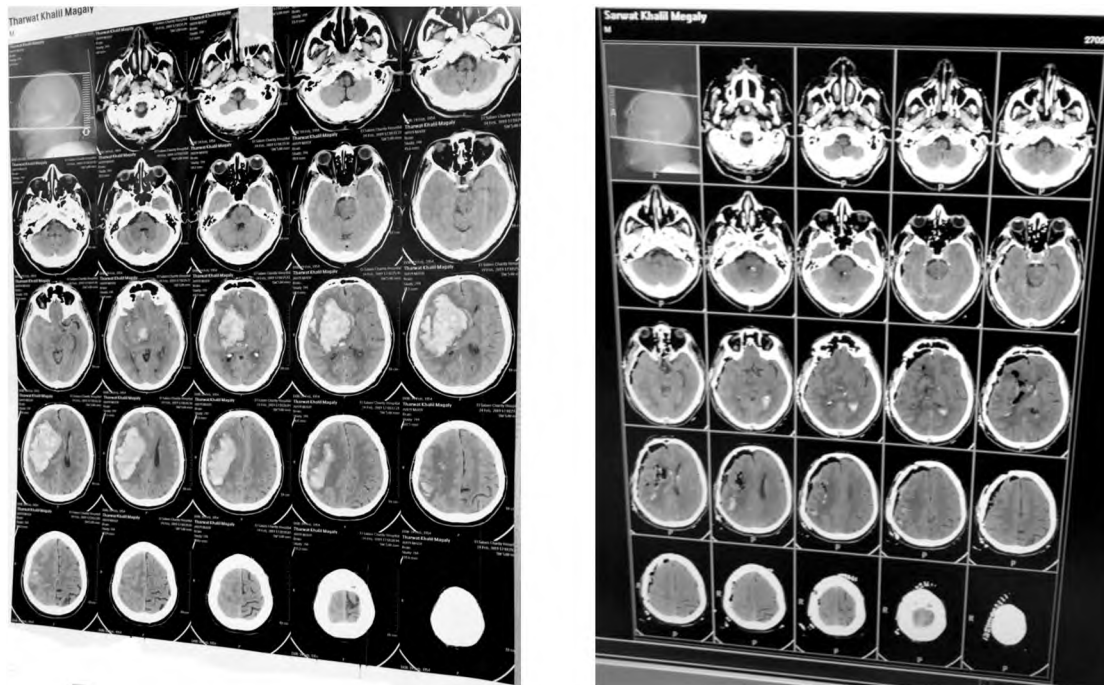


Fig. (7): Pre-operative CT scan post-operative CT scan.

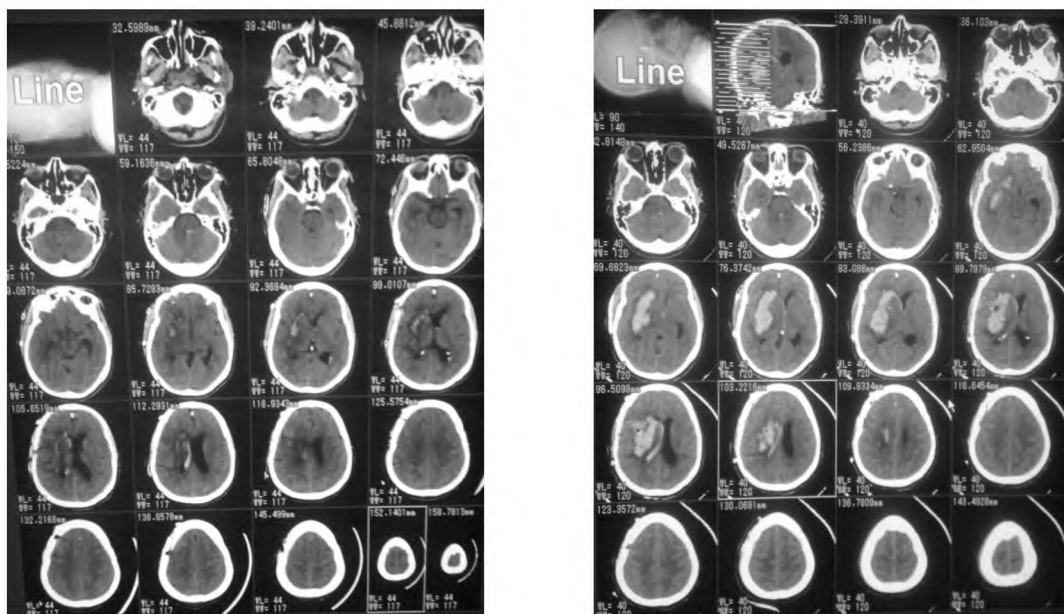


Fig. (8): Pre-operative and post-operative CT SCAN.

Discussion

In this study we discuss the surgical management of intracerebral hematoma, especially in patients with a good GCS as soon as early as possible post appearance of the symptoms, and if it helps to obtain good results, as ICH (intracerebral hemorrhage) is a neurosurgical emergency. The patient is managed as a whole, GCS on admission, morbid diseases as diabetes, hypertension, cardiac, renal diseases, or he had a disease else not control-

led. The main risk factor is high blood pressure and diabetes this with Alshahi Salman, et al. [1]. The site of the hematoma mainly basal ganglia this is with Hemphill, et al. [6], the main complaint was disturbed conscious level in our series of 30 patients only 2 patients came early with headache, nausea and vomiting this against Niadich, et al. [10], for spontaneous ICH seen on CT scan, the death rate (mortality) is 34-50% by 30 days after the insult Lan, et al. [8], this is against our study in which mortality rate were 14%. Intraparenchymal bleeds

within the medulla oblongata are fatal in almost all case, because they cause damage to cranial nerve X, the vagus nerve, which plays an important role in blood circulation and + breathing, Boulouis, et al. [2]. We had no cases reported in the brain stem all case cortical and subcortical, we discuss in our study if the surgical option in intracerebral hematoma treatment is important for these patients who have sizable hematoma more than 30cc blood in its volume in good Glasgow coma scale more than 9 especially in young age, hypertensive emergency.

Whatever posterior fossa, cerebral cortex and basal ganglia hematoma we must evacuate as soon as hematoma sizable and the Glasgow Coma Scale (GCS) good option for surgery give good results. Endoscopic drainage or Aspiration by stereotactic surgery may be used in basal ganglia hemorrhages, although successful reports are limited Caceres JA, et al. [3], this is against our operative technique which was microscopic evacuation and/or decompressive craniectomy without use of endoscope or stereotactic aspiration.

Conclusion:

Sizable intracerebral haemorrhage (volume more than 30cc) in good Glasgow Coma Scale mostly obeying orders, spontaneous eye opening, and aphasic or not, to obtain a good outcome (short ICU stay, bed ridden & the cost) is to evacuate the hematoma not to wait for conservative medical treatment also decrease mortality as many cases has a rapid drop of the GCS to a level the surgery has no role, if we depend on that GCS is good and we wait not to operate as many patients may die.

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لتحسين النتائج فى النزيف داخل أنسجة المخ إختيار

الخلفية: النزيف داخل أنسجة المخ يؤثر على ٢.٥ من كل ١٠.٠٠٠ شخص فى العاىز ونسب حدوثه أكبر فى الرجال وكبار السن وقد يؤدى إلى أعراض متعددة من أهمها تدهور درجة الوعى. هناك الكثير من طرق العلاج منها التحفظية والجراحية وهناك الكثير من الإختلاف حول طريقة العلاج المثلى فى حالات النزيف الكبير داخل أنسجة المخ خاصة إذا كان المريض يحتفظ بدرجة وعى جيدة.

الهدف: معرفة تأثير العلاج الجراحى عن طريق تفريغ النزيف وخاصة فى الحالات التى تعانى من نزيف كبير الحجم داخل أنسجة المخ ودرجة وعى جيدة.

الطريقة: تم تجميع المعلومات من ٣٠ حالة تم إجراء جراحة لتفريغ النزيف داخل أنسجة المخ ودراسة نتائج ما بعد إجراء الجراحة متضمنة درجة الوعى ومدة الإقامة فى الرعاية المركزة والمضاعفات المحتملة.

النتائج: أثبتت النتائج أن إجراء الجراحة بطريقة فعالة وبصورة عاجلة أدى إلى تحسن النتائج فى معظم المرضى.

الخلاصة: إجراء الجراحة لتفريغ النزيف كبير الحجم (أكثر من ٣٠سم) يؤدى إلى تحسن النتائج وسرعة شفاء المرضى.