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ELEVENTH ANNUAL MEETING

Intracranial Hemorrhage (ICH) in Acute Leukemia (AL): A Single-Center Study from a General Hospital with Two Cases Managed with Middle Meningeal Artery (MMA) Embolization

UTHealth The University of Texas Health Science Center at Houston | McGovern Medical School

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INTRODUCTION

ICH is a devastating and potentially fatal complication in patients with AL.

CONTRIBUTING FACTORS INCLUDE]:

Thrombocytopenia

Hyperleukocytosis

Coagulopathy.

Acute promyelocytic leukemia (APL) has a higher risk of disseminated intravascular coagulation (DIC) and fatal ICH, contributing to early deaths from the disease.

At our institution, we have incorporated MMA embolization into the traditional methods of observation and surgery for the management of ICH in AL patients.

AIM-METHOD

We performed a single-center retrospective study of adult AL patients with ICH at Memorial Hermann Hospital Texas Medical Center from January 1, 2013, to December 31, 2022.

Data collected included: age at diagnosis, type of AL, white blood cell count (WBC), platelet count, coagulation profile, Glasgow Coma Scale score at presentation, response to platelet transfusion, need for surgical, minimally invasive intervention, and mortality rates at 72 hours and 30 days.

Descriptive statistics were used to analyze the data.

RESULTS

- **Total Patients:160 patients.**
  - Intracranial Hemorrhage:22 (14%)
- **Diagnoses**
  - APL:11
  - AM:-6
  - ALL:3
  - Burkitt:1
  - Myeloid sarcoma:1
- **Median age**: 54 (range 20-82) years.
- **Sex:** Female 60%
- **Ethnicity**
  - Caucasian:10
  - Asian:5
  - Hispanic:2
  - African American:2
  - Other:3

- **Sites of bleeding**
  - Subdural:10
  - Intraparenchymal: 8
  - Subarachnoid:3
  - Epidural:1
  - Cerebellum:1
- DIC:12 (54%)
- Intubation:3
- Death within 48 hours: 4 (3 APL, 1 AML)
- 30-day mortality 7 (31%)
- Craniotomy:5
- Recurrent ICH with death:2
- MCA Ischemic stroke+ICH:3

CONCLUSIONS

ICH IN AL CONTINUES TO BE A MAJOR CAUSE OF MORTALITY AND MORBIDITY.

EARLY DIAGNOSIS, TRANSFUSION SUPPORT, CORFRECTION OF COAGULOPATHY, AND NEUROSURGIOCAL EXPERTISE ARE CRITICAL IN IMPROVING OUTCOMES IN AL-ASSOCIATED ICH.

MMA EMBOLIZATION IS A MINIMALLY INVASIVE STRATEGY STARTING TO BE NEWLY APPLIED IN THE MANAGEMNT OF AL ACUTE SUB-DURAL HEMATOMAS.

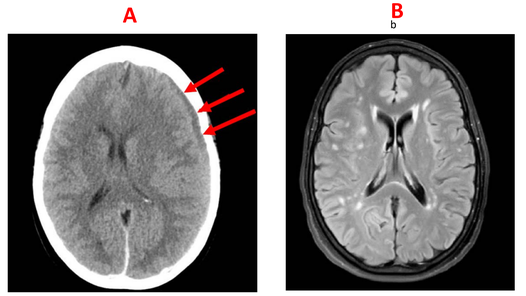
Two cases of AL acute sub-dural hematomas managed with Middle Meningeal Artery Embolization



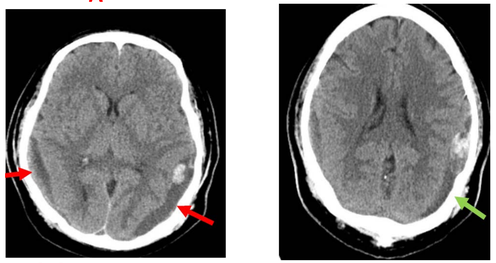
Cerebral angiogram showing the left middle meningeal artery (MMA) region



A COMPLETELY OCCLUDED LEFT MMA.



(A) : PRE OPERATIVE CT SHOWS SUB-DURAL HEMATOMA 1.1 CM. W/ MIDLINE SHIFT 6MM.
(B): 7 MONTHS LATER: COMPLETE RESOLUTION.



(A): BILATERAL SUBDURAL HEMATOMA.
(B): INTERVAL IMPROVEMENT OF MASS EFFECT ON THE LEFT.

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