Middle Meningeal Artery embolization with N-butyl cyanoacrylate (n-BCA) for chronic subdural hemorrhage

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Disclosures

Christopher Kellner reports Research Grant Support from Integra, Penumbra, Siemens, Cerebrotech, Minnetronix and reports ownership interest in Metis Innovative

Introduction

Embolization of the middle meningeal artery (MMA) has been identified as a potential treatment of primary or recurrent chronic subdural hematomas (cSDH)

Polyvinyl alcohol (PVA) embolization particles and Onyx are among the most common products used for embolization. N-butyl cyanoacrylate (n-BCA) may offer some advantages including non-caustic use permitting conscious sedation, short embolization time, and low cost

Here, we present our institutional experience of MMA embolization with n-BCA for the treatment of cSDH.
Methods

We conducted a retrospective chart review of patients who underwent MMA embolization with n-BCA for the treatment of cSDH

Procedure details:
Radial access was used when possible

nBCA was heated and diluted in a 4:1 mixture with ethiodol to decrease viscosity and increase time to polymerization

Superselective n-BCA injection was performed in the MMA.

The injection was stopped when the embolic material reached midline or when reflux was identified.
Results

13 patients underwent MMA embolization with n-BCA between January 2019 and January 2020

SEX

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<thead>
<tr>
<th>N</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>10</td>
<td>77%</td>
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<td>3</td>
<td>23%</td>
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Male: N=10 (77%)
Female: N=3 (23%)

Age

Mean age: 71.6 ± 12.1 years
ANESTHESIA

- General Anesthesia (GA) - N=7 (54%)
- MAC - N=5 (38%)
- MAC = Monitored transitioned anesthesia

EMBOLIZATION SIDE

- Left - N=8 (61%)
- Right - N=4 (31%)
- Bilateral - N=1 (8%)
ACCESS ROUTE

- Radial: N=10 (77%)
  - N=1 (8%)
  - N=2 (15%)
- Femoral: N=2 (15%)
- Radial transitioned to femoral: N=1 (8%)

FOLLOW-UP STATUS

- Intact: N=8 (62%)
  - N=2 (15%)
- Still recovering: N=2 (15%)
- No follow-up: N=1 (8%)
- Deceased: N=1 (8%)

Intact: 77%
Still recovering: 15%
No follow-up: 8%
Deceased: 8%
MMA embolization has risen as a promising alternative to surgery in the treatment of cSDH.

n-BCA may be a favorable alternative to competing embolic agents due to low cost, non-caustic use, and speed of delivery.

Prospective studies are necessary to formally evaluate the safety and feasibility of this procedure.
Summary points

N-BCA is a safe and feasible liquid embolic agent for MMA embolization in the treatment of cSDH.

Advantages include that the agent is non-caustic, deploys quickly, and is less expensive than some competing embolic agents.

References: