

Mothership vs drip-and-ship model of mechanical thrombectomy for acute ischaemic stroke in routine clinical setting: Is there a cost difference?

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BACKGROUND

- Mothership (direct admission to a thrombectomy centre) vs drip-and-ship (initial admission to a non-thrombectomy centre) are alternatives, but complimentary models for delivery of mechanical thrombectomy (MT).
- Data are, however, limited on the cost differences between the two models of delivering MT in routine clinical setting.

AIM:

To compare the cost differences between mothership (MS) and drip-and-ship (DS) models of MT delivery.

METHOD

- Micro-costing methods were used to determine the costs of MT using an NHS perspective.
- Retrospective data were collected on stroke patients treated with MT with or without intravenous thrombolysis admitted directly or after secondary transfer from a non-thrombectomy centre from four UK neuroscience centres between 2015 and 2018.
- Unit costs were obtained from an NHS reference costs, participating centres and other national sources. The unit costs were applied to resource use categories including transportation (prehospital, inter-hospital and repatriation); emergency hospital attendance; imaging; thrombectomy procedure (devices, staffing, anaesthesia) and hospital stay up to 24 hours (intensive care unit or stroke unit).
- A populated Excel spreadsheet was constructed and imported to Stata for analysis.

RESULTS

- A total of 225 patients underwent MT from four UK-MT centres in the MS (n = 127), and DS (n=98) models of care.
- The mean 24-hour costs of MT were £8,541 (SD: £2,467) for MS and £9,196 (SD: £2,695) for DS with a non-significant difference -£655 in favour of MS; (95% CI -£1336 to £25, p=0.06).

Cost Variable	Mothership (N=127)	Drip and ship (N=98)	Mean Difference	p-value
Transportation [Mean cost (SD)]	£187 (£100)	£753 (£288)	-£566	<0.001
Emergency hospital attendance [Mean cost (SD)]	£429 (£110)	£514 (95)	-£85	<0.001
Imaging [Mean cost (SD)]	£318 (£114)	£468 (£244)	-£150	<0.001
Procedural costs [Mean cost (SD)]	£6,450 (£2,471)	£6,417 (£2,549)	£33	0.92
Hospital stay (24 hours) [Mean cost (SD)]	£1,072 (£417)	£1,129 (£537)	-£57	0.36
Total 24-hr costs [Mean cost (SD)]	£8,541 (£2467)	£9,196 (£2,695)	-£655	0.06

CONCLUSION

- Our study found no significant difference between MS and DS in the average cost of providing MT in four UK neuroscience centres.
- Differences in costs were associated with inter-hospital transportation, repatriation and increased numbers of CT scans.
- These findings warrant validation in larger samples with variable distances from MT centres.

Participating Neuroscience Centres and number of patients

