How is stroke thrombolysis portrayed in UK national and London local newspapers? A review and critical discourse analysis

GILLIAN CLUCKIE1, ANTHONY G. RUDD1,2, CHRISTOPHER MCKEVITT1

1King’s College London, Division of Health and Social Care Research, London, UK
2St Thomas’ Hospital, Stroke Unit, Lambeth Palace Rd, London SE1 7EH, UK

Address correspondence to: G. Cluckie. Tel: (+44) 02078486603. Email: gillian.cluckie@kcl.ac.uk
Abstract

**Background:** thrombolysis for stroke has been licensed in the UK since 2007 and needs to be administered within 4.5 h. Given this time critical factor, the media may have an important role in public awareness.

**Methods:** this review aimed to find out how stroke thrombolysis was reported in UK national and London local newspapers and how treatment risks and benefits were communicated. Newspapers published between 1 January 2007 and 31 March 2010 were searched for articles on thrombolysis. Fifty-six articles were included and dispositive analysis, a qualitative analysis method, was used to identify themes.

**Results:** four main themes were identified: inaccurate description of thrombolysis, stroke clinicians’ involvement, presentation of risks and benefits and patient stories. Inaccuracies included the presentation of thrombolysis as a treatment for transient ischaemic attack. Clinicians were quoted to suggest that thrombolysis produced complete recovery but were not reported to discuss risks or broader stroke management. The articles reported little or no risks of treatment. Patients’ stories were used to reinforce that thrombolysis produces full recovery.

**Conclusions:** this review found that newspaper media provides the public with inaccurate perspectives on thrombolysis. Clinicians may wish to check press articles prior to publishing and to consider the impact of reporting thrombolysis as a treatment which produces complete recovery.

**Keywords:** thrombolytic therapy, newspapers, stroke, elderly

Background

There are well established links between media reporting of health stories and the attitudes and actions of the public [1]. Print and other media commonly report on health stories related to violence, sex, tobacco, obesity/nutrition and alcohol [2]. News stories may also be related to new governmental policy, new research or health scares attracting particular attention such as the flu pandemic of H1N1 in 2009 [3] or the spread of MRSA within hospitals [4]. Media reporting has had some important effects on health behaviour. For example, when the singer Kylie Minogue was reported to have been diagnosed with breast cancer, there was an increased uptake of breast screening [5]. The role of the media as a source of information about stroke—a leading cause of death and disability worldwide [6]—has recently acquired new significance. For the first time an effective treatment for acute ischaemic stroke has become available, with thrombolysis licensed in the UK in 2007 [7]. The importance of early symptom recognition and early access to stroke specialist care, outlined in the National Stroke Strategy [8], led to a national advertising campaign which commenced in 2009 promoting the Face, Arm, Speech, Time (FAST) test to identify signs and symptoms of stroke in the UK using television, radio and print media. This campaign focused on the recognition of signs and symptoms of stroke rather than stroke treatment or thrombolysis specifically. Before this campaign it was reported that public awareness of stroke symptoms was influenced by TV, radio and newspaper media, which were the sources of information about stroke symptoms for up to 40% of study participants [9]. In the context of thrombolysis for stroke, the time critical nature of the treatment may increase the importance, for patients and carers, of prior media reporting on available stroke treatments. Since media stories are influential in providing health information and can influence behaviour, it is crucial that reporting is accurate.

This review aimed to find out how thrombolysis for stroke was reported in UK national and London local newspapers and how risks and benefits of the treatment were communicated.

The analysis was conducted using dispositive analysis, a method of critical discourse analysis used to analyse print media reports in a number of published studies [10–12]. Such approaches to qualitative analysis of textual data do not assume that news stories simply report facts but seek to convey a particular type of story. The method seeks to understand the particular story being told, focusing on elements of the report such as imagery, linguistics and graphics that are strategically used to convey that story.

**Methods**

A search strategy was developed to search the online archives of relevant newspapers between 1 January 2007 and 31 March 2010.

The top 10 UK national newspapers by distribution were selected for review to identify overall national trends. London local newspapers were also included since this area has recently undergone a major redesign of stroke services [13]. We identified London local newspapers from a British newspaper website (www.britishpapers.co.uk) that listed 86 local newspapers. Of these, 26 had no online archive that could be searched. The remaining 60 online archives for London local newspapers were therefore included in the
search. We searched individual newspaper archives rather than a media database such as LexisNexis. Preliminary searches of LexisNexis presented a number of problems. It does not hold many local newspapers and therefore may not have included all articles from London local newspapers. It also did not locate many articles which we found in individual national newspaper archives and may have under-reported national articles.

The total 70 online archives for this study were searched for the terms: clot busting, clot, clot buster, stroke, thrombolysis, Lazarus effect. Many archives do not facilitate specific time period searches so each archive was searched for all time periods then manually searched for those within the study period. The inclusion criteria were: stroke as a health condition, thrombolysis as a treatment for stroke and containing at least one sentence on the treatment. Articles were

<table>
<thead>
<tr>
<th>Article</th>
<th>Title</th>
<th>Newspaper</th>
<th>Overall theme</th>
<th>Article</th>
<th>Title</th>
<th>Newspaper</th>
<th>Overall theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Different strokes; facts and myths of killer attacks [30]</td>
<td>The Sun</td>
<td>Symptom recognition</td>
<td>19</td>
<td>Fewer than one in five patients admitted to dedicated stroke unit [31]</td>
<td>Telegraph</td>
<td>National policy/strategy</td>
</tr>
<tr>
<td>4</td>
<td>Britain has the worst stroke care in Europe says professor [34]</td>
<td>Daily Mail</td>
<td>National policy/strategy</td>
<td>22</td>
<td>Stroke patients at mercy of a postcode lottery [35]</td>
<td>Daily Express</td>
<td>National policy/strategy</td>
</tr>
<tr>
<td>5</td>
<td>Britain is failing on strokes, dentistry and hospital beds . . while paying GPs more than any other developed country [36]</td>
<td>Daily Mail</td>
<td>National policy/strategy</td>
<td>23</td>
<td>Mini-stroke victims to have faster life-saving treatment [37]</td>
<td>Times</td>
<td>TIA</td>
</tr>
<tr>
<td>6</td>
<td>If you bump your head, do not delay in seeking medical advice [38]</td>
<td>Daily Mail</td>
<td>Symptom recognition</td>
<td>24</td>
<td>Britain the worst for deaths from strokes [39]</td>
<td>Times</td>
<td>National policy/strategy</td>
</tr>
<tr>
<td>7</td>
<td>The dose of flu that was really a stroke—and why we ALL need to learn the warning signs [40]</td>
<td>Daily Mail</td>
<td>Symptom recognition</td>
<td>25</td>
<td>Why every second counts for a stroke sufferer [41]</td>
<td>Times</td>
<td>National policy/strategy</td>
</tr>
<tr>
<td>8</td>
<td>Tiny balloons that may save stroke victims from brain damage [42]</td>
<td>Daily Mail</td>
<td>New treatment</td>
<td>26</td>
<td>Clot-dissolving (thrombolytic drugs) [21]</td>
<td>Guardian</td>
<td>Thrombolysis</td>
</tr>
<tr>
<td>10</td>
<td>Tory health plan could save 100 lives a day [45]</td>
<td>Daily Mail</td>
<td>National policy/strategy</td>
<td>28</td>
<td>Fast track to recovery [46]</td>
<td>Guardian</td>
<td>Service changes</td>
</tr>
<tr>
<td>14</td>
<td>Strokes should be treated with the same urgency as heart attacks [18]</td>
<td>Telegraph</td>
<td>National policy/strategy</td>
<td>32</td>
<td>Society: UK stroke care ‘worst in western Europe’ [52]</td>
<td>Guardian</td>
<td>National policy/strategy</td>
</tr>
<tr>
<td>16</td>
<td>Stroke victims only get the right drugs 1 per cent of the time [17]</td>
<td>Telegraph</td>
<td>National policy/strategy</td>
<td>34</td>
<td>Britain’s stroke shame [23]</td>
<td>Independent</td>
<td>National policy/strategy</td>
</tr>
</tbody>
</table>

Table 1. National newspaper articles included
Table 2. Local newspaper articles included

<table>
<thead>
<tr>
<th>Article</th>
<th>Title</th>
<th>Publisher</th>
<th>Overall theme</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stroke wonder drug means happy Christmas for Carshalton Beeches man</td>
<td>Newsquest</td>
<td>Patient story</td>
<td>[22]</td>
</tr>
<tr>
<td>2</td>
<td>Barnet Hospital in competition for emergency stroke centre</td>
<td>Newsquest</td>
<td>Service changes</td>
<td>[58]</td>
</tr>
<tr>
<td>3</td>
<td>Emergency stroke cases likely to travel further</td>
<td>Newsquest</td>
<td>Service changes</td>
<td>[59]</td>
</tr>
<tr>
<td>4</td>
<td>Croydon stroke survivors raise awareness</td>
<td>Newsquest</td>
<td>Service changes</td>
<td>[60]</td>
</tr>
<tr>
<td>5</td>
<td>Plans to remove stroke care specialist unit from Mayday Hospital</td>
<td>Newsquest</td>
<td>Service changes</td>
<td>[61]</td>
</tr>
<tr>
<td>6</td>
<td>New treatment for stroke patients</td>
<td>Newsquest</td>
<td>New treatment</td>
<td>[62]</td>
</tr>
<tr>
<td>7</td>
<td>Stroke club applauds wonder drug</td>
<td>Newsquest</td>
<td>Patient story</td>
<td>[63]</td>
</tr>
<tr>
<td>8</td>
<td>Stroke campaign underway in Hertfordshire</td>
<td>Newsquest</td>
<td>Service changes</td>
<td>[64]</td>
</tr>
<tr>
<td>9</td>
<td>Stroke care changes split opinion</td>
<td>Newsquest</td>
<td>Service changes</td>
<td>[65]</td>
</tr>
<tr>
<td>10</td>
<td>St Albans miracle recovery of stroke man</td>
<td>Newsquest</td>
<td>Patient story</td>
<td>[66]</td>
</tr>
<tr>
<td>11</td>
<td>Kings Langley fitness enthusiast undergoes pioneering medical treatment</td>
<td>Newsquest</td>
<td>Patient story</td>
<td>[67]</td>
</tr>
<tr>
<td>12</td>
<td>Salute to our NHS heroes</td>
<td>Evening Standard Ltd.</td>
<td>Awards</td>
<td>[68]</td>
</tr>
<tr>
<td>13</td>
<td>Britain has the worst stroke care in Europe says professor</td>
<td>Evening Standard Ltd.</td>
<td>National policy/strategy</td>
<td>[69]</td>
</tr>
<tr>
<td>14</td>
<td>Surgeons save mother's life with radical technique to combat stroke</td>
<td>Evening Standard Ltd.</td>
<td>New treatment</td>
<td>[70]</td>
</tr>
<tr>
<td>15</td>
<td>Acne drug offers hope to stroke victims</td>
<td>Evening Standard Ltd.</td>
<td>New treatment</td>
<td>[71]</td>
</tr>
<tr>
<td>16</td>
<td>New guidelines to boost stroke care</td>
<td>Associated Newspapers Ltd.</td>
<td>National policy/strategy</td>
<td>[72]</td>
</tr>
<tr>
<td>17</td>
<td>New strategy to improve stroke care</td>
<td>Associated Newspapers Ltd.</td>
<td>National policy/strategy</td>
<td>[73]</td>
</tr>
<tr>
<td>18</td>
<td>Royal Free stroke unit wins award</td>
<td>New Journal Enterprises</td>
<td>Awards</td>
<td>[74]</td>
</tr>
<tr>
<td>19</td>
<td>Mayday staff campaign to save emergency stroke service from closure</td>
<td>Northcliffe Media Ltd.</td>
<td>Service changes</td>
<td>[75]</td>
</tr>
<tr>
<td>20</td>
<td>New hyper-acute unit out to cut deaths at a stroke</td>
<td>Trinity Mirror Southern Ltd.</td>
<td>Service changes</td>
<td>[76]</td>
</tr>
</tbody>
</table>

Figure 1. Search results.
excluded that reported thrombolysis for conditions other than stroke, e.g. myocardial infarction, or that reported stroke without discussing thrombolysis.

Articles included were then analysed using the dispositive analysis method [14]. There are two main stages within dispositive analysis. The preliminary stage, the structural analysis, aims to record significant characteristics of each article such as the political leaning of the newspaper, the use of images or headlines and the overall theme of each article. This also identified the content and focus of the articles and the use of ‘actors’, i.e. patients and clinicians. Text from articles was recorded verbatim into structured matrices. This is followed by a fine analysis that aims to analyse the type of message that is being portrayed and the ideology or argumentation being presented. The analysis for this study was undertaken by one author (G.C.).

Results

In national newspapers, 227 articles were identified, of which 19 duplicates were excluded. Thirty-six articles met the inclusion criteria (Table 1). In London local newspapers, 534 articles were identified, of which 95 were excluded as out of the time period and a further six did not meet other inclusion criteria. Since many local newspapers are produced by the same publisher but distributed with different titles in numerous localities, we found many articles published on the same day, by the same author but in different newspapers. These were classed as duplicates, and 413 such articles were excluded. Twenty local newspaper articles were finally included (Table 2). A total of 56 articles were therefore included in this review (Figure 1).

We identified four main themes: inaccurate description of thrombolysis, involvement of stroke clinicians, presentation of the risks and benefits and personal stories of thrombolysis.

Inaccurate description of thrombolysis

There were 12 significant inaccuracies in the reporting of the treatment. One article presented thrombolysis as a treatment for transient ischaemic attack (TIA). It confused the recommendation for brain imaging for high-risk TIAs to be conducted within 24 h with thrombolysis as a treatment:

All 30,000 patients suffering a minor stroke - known as a transient ischaemic attack, or TIA - each year will receive an MRI scan within a week at most. Currently, only 35 per cent do. A scan is the best way to decide on the most effective treatment. Thrombolysis, which uses clotbusting drugs, can result in a much better and quicker recovery, but can only be used after a scan. [15]

Another confused the treatment window of thrombolysis with that of high-risk TIA investigations and suggested that thrombolysis could be given within 24 h of a stroke.

Stroke victims will be given ‘clot busting’ drugs within 24 h under NHS plans. [16]

Some articles inaccurately reported the proportion of patients receiving thrombolysis:

Stroke victims only get the right drugs 1 per cent of the time. [17]

This example would suggest that 99% of patients do not receive the treatment yet were eligible. Of the few articles which did indicate that the treatment was not suitable for all patients, the proportions of patients for whom thrombolysis was reported as appropriate ranged from 15 to 75%. One reported that thrombolysis was appropriate for three-quarters of stroke patients:

Just a tiny percentage start receiving clot-busting drugs, suitable for three quarters of stroke patients, within the recommended three hours of symptoms beginning. [18]

One article incorrectly reported the mode of treatment intervention:

An estimated 20 percent of stroke victims could benefit from receiving clot busting drugs but only around 1 percent are currently prescribed the pills. [19]

Inaccuracies appeared in a range of newspapers and included both tabloids and broadsheets and in articles by specialist medical journalists as well as non-specialists.

Involvement of stroke clinicians

In 33 articles, stroke clinicians were interviewed regarding thrombolysis. In seven of these articles, clinicians reported that the treatment was not suitable for all patients, with examples given of haemorrhagic stroke and those presenting too late after the onset of stroke. Clinicians in 14 of these articles reported positive outcomes from thrombolysis such as:

The effects can be dramatic. I’ve seen patients, who would have otherwise have died or been very disabled walk out of hospital two days later. [20]

No article reported a clinician describing a specific side effect from thrombolysis or giving examples where thrombolysis had either been ineffective or had not resulted in full recovery. Additionally two articles included quotations from interviews with clinicians which included inaccuracies. Both these articles suggested that urgent assessment of high-risk TIA patients was required so that they could be offered thrombolysis treatment. It is unclear whether this was caused by clinicians’ mistakes or journalists’ misreporting.
Presentation of the risks and benefits of the treatment

Nine articles reported that thrombolysis treatment could have risks, although only one reported the specific nature of these risks. Two articles, written as part of a health series, provided information on the likely risks and benefits and provided references to the clinical trials of the treatment. One of these articles reported that intra-cerebral haemorrhage could be a risk of the treatment:

For every 1,000 people who were treated with alteplase, an extra 25 people died of bleeding in the brain [21]

No other articles identified any specific risks of thrombolysis. Thirteen articles described the positive outcomes of the treatment and terms such as ‘recovery’, ‘full recovery’ and ‘better and quicker recovery’ were commonly used as descriptors. None of these included information about the proportion of patients likely to have an improvement from the treatment in a numerical or pictorial format.

Personal stories of thrombolysis as a treatment for stroke

Ten articles included stories of patients who had received thrombolysis and reported words such as ‘full recovery’ and ‘able bodied’ to indicate the outcomes of treatment. Typical comments were:

Robert had made a full recovery within 24 h [22]

One patient story indicated that the treatment had not produced a complete recovery and reported that the patient, a 76-year-old lady, continued to have speech problems following treatment. This was the only article to report that there was variability in the results of the treatment. This article also reported a case study of a 48-year-old barrister who had a complete recovery from thrombolysis. One article compared two patients’ stories, one of whom had thrombolysis and one who did not. There is a clear disparity between the outcomes of the patients with the one who received thrombolysis described as having had an ‘almost full recovery’:

Within an hour or two, and the next day I could walk, my vision had returned – everything was OK apart from my speech [23]

The other patient, who did not receive thrombolysis, was left with residual disability:

I was left with terrible short term memory, poor balance and weakness on my left side. [23]

Eight of the ten patient stories who had received thrombolysis were patients under the age of 65 and six of these were aged 30–50. There were no personal stories where the patient had suffered harm as a result of the treatment and none of these articles mentioned the risks of the treatment.

Nine articles reported patient stories who had not received thrombolysis. Six of the patients in these articles were under the age of 65 and were aged 30–50. These articles reported that the patients spent between 2 days and 27 weeks in hospital and five of these reported ongoing disability such as poor short-term memory, poor balance and weakness.

Discussion

This study aimed to investigate how thrombolysis for stroke is reported in UK national and London local newspapers and how the risks and benefits of the treatment are described.

The media reporting of stroke and thrombolysis has some inherent failings. There is very little discussion of the suitability criteria for thrombolysis and little explanation that it is not appropriate for all stroke patients. Readers of these articles would not be made aware that the treatment carried any risks. Only one article published as part of a health series identifies the likely risks but as a whole the articles present a significantly biased view of the risks and benefits. None of the articles describes outcomes at 3 months and none used pictures or graphs to indicate the likely outcomes of treatment. This presents a picture to the public that the treatment is suitable for most, if not all, stroke patients. This may cause distress and confusion when some patients are appropriately not offered thrombolysis treatment yet are expecting to receive this treatment.

Patient stories focussed predominantly on younger patients under the age of 65 years, with only three of the 19 patient stories reporting patients over 65. This may be due to a number of factors. It may reflect an increasing awareness that stroke can occur in younger people, or a bias in newspapers against reporting on older people. Previous studies have reported, particularly in television media, that there is a bias in the presentation of older adults [24, 25]. More recent studies investigating newspaper representations of older adults have identified a range of biases that can affect the presentation of older people [26, 27]. On the other hand, it might be the case that younger people were more willing to tell their story to journalists. In any case, the articles included in this review under-represented older adults despite age being a significant risk factor for stroke disease. Clinicians may have an influence on this bias if approached by the media to identify suitable patients and may wish to choose to reflect the broad demographics of the stroke patient population.

The patient stories also demonstrated a disparity in the outcomes of stroke care, with such as ‘full’ or ‘complete recovery’ being used in the case of those who were thrombolysed. In contrast, patients who did not receive thrombolysis were reported as having residual disability and in need of prolonged rehabilitation. Although reporting the effectiveness of thrombolysis compared with no treatment may encourage others with signs of stroke to present as an
emergency to hospital, newspaper stories over-state the chance of a good recovery with thrombolysis, while implying that a good recovery is not possible without thrombolysis. This may produce a skewed public perception of the effectiveness of the treatment or indeed recovery chances for those patients who do not receive thrombolysis. In dealing with the media clinicians could counter this imbalance by promoting other aspects of effective stroke care such as stroke unit multi-disciplinary care, in addition to thrombolysis. This may become increasingly important as new technological interventions for stroke such as clot retrieval develop.

Interviews with clinicians reinforced positive stories of patients’ recovery. None of the articles reported a clinician’s story of a patient where the treatment was either ineffective or caused harm. This may result from clinicians’ desire for stroke to be viewed as a treatable condition and to encourage a rapid response to stroke symptoms. It may also result from journalists’ choice to select health stories with positive outcomes. It has been previously reported that medical journalists were concerned at not promoting either undue optimism or pessimism about a particular medical treatment [28]. It would appear, however, in this study that there was an over reporting of positive outcomes from thrombolysis which was not balanced with reporting of other important aspects of stroke care.

However, it is also important to note that this review did not include stroke care beyond thrombolysis which might have produced a contrasting picture of the way stroke care is reported more broadly. Nevertheless, given the focus on thrombolysis as a treatment for stroke, few of the articles place this in the wider context of current stroke management.

In two instances, a clinician’s quotation was presented in a factually inaccurate context such as describing stroke treatment when discussing a TIA diagnosis. This may either be due to factual inaccuracies from the clinicians or to journalist failure to understand differences between TIA and stroke and appropriate interventions for each. Therefore, clinicians need to describe interventions for specific conditions in a way that can be easily understood. It may be beneficial for clinicians speaking to journalists to approve any stories prior to publication to avoid inaccurate factual presentations. Given that the media can have a significant impact on health choices of the public, accurate reporting is vital to ensure appropriate public responses [29].

**Limitations of this review**

This review only included newspapers with an online archive which may have reduced the number of available articles and only the top 10 national newspapers by distribution were included. It is possible there are newspapers with significant nationwide distributions outside of this top 10 which were not assessed. The inclusion of London specifically during a time of major stroke service reconfiguration may not be representative of reporting in other towns and cities. The review was not able to explore how the media reporting of thrombolysis influences the knowledge or action of the general population.

**Conclusion**

This review demonstrates that overall thrombolysis is reported in newspapers as being suitable for most stroke patients and is reported as likely to produce a complete recovery. Contrary to previous reports that journalists were concerned at not reporting either unduly pessimistic or optimistic views on health treatments, the articles in this review reported predominantly optimistic outcomes from thrombolysis. However, in keeping with previous studies on the representation of older adults in media, this review found that there was a bias for under-reporting older adults with stroke. This is surprising given the significantly increased risk of stroke with age. Clinicians and stroke organisations may benefit from a structured approach to dealing with the media to ensure reporting accuracy. This review was not able to establish the influence of media reporting of thrombolysis on the expectations of patients and carers on thrombolysis treatment, for which further research would be needed.

**Key points**

- Clinicians should check the content and accuracy of any interviews prior to publication.
- Inaccurate newspaper reporting may create false expectations for patients of thrombolysis.
- Media focus on thrombolysis may cause people to ignore other important aspects of care such as access to stroke unit care.

**Conflicts of interest**

None declared.

**Funding**

This work was supported by a doctoral fellowship award to G.C. from the National Institute for Health Research (NIHR) Comprehensive Biomedical Research Centre, Guy’s and St Thomas’ NHS Foundation Trust and King’s College London.

**Supplementary data**

Supplementary data mentioned in the text is available to subscribers in *Age and Ageing* online.
The long list of references supporting this review has meant that only the most important are listed here and are represented by bold type throughout the text. The full list of references is available at Age and Ageing online, Appendix 1.


15. Fleming N. Brain scan within a week for all stroke victims. The Telegraph 2007; Telegraph Media Group Ltd.


17. Bloxham A. Stroke victims only get the right drugs 1 per cent of the time. The Telegraph 2008; Telegraph Media Group Ltd.

18. Devlin K. Strokes ‘should be treated with the same urgency as heart attacks’. The Telegraph 2009; Telegraph Media Group Ltd.

19. Devlin K. Thousands of stroke victims to be saved by new treatment guidelines. The Telegraph 2008; Telegraph Media Group Ltd.

20. Stacey S. Health notes: Stroke symptoms—it pays to be alert. The Daily Mail 2010; Associated Newspapers Ltd.


23. Lakhani N. Britain’s stroke shame. The Independent 2008; independent.co.uk.


Received 16 August 2011; accepted in revised form 30 November 2011