SHORT REPORT

Psychological associations with emotionalism after stroke

Tig Calvert, Peter Knapp, Allan House

Abstract
The psychological associations with emotionalism were examined, 1 month after stroke, in 448 stroke survivors who met inclusion criteria for a randomised trial of psychological treatment. One hundred and one (21.5%) patients had emotionalism. Thirty eight (38%) of those with emotionalism had a clinically significant mood disorder, compared with 64 of 347 (18%) of those without emotionalism. Emotionalism was associated with 10 other psychiatric syndromes, the presence of most of which could be accounted for by the coexistence of depression with emotionalism. In a logistic regression analysis, irritability and ideas of reference were associated with emotionalism after adjustment for the presence of depression. These psychological associations with emotionalism may be incorporated into a psychological model of emotionalism as a disorder of emotional control, and they may help in the understanding of the socially disabling effects of this common condition.

Keywords: emotionalism; emotional lability; stroke; brain injury

Emotionalism has been defined as: “an increase in frequency of crying, or laughing, where the crying or laughing comes with little or no warning, and emotional expression is outside normal control, so that the subject cries or laughs in social situations where she or he would not previously have done so.” It affects about 20–25% of survivors in the first 6 months after stroke. It causes distress and embarrassment, social avoidance, and impaired quality of social contact. Most patients report crying as provoked by stimuli which seem to be meaningful. Emotionalism is said to be associated with depression, and some cases may respond to antidepressant medication. Otherwise, the causes and treatment of emotionalism are poorly understood. Although traditionally thought of as being linked to bilateral brain damage—the condition has even been called pseudobulbar affect—it is common after single unilateral strokes, and there is no specific link between lesion location and the emergence of emotionalism. For that reason, and because drug treatment is ineffective in many cases, we have been interested in developing a psychological model of the disorder. We therefore undertook the present study to identify psychological symptoms, other than those that define emotionalism, which are associated with the condition.

Patients and method
The Stroke Outcome Study is a randomised controlled trial to evaluate the effects of psychological treatment after stroke. The trial inclusion criteria are: stroke diagnosed on standardised criteria, leading to hospital admission; fit to interview within 1 month of stroke; living independently before stroke; lack of severe language or cognitive impairment; sufficient use of English to interview; Leeds or Bradford resident; no concurrent major illness; consent to participate. Suitable subjects are randomised to receive treatment as usual, volunteer visits, or a brief psychological therapy aimed at improving problem solving skills.

The present study reports findings from the initial interview, at 1 month after stroke, for the 448 patients who were subsequently randomised in the trial. Measures at this interview included the Barthel activities of daily living (ADL) index; a standard series of questions to identify emotionalism; a self report questionnaire designed to identify symptoms of mood disturbance, the general health questionnaire-28; and a standardised psychiatric interview, the short form present state examination.

Results
The subjects were aged 18–94 years (median 71 years); 241 (53.8%) were men. Prestroke scores on the Barthel ADL index were a maximum 20 in 315 of 448 (70.3%) patients, and after stroke 82 of 448 (18.3%) scored the maximum 20. Mean Barthel score after stroke was 13.7 (median=15).

A total of 101 (22.5%) survivors reported emotionalism. Of these, 83 reported symptoms of crying only, 16 reported symptoms of laughing and crying, and two reported symptoms of laughter only. Patients with emotionalism were slightly younger (mean age 68.5 (SD 10.4) years) than patients without emotionalism (mean age 71.3 (SD 11.8) years, r=2.21, df 445, p=0.03). Only eight emotional subjects...
Table 1 Present state examination: syndromes in stroke survivors with and without emotionalism

<table>
<thead>
<tr>
<th>Syndrome</th>
<th>With emotionalism (n=101)</th>
<th>Without emotionalism (n=347)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Present</td>
<td>Absent</td>
</tr>
<tr>
<td>Simple depression**</td>
<td>47</td>
<td>54</td>
</tr>
<tr>
<td>Special features**</td>
<td>22</td>
<td>79</td>
</tr>
<tr>
<td>Situational anxiety</td>
<td>14</td>
<td>87</td>
</tr>
<tr>
<td>Tension*</td>
<td>56</td>
<td>45</td>
</tr>
<tr>
<td>Social unease**</td>
<td>31</td>
<td>70</td>
</tr>
<tr>
<td>Irritability*</td>
<td>52</td>
<td>49</td>
</tr>
<tr>
<td>Hypochondriasis</td>
<td>5</td>
<td>96</td>
</tr>
<tr>
<td>Other depression*</td>
<td>46</td>
<td>55</td>
</tr>
<tr>
<td>General anxiety*</td>
<td>17</td>
<td>84</td>
</tr>
<tr>
<td>Lack of energy**</td>
<td>40</td>
<td>61</td>
</tr>
<tr>
<td>Worry</td>
<td>83</td>
<td>18</td>
</tr>
<tr>
<td>Loss of interest**</td>
<td>51</td>
<td>50</td>
</tr>
<tr>
<td>Ideas of reference**</td>
<td>25</td>
<td>76</td>
</tr>
<tr>
<td>Obsessional neurosis</td>
<td>5</td>
<td>96</td>
</tr>
</tbody>
</table>

Chi-square statistic (df 1) * p < 0.05, ** p < 0.01.
could not identify a provoking stimulus. The remainder reported episodes brought on by thinking about sentimental things (71%), having sad or unhappy thoughts (66%), or simply being asked about emotionalism (43%).

Mean total scores on the GHQ-28 were 8.7 (SD 6.2) for those with emotionalism and 5.8 (SD 5.5) for those without emotionalism (t=4.56, p<0.001). The GHQ-28 can give a measure of the likelihood of subjects having a diagnosable psychiatric disorder, using a cut off of 10/11. Of those who could complete the GHQ, 64 of 345 (17.5%) emotional subjects scored above the threshold (odds ratio 2.3, 95%CI 1.3–3.5). Thus 97 (21.7%) of the total sample scored above the cut off. Patients with emotionalism scored significantly higher than patients without emotionalism on all four subscales of the GHQ.

The present state examination can be analysed to yield a measure of severity, the index of definition, which is scored 1–7; an index of definition of 5 or greater is taken to indicate the presence of diagnosable psychiatric disorder, so called caseness. Thirty eight of 101 (38%) patients with emotionalism and 64 of 347 (18%) without emotionalism had an index of definition ≥5 (odds ratio 2.6, 95% CI 1.6–4.3)

The present state examination can also be used to identify the presence of 14 psychiatric syndromes, which are derived by aggregating scores from the individual items in the interview (for details, see Wing et al). The prevalence of these syndromes, for survivors with and without emotionalism, is shown in the table. We used multivariate logistic regression to test the independent effects of relevant syndromes, when the effects of simple depression had been taken into account. Irritability and ideas of reference were associated with emotionalism over and above the effect of simple depression. Odds ratios for emotionalism (95% CI) were: simple depression 1.68 (1.03–2.74); irritability 1.68 (1.04–2.70); ideas of reference 2.07 (1.13–3.80).

Discussion

We have confirmed previous reports of high rates of mood disorder and emotionalism among survivors in hospital in the first month after stroke. Depressed mood was more likely among those with emotionalism, but most people with emotionalism were not depressed. Patients described most episodes of emotionalism as provoked by meaningful stimuli. We did not undertake corroborating interviews with carers, but the patients’ accounts of the social circumstances in which episodes are provoked is in keeping with our findings of them. The association with ideas of reference might be explained by the embarrassing nature of emotionalism, but what about irritability? It may be that the association indicates that emotionalism is just one manifestation of a more general disorder of emotional control occurring after stroke, but we are interested in another hypothesis. Irritability is a common feature of post-traumatic stress disorder, a condition in which—as in emotionalism—the patient experiences recurring uncontrollable emotionally charged mental events. In post-traumatic stress disorder these are relating experiences, whereas in emotionalism they are the thoughts and memories which the patient reports as precipitants. We plan to explore the evidence for these two possibilities in further research, as a means of developing our psychological understanding of a disorder which has—up to now—largely been thought of as a psychologically meaningless accompaniment of brain injury.

The Stroke Outcome Study is funded by the NHS R and D Initiative in Cerebrovascular Disease and Stroke. The grant holders are Allan House, John Bamford, Anne Forster, Graham Mulley, Trevor Sheldon, Ken Wright, and John Young. We would like to thank all those stroke survivors and carers who have participated in the study and those who work on the study: Margaret Clegg, Eve Cowdell, Carrie Dempster, Felicity Garbett, Gerry Richardson, Kathy Cambridge, Careen Todd, and Andy Vail.

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J Neurol Neurosurg Psychiatry 1998 65: 928-929
doi: 10.1136/jnnp.65.6.928

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