SUICIDAL IDEATION IN ACUTELY MEDICALLY ILL ELDERLY INPATIENTS: PREVALENCE, CORRELATES AND LONGITUDINAL STABILITY

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SUMMARY

Background. Suicidal ideation among acutely medically ill elderly inpatients has been sparsely studied. A prospective study measuring the prevalence, correlates and longitudinal stability of suicidal ideation in acutely medically ill elderly inpatients was undertaken.

Method. Suicidal ideation was measured using the Beck Scale for Suicidal Ideation (BSSI) and the items of pessimism, life not worth living and a wish to die on the Brief Assessment Schedule (BAS). Formal measures of physical illness, functional disability and handicap were also used. Patients were seen at the outset and at about 6 months.

Results. The prevalence of suicidal ideation on the BSSI and the BAS items of pessimism, life not worth living and a wish to die were 36%, 60%, 33% and 22%, respectively. These four variables were significantly inter-correlated. The BSSI was significantly associated with BAS depression scores (P ≤ 0.0001), BAS depression caseness (P ≤ 0.0001) and prescription of antidepressants (P ≤ 0.007). Similar results were ascertained for the BAS items of pessimism, life not worth living and a wish to die.

Conclusions. Further studies examining the longitudinal stability of suicidal ideation coupled with intervention studies to reduce suicidal ideation are required. Copyright © 2000 John Wiley & Sons, Ltd.

KEY WORDS—suicidal ideation; depression; geriatrics

INTRODUCTION

Suicidal behaviours such as refusal to eat and drink, medication and treatment non-compliance, and social withdrawal are often unrecognised in the elderly (Blazer et al., 1986; Hasegawa et al., 1992; Kishi et al., 1996a,b). They have been labelled as 'sub-intentional suicide', 'hidden suicide' and 'indirect self-destructive behaviour' (Nelson and Farberow, 1980; Hasegawa et al., 1992). These covert suicidal behaviours often result in poor physical health (Nelson and Farberow, 1980; Hill et al., 1988), which later may necessitate admission to a medical bed. Moreover, they are also associated with overtly reported suicidal ideations (Nelson and Farberow, 1980). Suicidal ideation encompasses people with thoughts of death and suicide, thoughts of an actual suicide plan, suicide attempts and completing suicides (Vilhjalmsson et al., 1998).

Overtly reported suicidal ideation has been examined in the community (Paykel et al., 1974; Dewey et al., 1993; Jorm et al., 1995; Forsell et al., 1997; Skoog et al., 1996), residential homes (Ashby et al., 1991), primary care (Callaghan et al., 1996), memory clinics (Draper et al., 1998), acute and continuing care geriatric wards (Shah et al., 1998a) and acute psychogeriatric wards (Bell and Shah, 1999). Study samples have included high risk groups of depressed men with a family history of suicide (Flint et al., 1998), undifferentiated dementias (Rao et al., 1997; Draper et al., 1998), Alzheimer's disease (Rao et al., 1997; Draper et al., 1998), 85-year-olds without dementia (Skoog et al., 1996), stroke patients (Kishi et al., 1996a,b) and medically ill patients (Callaghan et al., 1996; Shah et al., 1998a). Different age groups between 60 and

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85 years have been examined in different studies (Paykel et al., 1974; Jorm et al., 1995; Skoog et al., 1996; Rao et al., 1997). The relevant items on the Hamilton Depression Rating Scale (Callaghan et al., 1996; Draper et al., 1998), Comprehensive Psychiatric Rating Scale (Skoog et al., 1996; Forsell et al., 1997), Brief Assessment Schedule (Ashby et al., 1991; Shah et al., 1998a), Present State Examination (Kishi et al., 1996a,b), Beck Suicidal Ideation Scale (Rao et al., 1997), Diagnostic Interview Schedule (Flint et al., 1998) and Geriatric Mental State (Dewey et al., 1993) have been used to measure suicidal ideation. The time interval for the presence of suicidal ideation has varied from 2 weeks (Jorm et al., 1995) to 2 years (Rao et al., 1997).

The prevalence and correlates of suicidal ideation in various settings are illustrated in Table 1. The varying prevalence is not surprising given the differing settings, populations, age groups, definitions of suicidal ideation, measuring instruments, sources of information and retrospective time frame for presence of suicidal ideation. Suicidal ideation among medically ill geriatric inpatients has only been examined in one retrospective study (Shah et al., 1998a). Furthermore, the longitudinal stability of suicidal ideation has also only been examined in one study of stroke patients; onset of new suicidal ideation during a 24-month post-stroke period was associated with greater physical impairment and poor social support in the acute post-stroke period (Kishi et al., 1996b). Thus, a study with the following aims was designed: (i) to ascertain the prevalence of suicidal ideation in acutely medically ill geriatric inpatients; (ii) to ascertain factors associated with suicidal ideation at the outset including depressive illness, medication, severity of physical illness and impairment of functional activities; (iii) to examine the stability and pervasiveness of the original suicidal ideation over a 6-month follow-up period; and (iv) to examine the emergence of new suicidal ideations during a 6-month follow-up period.

### Method

#### Location and sample

All patients admitted to the three geriatric medicine wards under the care of the two geriatricians at West Middlesex University Hospital during the 5-month period December 1997 to April 1998 were considered for study. Only patients over the age of 65 years are likely to be admitted to these wards. Patients were excluded if they had severe cognitive impairment (score of <7 on the routine mental test score; Table 1. Summary of the prevalence and correlates of suicidal ideation in previous studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Setting</th>
<th>Prevalence (%)</th>
<th>Correlates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rao et al. (1997)</td>
<td>Community</td>
<td>16</td>
<td>Depressive illness; Alzheimer’s disease</td>
</tr>
<tr>
<td>Paykel et al. (1974)</td>
<td>Community</td>
<td>9</td>
<td>Social isolation; stressful life event; weak religious belief; poor physical health; psychiatric symptoms; depressive illness</td>
</tr>
<tr>
<td>Forsell et al. (1997)</td>
<td>Community</td>
<td>13</td>
<td>Older age; single/unmarried; poor vision; past psychiatric history; institutionalisation; cognitive impairment; depressive illness; anxiety; dementia; psychotropic drug prescription</td>
</tr>
<tr>
<td>Skoog et al. (1996)</td>
<td>Community</td>
<td>16</td>
<td>Poor physical health; myocardial infarct; peptic ulcers; depressive illness; psychotic disorder; anxiolytics; neuroleptics</td>
</tr>
<tr>
<td>Callaghan et al. (1996)</td>
<td>Primary care</td>
<td>1</td>
<td>Functional disability; depressive illness</td>
</tr>
<tr>
<td>Draper et al. (1998)</td>
<td>Memory clinic</td>
<td>5</td>
<td>Depressed mood; hopelessness; depressive illness</td>
</tr>
<tr>
<td>Kishi et al. (1996a)</td>
<td>Post-stroke immediate</td>
<td>7</td>
<td>Social isolation; functional disability; anterior and posterior cerebral lesions; depressive illness; cognitive impairment; early morning awakening</td>
</tr>
<tr>
<td>Kishi et al. (1996b)</td>
<td>Post-stroke 24 months</td>
<td>11</td>
<td>Younger age; social isolation; sensory impairment; anterior and posterior cerebral lesions; depressive illness; cognitive impairment; early morning awakening; substance misuse</td>
</tr>
<tr>
<td>Shah et al. (1998a)</td>
<td>Geriatric inpatients</td>
<td>13–26</td>
<td>Hopelessness; depressive illness; anxiolytics</td>
</tr>
</tbody>
</table>

Hodkinson, 1972). Ethical approval was obtained from the local ethics committee.

Assessments

The patients were assessed with the following instruments: the Brief Assessment Schedule (BAS), the Beck Scale for Suicidal Ideation (BSSI), the modified Barthel Index (BI), the London Handicap Scale (LHS) and the Index of Physical Illness (IPI). The main assessment instrument was the BAS derived from the Comprehensive Assessment and Referral Evaluation (Gurland et al., 1977). The BAS was chosen as the 'gold standard' because it is a semi-structured interview and it was conducted by appropriately trained interviewers. Moreover, it has been successfully utilised in identifying depression in acutely ill (Ramsey et al., 1991; Shah et al., 1997, 1998b) and continuing care (Shah et al., 1992) geriatric inpatients, elderly patients attending casualty departments (Walker et al., 1995) and elderly patients with hip fractures (Shamash et al., 1992). It consists of an organic brain syndrome scale (BAS-0BS) with a scoring range of 0–8 and a depression scale (BAS-DEP) with a scoring range of 0–24. According to their scores on the BAS respondents can be classified as 'probably severely demented' (8), 'probably mildly/moderately demented' (3–7) or 'probably not demented' (0–2). A score of 7/24 or greater on the BAS-DEP scale has been shown to be predictive of a significantly depressed state (Mann et al., 1984; Ames, 1990) with a good reliability (Mann et al., 1989).

Two questions relevant to suicidal ideation are asked in the BAS interview: ‘During the past month have you ever felt life wasn’t worth living?’ and ‘In the past month have you at any time felt you would rather be dead?’. The first question has a forced choice yes/no response and will be referred to as ‘life not worth living’ hereafter. The second question has a five-point (0–4) graded response and will be referred to as ‘a wish to die’ hereafter. There is one question about the future: ‘How do you feel about your future?’. This has a three-point (0–2) graded response and will be referred to as ‘pessimism’ hereafter. These questions were used as one measure of suicidal ideation to allow comparison with our earlier study; an additional independent measure of suicidal ideation was used in the form of the self-rating version of the BSSI (Beck et al., 1988). This self-rating scale for suicidal ideation was completed by the patient shortly after the BAS interview and ratings were made for the preceding month. It is a 21-item instrument and has high internal consistency with observer rated scale and clinical rating of suicidal risk (Beck et al., 1988).

The patients were asked to complete the self-rating LHS (Harwood et al., 1994) which measures handicap experienced by subjects because of ill health, due to inability to perform a role that is normal for someone of the same age, sex and background (WHO, 1980). It has good reliability and validity and has been used to measure handicap in stroke patients (Harwood et al., 1994), arthritis (Harwood et al., 1996) and depression (Prince et al., 1997). The LHS has six categories (mobility, physical independence, occupation, social integration, orientation and economic self-sufficiency) scoring on a six-point scale. The overall score is calculated using a matrix of scale weights. The matrix of scale weights allows the severity of disadvantage in each dimension to be combined in an overall composite handicap score, ranging from 1 (no handicap) to 0 (maximum handicap). The LHS was used as it provides a composite measure of handicap and is strongly correlated with depression (Prince et al., 1997). The interviewer, after gathering information from the patient and the nursing staff, completed the modified Barthel Index (Wade and Langton, 1987; Wade and Collis, 1988) which measures functional activities of daily living on a 10-item scale; this was chosen to allow comparison with previous studies. The interviewer also completed the IPI, using medical notes and direct observation of the patient (Ramsey et al., 1991). This three-point scale was used in elderly medical inpatients with evidence of predictive validity (Ramsey et al., 1991).

These assessments were performed at the following time points: (i) within 1 week of medical admission or as soon as the patient was medically well enough to be interviewed, and (ii) 6 months after the initial assessments. The assessments at the outset were performed by A.S. and the 6-month assessments were performed by K.H. Information required to complete the BI and the IPI 6-month follow-up were acquired from the patients and their carers.

Data analysis

Suicidal ideation scores on both the BSSI scale and the BAS subscales were not normally distributed. Thus, non-parametric tests including Spearman’s correlation coefficient (rho), chi-square
test (with continuity correction), Fisher’s exact test, the Mann Whitney U test and Wilcoxon’s matched pair rank test were used for analysis. For some of the analysis the five categories of the BAS item ‘a wish to die’ and three categories of pessimism were collapsed into two dichotomous categories indicating presence or absence of symptoms to allow comparison with our earlier study.

RESULTS

Sample

Seventy-three patients were eligible for study. Complete data sets were available in 55 patients. Eighteen patients did not complete the study because of refusal (n = 4), visual (n = 9) or hearing deficits (n = 2), language difficulties (n = 2) and severe cognitive impairment detected at interview (n = 1). Patients with sensory deficits were unable to complete the interview and/or questionnaires satisfactorily. There were no differences between the study and excluded group in terms of age, sex, medication and length of stay; all possible data on those excluded for reasons other than refusal were collected at the outset. There were 22 (30%) males and 51 (70%) females. The median (range) age was 85 (65–98) years. The median (range) length in hospital at the time of the initial assessment was 6 (1–20) days. The median (range) overall length of stay in hospital was 15.5 (2–129) days. Five (9%) had a previous psychiatric history and three (5.5%) had a previous history of deliberate self-harm. Eighteen (33%) were BAS cases of depression.

Twenty-seven (49%) patients were followed up at a median (range) interval of 232 (124–349) days; although there is a wide scatter for the follow-up interval most patients were seen at 6–7 months and thus the variation in follow-up interval is unlikely to have affected the results. Twenty-eight (51%) patients were not followed up because of mortality (n = 15), refusal (n = 8) and inability to trace them (n = 5); it is difficult to explain why eight subjects were reluctant to be seen again. There were six (22%) males and 21 (78%) females. The median age (range) was 85 (65–96) years. Five (19%) were BAS cases of depression at follow-up. There were no significant differences between those that were followed up and those that were not on all the variables measured at the outset.

The prevalence and inter-correlations of suicidal ideation

The prevalence of suicidal ideation at the outset and at follow-up are illustrated in Table 2. The highly significant inter-correlations between BSSI and the three BAS suicidal ideation variables at the outset are illustrated in Table 3. The inter-correlations between the three BAS suicidal ideation items and the BSSI at follow-up were similar to those at the outset.

Table 2. The prevalence of suicidal ideation at the outset and at follow-up

<table>
<thead>
<tr>
<th>Type of suicidal ideation</th>
<th>At outset</th>
<th>At follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (55)</td>
<td>%</td>
</tr>
<tr>
<td>BSSI suicidal ideation</td>
<td>20</td>
<td>36</td>
</tr>
<tr>
<td>BAS Life not worth living</td>
<td>18</td>
<td>33</td>
</tr>
<tr>
<td>BAS Pessimism</td>
<td>33</td>
<td>60</td>
</tr>
<tr>
<td>BAS A wish to die</td>
<td>12</td>
<td>22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>N (29)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSSI suicidal ideation</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>BAS Life not worth living</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>BAS Pessimism</td>
<td>11</td>
<td>41</td>
</tr>
<tr>
<td>BAS A wish to die</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 3. The inter-correlations between BSSI and the three BAS suicidal ideation variables at the outset

<table>
<thead>
<tr>
<th></th>
<th>BSSI</th>
<th>Live not worth living</th>
<th>Pessimism</th>
<th>A wish to die</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSSI</td>
<td></td>
<td>Mann Whitney U test,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>z = -3.95, p = 0.001</td>
<td>Rho = +0.53, p = 0.0001</td>
<td></td>
</tr>
<tr>
<td>Life not worth living</td>
<td></td>
<td>Mann Whitney U test,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>z = -4.85, p = 0.0001</td>
<td>Rho = +0.48, p = 0.0001</td>
<td></td>
</tr>
<tr>
<td>Pessimism</td>
<td></td>
<td>Mann Whitney U test,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>z = -5.53, p = 0.00001</td>
<td>Rho = +0.48, p = 0.0001</td>
<td></td>
</tr>
</tbody>
</table>

Rho = Spearman’s rank correlation.

The significant correlates of suicidal ideation at the outset are illustrated in Table 4. There was no significant relationship with any of the other measured variables. At follow-up, due to small numbers, the only significant associations were those between BAS-DEP scores and BAS-DEP caseness and the BAS items of pessimism, life not worth living and a wish to die and the BSSI scores.

The relationship between suicidal ideation at follow-up and variables measured at the outset

There was no significant association between BAS items of pessimism, a wish to die and life not worth living and BSSI measured at follow-up and any of the variables measured at the outset with three exceptions: BSSI at the outset was associated with the BAS item of a wish to die at follow-up (rho = +0.43, p = 0.027); follow-up BSSI scores were associated with BAS-DEP caseness (Mann Whitney U test, z = −2.32, p = 0.021), and LHS (rho = −0.37, p = 0.057) measured at the outset.

Correlates of suicidal ideation at the outset and at follow-up

The significant correlates of suicidal ideation at the outset are illustrated in Table 4. There was no significant relationship with any of the other measured variables. At follow-up, due to small numbers, the only significant associations were those between BAS-DEP scores and BAS-DEP caseness and the BAS items of pessimism, life not worth living and a wish to die and the BSSI scores.

Emergence of the new suicidal ideation during the follow-up period

Five (18%) patients lost the feeling of life not worth living, one (4%) remained unchanged and two (7%) developed this feature. Eight (29%) patients lost pessimism, six (22%) remained unchanged and five (18%) developed this feature. Three (11%) patients lost a wish to die, one (4%) remained the same and one (4%) developed this feature. There were no significant differences between the BAS items of pessimism, a wish to die and life not worth living and BSSI at the outset and at follow-up on the Wilcoxon matched ranked pair test.

DISCUSSION

This is the only prospective study to examine suicidal ideation among acutely medically ill elderly inpatients; only one other study has included a follow-up component (Kishi et al., 1996a,b). The main findings were: (i) the prevalence of feelings of life not worth living, a wish to die and pessimism on the BAS and suicidal ideation on the
BSSI were 33%, 22%, 60% and 36% respectively; (ii) the BAS items of feelings of life not worth living, pessimism and a wish to die were all highly significantly inter-correlated and they were all highly significantly correlated with the BSSI at the outset and at follow-up; and, (iii) the four suicidal ideation variables were associated with higher BAS depression scores, BAS depression caseness, previous history of deliberate self-harm, greater severity of physical illness, prescription of a greater number of psychotropic drugs and prescription of antidepressants.

Before discussing the results, several methodological flaws need consideration. The number of study subjects was small at the outset and smaller still at follow-up. This may result in type 1 (small numbers can lead to spurious false positive associations) and type 2 (small numbers may lead to an association being falsely missed) statistical errors. Unfortunately, the study was curtailed due to one of the authors moving from the study unit. Second, patients with suicidal ideation may be more likely to refuse participation in the study at the outset. Thus, patients with ‘sub-intentional suicide’, ‘hidden suicide’ or ‘indirect self-destructive behaviour’ may inadvertently have been excluded. However, only four (5%) patients were excluded because they refused to participate. Third, measures of suicidal ideation like life not worth living and pessimism were extracted from the main depression assessment instrument, the BAS. Thus, not surprisingly they were inter-correlated and also associated with BAS depression caseness and scores; however, these relationships were maintained even when the three BAS suicidal ideation items were left out from the scoring. Moreover, the independently completed BSSI demonstrated the same associations, indicating their robust nature.

Finally, this study was confined to a single unit with small numbers and thus caution should be exercised in extrapolating the results to other units.

The prevalence of feelings of life not worth living, a wish to die and pessimism on the BAS and suicidal ideation on the BSSI were similar to those reported in an earlier retrospective study of geriatric inpatients (Shah et al., 1998a). However, they were higher than the prevalence of 1–20% reported in a mixture of studies in the community, primary care, memory clinic and stroke patients (Paykel et al., 1974; Rao et al., 1997; Forsell et al., 1997; Skoog et al., 1996; Callaghan et al., 1996; Draper et al., 1998; Kishi et al., 1996a, b). Only one other study has used the BSSI scale for measuring suicidal ideation (Rao et al., 1997). The highly significant correlation between pessimism, life not worth living, a wish to die and the BSSI is consistent with previous reports of a relationship between hopelessness and suicidal ideation (Hill et al., 1988; Draper et al., 1988; Shah et al., 1998a).

The relationship between suicidal ideation and severity of physical illness on the IPI is consistent with previous reports (Paykel et al., 1974; Skoog et al., 1996; Jorm et al., 1995). Absence of an association between suicidal ideation and functional impairment and handicap measured by the BI and the LHS contrasts with such an association in acute and chronic stroke patients (Kishi et al., 1996a, b), primary care patients (Callaghan et al., 1996) and in the community (Jorm et al., 1995; Forsell et al., 1997). Acutely medically ill elderly inpatients are often severely functionally impaired and thus, this study, with small numbers, may have had insufficient power to demonstrate a relationship between suicidal ideation and BI and LHS in a narrow range (probable ceiling effect).

The relationship between suicidal ideation and prescription of a greater number of psychotropic drugs implies that the distress experienced by the patient was identified and an attempt was made to treat it (Skoog et al., 1996; Forsell et al., 1997; Shah et al., 1998a). The relationship between suicidal ideation and prescription of antidepressants, on a background of a relationship between suicidal ideation and BAS depression caseness, suggests that the patients were receiving more appropriate treatment than in previous studies where patients received anxiolytics (Skoog et al., 1996; Shah et al., 1998a) or neuroleptics (Skoog et al., 1996). The association between suicidal ideation and antidepressants may be peculiar to our unit because of our effort to improve the association with benzodiazepines shown in a previous retrospective study (Shah et al., 1998a) coupled with several other screening and intervention studies of depression in the unit (Shah et al., 1997, 1998b).

The BSSI score at the outset was associated with the BAS item, a wish to die, at follow-up; the BSSI score at follow-up was associated with BAS depression caseness and LHS at the outset. These associations, due to small numbers and type 1 errors, may be spurious. However, most variables measured at the outset were not associated with suicidal ideation at follow-up. Alternatively, associations may be missed due to small numbers and type 2 errors. Between 4 and 18% of patients developed new suicidal ideation during
the follow-up period on the various suicidal ideation measures. This finding is similar to post-stroke patients followed up for 24 months (Kishi et al., 1996a). It is difficult to draw conclusions on the relative stability of suicidal ideation and emergence of new suicidal ideation given the small numbers.

Many of the correlates of suicidal ideation, in a range of settings, are similar to the correlates of attempted suicide and completed suicides in the elderly. Moreover, suicidal ideations are common among medically ill elderly inpatients. Suicidal ideation usually precedes suicidal behaviour (Stillion and McDowell, 1991). This model has been expanded into a model with four successive hierarchical stages (Vilhjalmsson et al., 1998): thoughts of death and suicide; thoughts of an actual suicide plan; a suicide attempt; and, completed suicide. Medically ill elderly inpatients are at increased risk of attempted suicide and completed suicides because of old age, medical illness and a high prevalence of depression. Thus, early identification and treatment of suicidal ideation in this setting may reduce rates of attempted suicides and completed suicides. There is a clear need for a large prospective multicentre study (to allow for idiosyncrasies of individual units and greater generalisability of the findings) examining the prevalence, correlates and longitudinal stability of suicidal ideation with independent measures of suicidal ideation, depression, disability and severity of physical illness. The statistical power calculation for the study numbers should not only take into account the prevalence available in the current literature but also 40–50% mortality at follow-up. Such epidemiological studies should be coupled with randomised controlled studies of interventions designed to improve suicidal ideation. Perhaps the most useful pathway to achieving this is to actively screen all inpatients for depression and suicidal ideation. This clearly has implications for training staff on medical wards in screening, early identification and management of suicidal ideation.

ACKNOWLEDGEMENTS

We are grateful to all the patients, nursing staff in geriatric medicine and Drs Platt and Bhattacharyya for their great help. Comments of the two anonymous referees were also greatly appreciated.

KEY POINTS

1. Suicidal ideation is common among acutely medically ill elderly inpatients.
2. Suicidal ideation is associated with depression, hopelessness, severity of physical illness, previous deliberate self-harm and prescription of psychotropic drugs.
3. There is scope for improvement by early detection and treatment of suicidal ideation among acutely medically ill elderly inpatients.
4. Suicidal ideation in elderly medically ill inpatients requires further study.

REFERENCES


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