BRIEF REPORT

Factors Influencing Selection for Rehabilitation After Stroke: A Questionnaire Using Case Scenarios to Investigate Physician Perspectives and Level of Agreement

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Objectives: To explore the key factors involved in decision making when selecting patients for rehabilitation after stroke and to examine the level of agreement among physician assessors regarding admission to rehabilitation.

Design: Questionnaire.

Setting: Health services with rehabilitation units in Victoria, Australia.

Participants: Rehabilitation unit physicians.

Interventions: Not applicable.

Main Outcome Measure: Questionnaire with 2 components: the clinical and nonclinical factors that influence decision making and clinical case scenarios.

Results: Responses were received from 17 physicians from 12 of the 18 health services in Victoria. The most influential clinical factors listed by the respondents were prognosis, social supports, anticipated discharge destination, age, and anticipated length of stay. Key nonclinical factors were prioritization of internal health service referrals, patient’s residence, and workforce capacity. Analysis of the clinical scenarios of patients with severe stroke showed that there was variability in the responses, with high levels of agreement for some cases and low levels for others. Almost all respondents agreed that prognosis was a key factor, yet, within the case scenarios, the reasons given for accepting or not accepting the patient demonstrated different opinions on the prognosis of the case presented.

Conclusions: The decision-making processes in selection for rehabilitation and the factors that influence that decision require further investigation to optimize the use and outcomes from rehabilitation resources.

Key Words: Health services accessibility; Rehabilitation; Stroke.

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ACCESS TO REHABILITATION is a key factor affecting outcomes after severe stroke. Teasell et al1 observes that it is sometimes difficult to discern a patient’s potential to improve in the early stages poststroke, and therefore it is important that those patients with a less positive initial prognosis are not excluded by the system. In Australia, most stroke rehabilitation is delivered in government funded rehabilitation facilities. Rehabilitation assessors (physician or other members of the rehabilitation team) go to the acute hospitals to evaluate the patient’s potential to benefit from rehabilitation. On the basis of this assessment, the physician from the rehabilitation unit determines whether or not to offer rehabilitation. It has been argued in the literature that, when assessing patients for rehabilitation, a balance should be maintained between people who will clearly benefit from rehabilitation and those who may benefit.2,3 At the same time, it is important to avoid admitting patients with little likelihood of benefit (eg, those with very poor prognosis and minimal potential for improvement), given the need to ration expensive health care resources.4 Therefore, the decision-making process to determine whether or not a patient is offered rehabilitation plays an important role in the delivery of rehabilitation services. Several studies have demonstrated variations in practice with regard to selection for rehabilitation, raising concerns about equity of access,4-6 particularly for those with severe stroke.

The goal of this study was to explore the key factors involved in decision making when selecting patients for rehabilitation after severe stroke from the physician’s perspective. These factors included both patient-related factors, such as prognosis and social support, and organizational factors, such as the availability of rehabilitation resources. In addition, we were interested in the level of agreement among assessors regarding admission to rehabilitation when presented with a case scenario.

METHODS

Study Design

The study design was a questionnaire, inclusive of qualitative and quantitative components.

Setting

This study was conducted across health services with rehabilitation units in Victoria, Australia.

Ethics

This study was reviewed by the Secretariat of the Ethics Committee of the Department of Health, Victoria and deemed to be low-risk quality assurance, not requiring formal ethical review.

Participants

Surveys were sent to the director of rehabilitation (or equivalent) for the 18 public health services with rehabilitation units.
in Victoria, inviting participation of physicians employed in their rehabilitation units. Subacute facilities in public health services in Victoria receive their funding based on the same casemix based funding model, with some regional variations for rural health. Questionnaire responses were deidentified before analysis was commenced.

**Measures**

The questionnaire was developed by the authors, reviewed by a multidisciplinary panel (medical and allied health representatives), field tested by 3 independent rehabilitation physicians, and modified in response to their comments. The questionnaire consisted of 2 sections. In the first section, rehabilitation physicians were asked to indicate the patient-based factors that influence their decision making and their comparative weighting (fig 1). The physicians were then asked to indicate the organizational factors that may influence decisions and their comparative weighting (see fig 1). In the second section, 5 scenarios of patients with severe stroke were presented to ascertain level of agreement as to whether the patient in each case example should be offered rehabilitation (table 1). The physicians were asked to mark the likelihood of accepting each case into their rehabilitation unit on a visual analog scale and provide their reasons for accepting or not accepting the case.

**Data Analysis**

Data analysis for the quantitative variables was limited to descriptive statistics only, based on the small numbers anticipated for the study. Qualitative data from the questionnaire was extracted and categorized (ie, statements with a similar meaning were grouped together; eg, level of social support, prognosis, time poststroke) by 2 of the authors independently. Percentage of agreement for the data extraction was determined.

**Table 1: Case Scenarios and Physician VAS Ratings of the Likelihood of Offering Rehabilitation**

<table>
<thead>
<tr>
<th>Case Scenarios (abbreviated)</th>
<th>VAS Score*</th>
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<tbody>
<tr>
<td>0-2</td>
<td>2.1-4</td>
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<tr>
<td>1. 75-year-old woman, R MCA infarct 2wk ago, severe L hemiparesis, and neglect. Medically stable. Oriented but limited insight. Hoist transfer, full assist with PADLs, IDC in situ, some fecal incontinence, fed via NGT but commenced on modified diet. Previously active and indep. Husband plans to care for wife at home, regardless of functional outcome.</td>
<td>6</td>
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<tr>
<td>2. 58-year-old man, brain stem infarct 1mo ago. Requires regular suctioning via tracheostomy. All feeds via PEG. R hemiparesis with some return of function. Hoist transfer. Continent. Alert and oriented. Low mood, reluctant to participate with therapists. Previously well and working full time. Lives with wife.</td>
<td>7</td>
</tr>
<tr>
<td>3. 72-year old woman, L MCA infarct 1wk ago. Mild hemiparesis. Severe expressive dysphasia and verbal dyspraxia, comprehension deficit. Walks 10m with the assistance of 2 therapists. Needs assist with PADL. Modified diet. Husband has depression.</td>
<td>12</td>
</tr>
<tr>
<td>4. 80-year-old man, L frontal hemorrhage 3wk ago, R hemiparesis with leg worse than arm. Alert and orientated, with low mood. Hoist transfer. Needs assist with PADL. Fed via NGT. IDC in situ. PHx stroke 2y ago with full recovery. Lives alone. Previously indep in all ADLs and driving.</td>
<td>4</td>
</tr>
<tr>
<td>5. 72-year-old man, L MCA infarct 10d ago. Severe R hemiparesis, contraversive pushing to R. Hoist transfer. Continent. Full assist for PADL. Reliable yes/no for basic needs. Cannot follow 2 stage commands. Previously well and active. Lives with wife.</td>
<td>7</td>
</tr>
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*Abbreviations: ADLs, activities of daily living; IDC, indwelling catheter; indep, independent; L, left; MCA, middle cerebral artery; NGT, nasogastric tube; PADL, personal activities of daily living; PEG, percutaneous endoscopic gastrostomy; PHx, past history; R, right; VAS, visual analog scale.
*Zero represents definitely accept, 10 represents definitely not accept.
by counting the number of respondents classified to equivalent categories as a percentage of the total responses categorized. Differences in categorization of the qualitative data were resolved by discussion between the 2 raters.

RESULTS

Responses were received from 12 of 18 health services (67%). Seven of these were metropolitan and 5 rural/regional health services. Within the 12 health services, responses were received from 17 individual physicians. The most influential patient-based factors listed by the respondents were prognosis, social supports, anticipated discharge destination, and age (see fig 1). Anticipated length of stay was a factor for some centers. Key organizational factors were prioritization of internal health service referrals, residence within the facility’s catchment area, and staffing issues (see fig 1).

A summary of the case scenarios and ratings of physicians are shown in table 1. The questionnaire, full case scenarios, and qualitative data analysis can be viewed at http://www.health.vic.gov.au/clinicalnetworks/strokecare.htm. For the qualitative data, percentage of agreement for the 2 independent raters for classification into categories was 88%.

Analysis of the clinical scenarios of patients with severe stroke showed that there was variability in the responses. There was a high level of agreement between respondents on scenario 3, based on the patient’s potential for improvement and discharge home. Conversely, scenario 4 showed the most divergent views, with some clinicians noting potential to improve and others indicating a poor prognosis. The views were also polarized for scenario 2, dependent mainly on the unit’s ability to manage patients with a tracheostomy, with nursing staff skill a key issue. For scenario 1, most clinicians favored accepting this patient; however, in the qualitative data, some indicated that the patient had potential for recovery, while others considered that potential for recovery was limited and rehabilitation would be offered in order to set her up at home on the basis of strong family support.

DISCUSSION

Access to rehabilitation services is a very important issue for optimizing outcomes for people with severe stroke. This study sought to investigate both perceived influences on the decision-making process regarding selection for rehabilitation, and decision making in practice, through the use of case scenarios. The outcomes of the study are mixed. In some instances, high levels of agreement were demonstrated, for example, prognosis being the key factor for selection for rehabilitation. At the same time, low levels of agreement for some of the case scenarios were associated with divergent views about the prognosis of case examples.

Nonclinical factors such as the prioritization of referrals from the acute units of the same health and workforce capacity (eg, the ability of rehabilitation units to provide specific services such as tracheostomy care) were also identified as issues. Seven respondents indicated that anticipated length of stay, a resource based issue, was a factor influencing decisions. This was also observed in 1 of the clinical scenarios as a reason given for not accepting a patient into a rehabilitation unit. Variation in ability to accept longer stay patients may constitute an equity of access problem. In summary, though there is agreement on key principles, the study indicates that variability is likely in selection for rehabilitation practice.

Study Limitations

A limitation of the study was the relatively low participant numbers. This primarily resulted from the decision to restrict questionnaire respondents to physicians who worked within the same funding arrangements, excluding a potential source of difference between respondents. Within this limitation, responses were received from two thirds of the health services invited to participate, indicating that this is likely to be a representative sample for Victoria. In several health services, more than 1 physician completed the survey; however, we did not have data on the total number of physicians working in rehabilitation in each health service.

CONCLUSIONS

It has been recognized in the literature that the process of selection for rehabilitation may lead to inequities of access for patients with stroke. Evidence for variation in the rate of discharge from the acute hospital setting to nursing home care after stroke, after adjusting for casemix, has been demonstrated by Portelli et al. Ilett et al demonstrated variations in the proportion of patients discharged from acute hospitals to rehabilitation versus home or nursing home. Evidence for significant variability in the casemix of stroke patients admitted to rehabilitation units has been shown by Putman et al. In this latter international study, nonpatient-related factors, such as funding models, played a significant role.

Determining who will benefit from inpatient rehabilitation can be difficult. Decisions resulting in exclusion of patients who may have benefited from inpatient rehabilitation can impact on the patient’s future functional level and living situation. The decision-making processes in selection for rehabilitation, and the factors that influence that decision, require extensive investigation to optimize the use and outcomes from rehabilitation resources.

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References