Depressed mood in a cohort of elderly medical inpatients: Prevalence, clinical correlates and recognition rate

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ABSTRACT. The objectives of this prospective cohort study were to 1) determine the prevalence of depressed mood, 2) identify the characteristics associated with it, and 3) evaluate the recognition rate of depressed mood by clinicians. The study population was a cohort of 401 elderly patients, aged 75 years and older, admitted to the internal medicine service of a tertiary care academic medical center in Western Switzerland over six months. We excluded patients with severe cognitive impairment, terminal disease or those living in a nursing home. Data on demographics, medical, physical, social and mental status were collected upon admission. Presence of depressed mood was defined as a score ≥6 on the Geriatric Depression Scale (GDS), short form (15-item). An independent reviewer performed a discharge summary abstraction to assess recognition rate. Subjects' mean age was 82.4 years, 60.9% were women. Overall, 90 patients (22.4%) had an abnormal GDS score (≥6). Compared to those without a depressed mood, these subjects were (all p<0.05) older (83.5 vs 82.0 years), more frequently living alone (66.7 vs 55.0%), dependent in both basic activities of daily living (BADL) and instrumental ADL (48.9 vs 36.0%, and 91.1 vs 84.9%, respectively), and cognitively impaired (47.8 vs 27.7% with MMSE score<24). In addition, they had more comorbidities (Charlson index 1.6 vs 1.2). In multivariate analysis, an independent association remains for subjects living alone (OR 1.8, 95%CI 1.1-3.0), with cognitive impairment (OR 1.9, 95%CI 1.1-3.2), and comorbidities (OR 1.3 per point, 95%CI 1.1-1.5). Detection rate during the index hospitalization was only 16.7% (15/90). In conclusion, depressed mood was frequent but rarely detected in this population. These findings emphasize the need to improve screening efforts, and to develop additional strategies such as using a pre-screening question to enhance clinical recognition.
highest strength of evidence (16). As a consequence, depression has also been associated with increased health services utilization, and cost (20-22).

Despite these observations and evidence of treatment efficacy (23, 24), studies in different settings have shown that depressive problems remain undetected and untreated in 50 to 90% of elderly inpatients (3, 25-27). To enhance detection, one strategy has been to identify patient characteristics associated with the presence of depressive problems (2, 7, 27-32). However, these studies were limited to small or selected populations, or lacked adequate adjustment for co-morbidities in multivariate models. While functional impairment, lack of social support, and severity of medical illnesses have been identified as risk factors in most studies, the significance of age, gender, race or cognitive impairment remains controversial (7, 27-32). In addition, these studies took place almost wholly in the US and British health care environment, and primarily in nursing homes and community settings. Finally, studies have differed in the method of assessment and criteria used to define depression.

We decided to examine the issues of depressed mood prevalence, risk factors, and detection in our acute care setting. We used data from a cohort of elderly hospitalized patients enrolled in a larger study on functional assessment in the acute care setting. The objectives of this study were to 1) determine the prevalence of depressed mood in a cohort of elderly medical inpatients, 2) identify clinical characteristics associated with the presence of depressed mood, and 3) evaluate the detection rate of depressed mood by hospital physicians.

**SUBJECTS AND METHODS**

**Study population and setting**

Potential participants were alternate patients aged 75 years and over admitted to the internal medicine service of an academic medical center located in Western, French-speaking Switzerland, over a 6-month period. From the original 649 patients, 135 (20.8%) were not included because they stayed less than 48 hours in the hospital (N=10), were already living in a nursing home (N=43), were transferred from a regional or out of state hospital for an elective procedure (N=32), or had private insurance (N=50). These latter patients were not included because of the inability to access the administrative and follow-up data needed for the larger study.

In addition, 106 (16.3%) were excluded because of their inability to answer questions due to severe cognitive impairment (defined as the inability to give his/her name and date of birth, N=29), aphasia or stroke (N=9), unstable medical conditions, including patients admitted to intensive care units (N=20), terminal illness or coma (N=23), or other reasons (e.g., language barrier) (N=25). In addition, 7 patients (1.1%) refused to participate in the study. Thus, a total of 401 patients were eventually recruited. Excluded patients had a similar age and gender distribution but, as expected, died more frequently during their hospital stay (25.0% vs 5.0%, p<0.005). The study was approved by the institutional review board of the Faculty of Medicine, University of Lausanne, Switzerland. Written informed consent for participation was obtained from each patient.

**Data collection**

Within 48 hours of admission, a trained research nurse interviewed the patients at bedside. Data were collected using a structured instrument, and included demographics, living situation, educational level, self-rated income, informal help, mobility, as well as basic activities of daily living (BADL) (33) and instrumental activities of daily living (IADL) (34). For ADL measures, a patient was considered dependent in an activity if unable to perform the task without assistance. Self-perceived health status, cognitive status [Folstein’s Mini Mental State Exam (MMSE), (35)] and affective status [Yesavage’s Geriatric Depression Scale, short form (GDS), (36)] were also assessed. Because the GDS focuses on the non-somatic symptoms of depression, this scale appears especially appropriate in populations of acutely ill elderly patients. The short form used in this study was derived from a previously validated French version (37). Weekly meetings were used to review functional status data quality. Home care services were systematically contacted to collect data on formal help received at home prior to hospitalization. In addition, in-hospital BADL performance was obtained from the ward nurse in charge of the patient. Main admission diagnosis, Charlson comorbidity index (38) and data on medication prescribed at home were collected from the medical records. Information about length of stay and destination after discharge were collected from the administrative files.

**Assessment and recognition of depressed mood**

To define depressed mood, we used the commonly recommended GDS cut-off of 6 or more depressive symptoms, which has been shown in previous studies to have a sensitivity ranging from 85 to 88%, with specificity of 62 to 71% (35, 39, 40). Although a score of 6 is not equivalent to major depression, it implies a depressive symptomatology