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EDITORIAL

Identifying Cirrhosis Patients for Intensive Disease Management

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Our healthcare system is based on the disease model prevalent at the beginning of the 20th century, in which people would typically develop acute illnesses, get hospitalized, and either die or fully recover, with little emphasis placed on the management of chronic diseases. In contrast, chronic illnesses now account for more than 75 % of total health care expenditures [1], as such, the episodic, symptom-driven nature of our health care system is poorly structured to manage this increasing burden of chronic conditions, of which cirrhosis, affecting approximately 750,000 adults in the United States, with a median time from diagnosis to death of 10 years, serves as a useful disease example [2].

In similar conditions such as heart failure, advances in chronic disease management have substantially improved patient outcomes. These advances include relatively simple concepts such as patient education, medication reconciliation, and telephone management between visits [3]. Recent pilot data suggests that similar interventions might also improve outcomes in cirrhosis [4, 5] (Fig. 1). Since none of these interventions come without a cost, they would be most efficiently applied by targeting patients who are most likely to develop problems.

In this issue of *Digestive Diseases and Sciences*, Johnson et al. [6] present a study that identifies patient characteristics associated with increased likelihood of hospitalization for complications of cirrhosis. Among a cohort of 395 ambulatory cirrhosis patients, 142 (36 %) were hospitalized for a cirrhosis-related complication during a median of 3.7 years of follow-up, with 78 (19.7 %) being hospitalized within the first year. Using multivariable analysis, independent predictors of hospitalization were model for end-stage liver disease (MELD) score at baseline, the presence of hepatocellular carcinoma, prior hospitalization, marital status, and diuretic usage. As a single-center study performed at a liver transplant center, the patient population may have been somewhat sicker than at non-transplant centers. Despite these usual caveats, however, this study is important because it is the first to predict hospitalization in outpatients with cirrhosis. Hospitalizations not only serve as a marker for many of the important complications of cirrhosis, but can also identify vulnerable patients at risk for mortality [7]. Therefore, the risk factors identified in this study may be used in the future to select patients for more intensive disease management interventions.

Most of the identified risk factors, such as MELD score, do not come as a surprise to any practicing gastroenterologist, but one that does stand out is marital status. On multivariate analysis, unmarried patients had 1.9-fold higher odds of hospitalization during the first year of follow-up, which was almost as strong a risk factor as having a MELD score >15. Furthermore, being unmarried was independently associated with 2.5-fold higher odds of death over a 2-year follow-up period ($p = 0.01$). This is a striking finding that deserves further attention because marital status may be a surrogate for social support, and thus something that is potentially remediable. Several recent studies have documented the burden that friends and family face when caring for a loved one with cirrhosis [8, 9], with one other population-based study reporting an association between marital status and survival among patients with cirrhosis [10]. With such a major impact on mortality, further investigation of social support systems in

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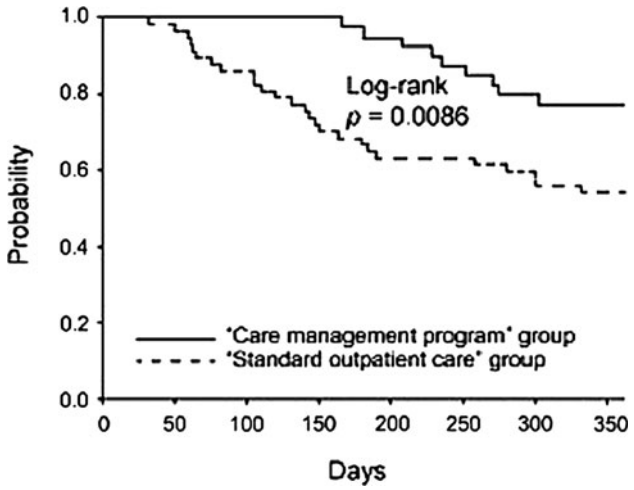

Fig. 1 Results of a randomized pilot study demonstrating improved survival among cirrhosis patients receiving chronic disease management [4]

cirrhosis management is warranted. For example, at our center, we are currently pilot testing an automated phone management system which sends email updates to caregivers who live geographically distant from the patient—thus potentially broadening the net of social support for unmarried or widowed patients.

In summary, the study by Johnson et al. [6] reports that one-fifth of ambulatory patients with cirrhosis will be hospitalized within a year for complications of their disease. Rather than waiting for complications, physicians should try to predict and prevent them. Patients at higher than average risk include those with higher MELD scores, hepatocellular carcinoma, prior hospitalizations, diuretic usage, and single marital status; these individuals may benefit from more intensive outpatient management.

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