HHS Public Access

Author manuscript

Gastroenterology. Author manuscript; available in PMC 2022 April 20.

Published in final edited form as:

Gastroenterology. 2010 July ; 139(1): 14–6.e1. doi:10.1053/j.gastro.2010.05.017.

Chronic Disease Management for Patients With Cirrhosis

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One hundred million people in the United States have ≥1 chronic condition, and chronic illnesses account for 75% of health care expenditures.[1] Unfortunately, our health care system remains poorly structured to address this growing epidemic. Physician visits are brief, tend to focus on patient complaints and urgent issues rather than proactive disease management, and clinicians have few tools or systems in place to optimize management between visits. Not surprisingly, the lack of adequate patient education, preventive care, monitoring, and coordination among clinicians has led to poor quality of care for patients with chronic conditions[2] and outcomes that fall short of what we know could be achieved if care were optimized.

Chronic disease management (CDM) is now a widely accepted framework for addressing these challenges and improving chronic disease outcomes by emphasizing comprehensive system change including informed and coordinated providers as well as improved support for self-care between visits.[3] In this commentary, we provide a rationale for restructuring cirrhosis care to emphasize CDM.

Why Emphasize CDM for Patients With Cirrhosis?

Cirrhosis is the final common pathway for the majority of liver diseases. More than 40 000 deaths in the United States each year can be attributed to complications of cirrhosis, nearly as many as attributable to diabetes and more than attributable to kidney diseases.[4] Cirrhosis is also responsible for significant morbidity and health care costs. It leads to >150 000 hospitalizations costing nearly $4 billion dollars each year,[5] and the incidence of hospitalization owing to complications of cirrhosis is increasing.[6] Among patients who survive the initial hospitalization, nearly half are rehospitalized within 1 year.[7] Thus, cirrhosis patients represent exactly the type of population with high morbidity, mortality, and resource utilization that has been the target of CDM efforts in the past.

Research on cirrhosis care has identified multiple targets for improving service delivery and outcomes. For example, numerous randomized, controlled trials have demonstrated benefit from prophylaxis of variceal hemorrhage and spontaneous bacterial peritonitis.[8] We now have a long list of evidence-based preventive care measures, including vaccination against hepatitis A and B, counseling to avoid alcohol, and screening for hepatocellular carcinoma.[9]

Supplementary Material

The first 5 references associated with this article are available below in print. The remaining references accompanying this article are available online only with the electronic version of the article. To access the remaining references, visit the online version of GASTROENTEROLOGY at www.gastrojournal.org, and at doi: 10.1053/j.gastro.2010.05.017.

However, all this medical knowledge will only benefit patients if it is implemented properly. The little information we have about the quality of care for patients with cirrhosis suggests that compliance with published guidelines is relatively poor. In various studies, between 7% and 62% of patients with hepatitis C or cirrhosis received vaccination against hepatitis A or B,[10,11] and as few as 6%–22% of patients with known grade II–III varices received primary prophylaxis with β-blockers.[12,13] Rates of screening for hepatocellular carcinoma also seem to be very low, at 16%–28%.[14] Time pressure on well-intentioned providers and the lack of adequate structures to ensure systematic follow-up conspire against improving these numbers through standard approaches such as physician education. Therefore, system redesign principles must be used to ensure that (1) responsibilities for essential services are redistributed within the patient care team in a way that makes outpatient visits more effective and (2) mechanisms are in place to monitor patients' progress systematically between face-to-face encounters.

Although patient self-care has traditionally not been a focus of cirrhosis care, patient behavior is the single most important factor determining the trajectory of their disease. Our current system of episodic, symptom-driven care for cirrhosis is not well suited to optimize patients' ability to manage the condition in their daily lives. To improve our system of health care delivery we must also identify effective and efficient ways to support cirrhosis self-care.

Building on the Chronic Care Model.

A seminal paper by Wagner et al[3] in 1996 proposed a guide for developing effective chronic illness care, and this model composed of 6 elements has formed the foundation of subsequent CDM efforts.

Health Care Organization.

CDM emphasizes coordination across sites of care and clinical specialties, as well as the collaboration between clinicians and insurers. For example, hospital discharges are recognized as a particularly risky period for patients with complex chronic diseases.[15]

Delivery System Design.

A crucial component of CDM is establishment of protocols that allow routine periodic tasks such as vaccination and screening for hepatocellular carcinoma to occur automatically.

Decision Support.

The overwhelming volume of medical literature presents challenges in rapid information retrieval, and decision support tools provide access to evidence-based practice guidelines and prognostic models at the point of care.

Clinical Information Systems.

These systems are more than a computerized medical record; they should also (1) serve as registries for evaluating process and outcome measures of care,[16] (2) provide feedback to physicians about how individual patients are doing in terms of key health indicators,

(3) serve as reminder systems for routine screening and follow-up, and (4) enhance patient self-management between clinic visits.[17,18]

Self-Management Support.

It has been estimated that 90% of chronic disease care occurs outside of the clinic visit.[19] Unfortunately, patients are often nonadherent or poorly manage their medical conditions. In the traditional patient–physician relationship, the doctor would be unaware of this nonadherence, label the patient as "noncompliant," or at best attempt to provide more education or technical skills. CDM focuses on improving the patient's ability to self-manage by teaching problem-solving skills and motivating behavior change through evidence-based approaches.[20]

Community Resources.

Chronic care does not exist in a vacuum surrounding the clinic visit. Patients' network of family and friends, often called "informal caregivers" has an enormous impact on the patient's ability to manage their disease in the community.

Learning From Experience Managing Heart Failure.

Like cirrhosis, heart failure is a condition with high short-term morbidity, mortality, and resource utilization, and is commonly managed by subspecialists. Unlike cirrhosis, however, heart failure has been the subject of major advances in the delivery of care. Most of these advances have focused on preventing readmission to the hospital, beginning with the landmark trial of a nurse-directed multidisciplinary intervention by Rich et al in 1995.[21] Since then, >18 randomized trials have been performed, with a pooled relative risk reduction of 25% in preventing readmission[22] and many studies showing improvements in short-term survival. Other interventions focused on keeping patients out of the hospital in the first place have included daily electronic weight monitoring to alert health care providers of the first signs of deterioration,[17] as well as engaging informal caregivers through an interactive telephone system.[18] Disease management has developed into the standard of care in CHF and it is now included as a class 1 recommendation in practice guidelines.[23]

Challenges and Potential Pitfalls to CDM in Cirrhosis.

None of the interventions described herein are "one size fits all." Rather, any CDM initiative would need to be adapted to the unique clinical problems, barriers, and goals of managing patients with cirrhosis. Furthermore, not every practice environment is the same, thus making it difficult to broadly apply every detail of a CDM program to all health centers. Nevertheless, for some interventions the capital investment and disruption to established routine would be fairly minimal, and the benefits obvious. An example of this would be the establishment of a reminder system for semiannual screening for hepatocellular carcinoma. Such interventions would traditionally fall under the rubric of "quality improvement," and should probably be implemented universally. Other interventions that are more involved such as electronic home weight monitoring for patients with ascites would need to be subjected to randomized trials.

The practice of hepatology within the subspecialty of gastroenterology presents additional unique challenges. An official certification exists for transplant hepatology, but not for general hepatology. Thus, there exists a large spectrum among gastroenterologists in their interest and experience in caring for liver patients. This means that many patients with cirrhosis are likely cared for by general gastroenterologists who may not have sufficient volume of these patients to warrant investing the time and money into CDM programs. Although many CDM interventions may be cost saving or at least cost effective[24] from a society or third-party payer perspective, it is possible for such interventions to actually harm the financial status of individual physicians, hospitals, or health care systems under a fee-for-service system. In the future, this problem of how to finance CDM may be ameliorated by current health care reform legislation, and by the realization among insurers that CDM pays for itself in the long run. Gradually, some insurers are starting to reimburse for interventions such as nurse disease management over the telephone[25]; direct reimbursement for other aspects of CDM will hopefully soon follow.

In summary, CDM has enormous potential to improve the care of patients with cirrhosis. Many readers are no doubt already experimenting with components of CDM in their practices. However, we are behind in exploring the opportunities of CDM in a scientifically rigorous manner. Therefore, we call on our colleagues to conduct such studies, to come together as professional community in sharing knowledge about what works, and to translate lessons from the care of other chronic illnesses to the important setting of cirrhosis management.

Acknowledgment

Michael Volk is the recipient of a Research Scholar Award from the American Gastroenterological Association and 1K23DK085204 from the NIDDK, and John Piette is a VA Research Career Scientist.

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