

## CORRESPONDENCE

# Pharmacist-led educational interventions involving the “hidden” patient in cirrhosis—Caregivers

To the editor,

Patients request—and deserve—better medication management tools. Beyond the challenges of drug titration to effect and following instructions in the context of encephalopathy, patients with cirrhosis are frequently prescribed contraindicated therapies but not indicated therapies.<sup>[1]</sup> In our recent publication, we described several barriers to effective care and their solutions as identified by patients and their caregivers.<sup>[2]</sup> Hayward et al.<sup>[3]</sup> highlight the important role of pharmacists in addressing these barriers. We thank the authors for their article. The authors provided extended follow-up data from their trial of pharmacist-led educational interventions, demonstrating a durable multiple-year reduction in hospital admissions. Their work also speaks to the importance of quality patient education and empowerment—required elements for maximizing the longevity of interventions. Including caregivers in their intervention likely further contributed to their strong results, and future interventions should continue to involve caregivers to optimize their success and sustainability. Similar caregiver involvement with other members of the care team (nurse care managers, dietitians, physical therapists, occupational therapists, and if appropriate, psychologists) may potentiate the therapeutic effect of their services. Even though their involvement increases the upfront caregiver “workload,” we suspect that in the long run it improves patient care and outcomes, ultimately reducing the magnitude of burden and burnout for our “hidden” patients in cirrhosis—caregivers.

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### CONFLICT OF INTEREST

Nothing to report.

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### REFERENCES

1. Thomson MJ, Lok AS, Tapper EB. Optimizing medication management for patients with cirrhosis: evidence-based strategies and their outcomes. *Liver Int.* 2018;38:1882–90.
2. Saleh ZM, Bloom PP, Grzyb K, Tapper EB. How do patients with cirrhosis and their caregivers learn about and manage their health? A review and qualitative study. *Hepatol Commun.* 2020;5:168–76.
3. Hayward KL, Patel PJ, Valery PC, Horsfall LU, Li CY, Wright PL, et al. Medication-related problems in outpatients with decompensated cirrhosis: opportunities for harm prevention. *Hepatol Commun.* 2019;3:620–31.