

Method(s) Eight electronic databases (MEDLINE, EMBASE, PsycINFO, CINAHL, British Nursing Index, SCOPUS, Web of Science, and Cochrane Library) were searched from inception to December 2015 for studies investigating symptom prevalence in adult ESLD patients. No time or language limitations were applied. Articles focusing on acute liver failure, metabolic liver disease, cholestatic disease only, other terminal diseases, or on post liver transplantation were excluded.

Results We identified 31 studies with a total of 3630 ESLD patients. Most of them were middle-aged. The prevalence of pain ranged between 30% and 79%. Muscle cramps occurred in 56–68% of patients. Other most frequently reported physical symptoms were insomnia (26–77%), erectile dysfunction (53–93% in men), dyspnea (20–88%), and daytime sleepiness (33–71%). Surprisingly, fatigue and pruritus were only reported in one article for each, with a prevalence of 86% and 47%. Psychological symptoms included anxiety with a prevalence of 14–36%, while 4.5–64% of ESLD patients suffered from depression. The instruments for symptom measurement varied across studies.

Conclusion(s) We have identified the prevalence of a range of symptoms experienced by ESLD patients. There is high variability in symptom prevalence across different studies. Further studies on symptom prevalence and on developing consensus in symptom measurement are keys to improve the care of these patients.

REFERENCES

- 1 Abdel-Bary SA, Yousif M, Hussein HA. Respiratory muscle strength, hypoxemia and dyspnea in liver cirrhosis patients. *Egypt J Chest Dis Tuberc* 2014;**63**:1059–1064
- 2 Abrams GA, Concato J, Fallon MB. Muscle cramps in patients with cirrhosis. *Am J Gastroenterol* 1996;**91**:1363–1366
- 3 Angeli P, Albino G, Carraro P, et al. Cirrhosis and muscle cramps: evidence of a causal relationship. *Hepatology* 1996;**23**:264–273
- 4 Baskol M, Ozbakir O, Coskun R, et al. The role of serum zinc and other factors on the prevalence of muscle cramps in non-alcoholic cirrhotic patients. *J Clin Gastroenterol* 2004;**38**:524–529
- 5 Baumann AJ, Wheeler DS, James M, et al. Benefit of early palliative care intervention in end-stage liver disease patients awaiting liver transplantation. *J Pain Symptom Manage* 2015;**50**:882 e2–886 e2
- 6 Bianchi G, Marchesini G, Nicolino F, et al. Psychological status and depression in patients with liver cirrhosis. *Dig Liver Dis* 2005;**37**:593–600
- 7 Chatrath H, Liangpunsakul S, Ghabril M, Otte J, Chalasani N, Vuppalanchi R. Prevalence and morbidity associated with muscle cramps in patients with cirrhosis. *Am J Med* 2012;**125**:1019–1025
- 8 Chien YC, Chiang HC, Lin PY, Chen YL. Erectile function in men with end-stage liver disease improves after living donor liver transplantation. *BMC Urol* 2015;**15**:83
- 9 De Rui M, Schiff S, Aprile D, et al. Excessive daytime sleepiness and hepatic encephalopathy: it is worth asking. *Metab Brain Dis* 2013;**28**:245–248
- 10 Gencdal G, Gunsar F, Meral CE, et al. Sleep disorders in cirrhotics; how can we detect? *Liver Int* 2014;**34**:1192–1197
- 11 Grassi M, Albani B, De Matteris A, et al. Prevalence of dyspepsia in liver cirrhosis: a clinical and epidemiological investigation. *Minerva Med* 2001;**92**:7–12
- 12 Gutteling JJ, De Man RA, Busschbach JJ, Darlington AS. Health-related quality of life and psychological correlates in patients listed for liver transplantation. *Hepatol Int* 2007;**1**:437–443
- 13 Huyghe E, Kamar N, Wagner F, et al. Erectile dysfunction in end-stage liver disease men. *J Sex Med* 6: 1395–1401
- 14 Kalaitzakis E, Josefsson A, Castedal M, et al. Gastrointestinal symptoms in patients with cirrhosis: a longitudinal study before and after liver transplantation. *Scand J Gastroenterol* 2013;**48**:1308–1316
- 15 Kaltsakas G, Antoniou E, Palamidas AF, et al. Dyspnea and respiratory muscle strength in end-stage liver disease. *World J Hepatol* 2013;**5**:56–63
- 16 Klein J, Tran SN, Mentha-Dugerdil A, et al. Assessment of sexual function and conjugal satisfaction prior to and after liver transplantation. *Ann Transplant* 18: 136–145
- 17 Madan A, Barth KS, Ballier WE, et al. Chronic pain among liver transplant candidates. *Prog Transplant* 2012;**22**:379–384
- 18 Margreiter M, Heinisch BB, Schwarzer R, et al. Lower urinary tract symptoms in patients with liver cirrhosis. *World J Urol* 2015;**33**:315–321

SYMPTOM PREVALENCE OF PATIENTS WITH END-STAGE LIVER DISEASE: A SYSTEMATIC REVIEW

Jen-Kuei Peng, Nilay Hepgul, Irene J Higginson, Wei Gao. *Cicely Saunders Institute, King's College London, UK*

10.1136/bmjspcare-2016-001204.45

Introduction End-stage liver disease (ESLD) is a major cause of morbidity and mortality. However, little is known about symptom prevalence among this population.

Aim(s) To systematically review the prevalence of symptoms and how they are measured in patients with ESLD

- 19 Montagnese S, Middleton B, Skene DJ, Morgan MY. Night-time sleep disturbance does not correlate with neuropsychiatric impairment in patients with cirrhosis. *Liver Int* 2009;**29**:1372–1382
- 20 Mostacci B, Ferlisi M, Baldi Antognini A, *et al*. Sleep disturbance and daytime sleepiness in patients with cirrhosis: a case control study. *Neurol Sci* 2008;**29**:237–240
- 21 Poonja Z, Brisebois A, Van Zanten SV, *et al*. Patients with cirrhosis and denied liver transplants rarely receive adequate palliative care or appropriate management. *Clin Gastroenterol Hepatol* 2014;**12**:692–698
- 22 Popovic D, Culafic DM, Tepavcevic DB, *et al*. Assessment of depression and anxiety in patients with chronic liver disease. *Vojnosanit Pregl* 2015;**72**:414–420
- 23 Rodrigue JR, Nelson DR, Reed AI, Hanto DW, Curry M. Fatigue and sleep quality before and after liver transplantation. *Prog Transplant* 2010;**20**:221–233
- 24 Rogal SS, Bielefeldt K, Wasan AD, *et al*. Inflammation, psychiatric symptoms, and opioid use are associated with pain and disability in patients with cirrhosis. *Clin Gastroenterol Hepatol* 2015;**13**:1009–1016
- 25 Rogal SS, Winger D, Bielefeldt K, Szigethy E. Pain and opioid use in chronic liver disease. *Dig Dis Sci* 2013;**58**:2976–2985
- 26 Roth K, Lynn J, Zhong Z, Borum M, Dawson NV. Dying with end stage liver disease with cirrhosis: insights from SUPPORT. Study to understand prognoses and preferences for outcomes and risks of treatment. *J Am Geriatr Soc* 2000;**48**: S122–S130
- 27 Singh N, Gayowski T, Wagener MM, Marino IR. Depression in patients with cirrhosis. Impact on outcome. *Dig Dis Sci* 1997;**42**:1421–1427
- 28 Sorrell JH, Brown JR. Sexual functioning in patients with end-stage liver disease before and after transplantation. *Liver Transpl* 2006;**12**:1473–1477
- 29 Stewart KE, Hart RP, Gibson DP, Fisher RA. Illness apprehension, depression, anxiety, and quality of life in liver transplant candidates: implications for psychosocial interventions. *Psychosomatics* 2014;**55**:650–658
- 30 Trzepacz PT, Brenner R, Van Thiel DH. A psychiatric study of 247 liver transplantation candidates. *Psychosomatics* 1989;**30**:147–153
- 31 Wang GS, Yang JX, Li MR, *et al*. Liver transplant may improve erectile function in patients with benign end-stage liver disease: single-center chinese experience. *Exp Clin Transplant* 2013;**11**:332–338