APPENDIX

Appendix 1. "The strategy for the search as below.

Search: ((" Cirrhosis "or end-stage liver disease "AND "intensive care OR "ICU"))] NOT (review [publication type])"

Appendix 2. CRITICAL APPRAISAL OF EACH STUDY

1. Critical Appraisal of the randomized controlled trials

Two randomized controlled trial studies were included in this review, Philips A.C[11] Arabi M Y et al. [13], and 17 cohort studies were conducted; two were prospective, and 15 were retrospectives.

Philips A.C. et al. [11] address the management of cirrhotic patients with sepsis; he addresses the use of 5% human albumin in cirrhotic patients and sepsis for correction of hypotension induced by sepsis compared to normal saline. It was a randomized controlled trial with reduced bias risk.

Arabi M Y et al. [13] addressed the appropriate question on the management of the cirrhotic patient with sepsis; it explained the use of hydrocortisone on the cirrhotic patient with sepsis and 8 days mortality of this patient.

The strength of the study was that it was a randomized controlled trial, double-blind, placebo-controlled design intended to treat the homogenous analysis population, and the limitation of this study was that it was a small single-center trial that may affect the generalization of the results.

2. Critical Appraisal of the prospective cohort study

Rinaldi L. et al. [3] study addressed the cirrhosis and sepsis management well and compared the treatment to the survival sepsis consensus (SSC) guideline, and

The limitation is that it was a small prospective cohort study that may affect the generalization of the result. Statistics are also well applied.

Thierry S. et al. [23] paper addressed the use of the echocardiography for assessment of the left ventricular ejection fraction (LVEF) in the cirrhotic patients with septic shock. And statistics is well applied.

3. Appraisal of a retrospective cohort study

Guo F.et al, [26] addressed the management of sepsis in cirrhotic patients and conclude that the value of volume conductivity and scattering (VCS) parameters can detect the infection in this patient.

Limitation of this retrospective cohort study is that was a small size population and as strength the statistic was well applied.

Villareal E.et al.[15] addressed well the question of the usefulness of the procalcitonin biomarker for the diagnosis of the infection in a cirrhotic patient with sepsis and the statistics was well described. The limitation is that was a small retrospective study.

Galbois A. et al. [27] address well the use of the mottling score and tissue oxygen saturation (StO2) in the prediction of the mortality in septic shock patients with Cirrhosis.

The aim was to assess the skin to see whether mottling score and tissue oxygen saturation (StO2) could be used as a predictor of death in cirrhotic patients with septic shock.

The limitation was that it was a retrospective observational study, monocentric study, and small population, done only on the black population, where there is a risk of bias and generalization problems, and the statistics are well applied.

Serafim PL et al. [14] addressed well the management question, explored the use of steroids in a cirrhotic patient with septic shock, and explained well the statistical uses.

Chang YC. et al. [17] address the question of the outcome of a cirrhotic patient with sepsis admitted to the ICU and explain the statistic well but this study had as limitation the miss information bias.

Sauneuf B. et al. [18] conducted A small retrospective cohort study that dressed well the management of sepsis in cirrhotic patient in the intensive care unit and described it well the statistic.

Umgelter A et al. [21] A small retrospective study that addressed well the assessment of the use of low-dose terlipressin as an adjunct to norepinephrine in the management of the cirrhotic patient with sepsis.

Durst.M.et al. [20] A small retrospective cohort study single-center that well addressed the question by comparing the use of the vasopressor in a septic patient with Cirrhosis and on the septic patient without Cirrhosis in the ICU.

S. Maimone et al. [12] addressed the question of the use of 20% human albumin as one of the managements of sepsis in a cirrhotic patient with sepsis. The limitation is that it was a small retrospective study with missed information as bias.

Bal CK. et al. [24] addressed the 50 days mortality in the decomposed cirrhosis patients with spontaneous bacterial peritonitis; and address well the statistics. The limitation is that was a single prospective study.

Chebl B.R. et al. [22] address the question of the outcome of sepsis and Cirrhosis in the intensive care unit and the mortality.

The limitation was that the study was retrospective, with difficulty finding all the information, and a small sample was selected.

Chen H and Hsu Y [25] well addressed the way of diagnosing sepsis in cirrhotic patients, was a retrospective cohort, single-center study, statistically well described

Sasso R.et al.[19] addressed well the question of the mortality of cirrhotic patients with sepsis in the ICU and applied well the statistic

F. Fischer et al. [16] addressed the markers used for diagnosing bacterial infection in a septic patient with Cirrhosis and compared them to other available biomarkers as CRP and PCT methods. It was a small retrospective study with missing information as bias, and statistics were well described.

Baudry T.et al.[9] addressed the prognosis of the cirrhotic with sepsis admitted in ICU, and the statistic was well described.

Appendix 3 Checklist for randomized controlled trial

JOANNA BRIGGS CHECKLIST randomized controlled trial	**Philips A.C et al. 2022**	**Arabi M Y et al. 2010**
1. was true randomization used for the assignment of participants to treatment groups	YES	YES
2. was allocation to treatment groups concealed?	Yes	Yes
3. were treatment groups similar at the baseline?	Yes	Yes
4. were participants blind to treatment assignment?	Yes	YES
5. were those delivering treatment blind to treatment assignment?	No	YES
6. were the outcomes assessors blind to treatment assignments?	No	YES
7. Were treatment groups treated identically other than the intervention of interest?	Yes	YES
8. was follow-up complete, and if not, were the difference between groups in terms of their follow-up adequately described and analyzed?	Yes	YES
9. were participants analyzed in the groups to which they were randomized?	Yes	YES
10. were outcomes measured in the same way for treatment groups?	Yes	YES
11 Were outcomes measured reliably?	Yes	YES
12. was appropriate statistical analysis used?	Yes	YES
13. was the trial design appropriate, and were any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial?	Yes	YES

N: no, U: unclear N/A: not applicable

Appendix 4 Checklist for Prospective cohort studies

JOANNA BRIGGS CHECKLIST COHORT STUDIES	**Rinaldi F. et al. 2019**	**Thierry S et al. 2007**
1. were the two groups similar and recruited from the same population	yes	Yes
2. were the exposure measures similar to assigning people to exposed and unexposed groups?	yes	Yes
3. was the exposures measured validly and reliably?	yes	Yes
4. were confounding factors identified?	yes	U
5. were strategies to deal with confounding factors stated?	yes	U

6. were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)?	yes	Yes
7. were the outcomes measured in a valid and reliable way?	yes	Yes
8. was the follow-up time reported sufficient to belong enough for outcomes to occur?	yes	yes
9. was the follow-up complete, and if not, were the reasons for loss to follow-up described and explored?	yes	Yes
10 Were strategies to address incomplete follow-up utilized?	yes	Yes
11. was appropriate statistical analysis used?	yes	Yes

Appendix 5 Checklist for retrospective cohort studies

JOANNA BRIGGS CHECKLIST COHORT STUDIES	**Guo F.et al 2019**	**Villareal E.et al.2016**	**Galbois A et al 2015**	**Serafim P.L.et al 2021**	**Chang YC. etal 2022**	**Sauneuf B et al.2013**	**Umgelter A et al.2008**	**Durst M.et al.2020**	**S.Maimone et al.2022**	**Bal CK et al. 2016**	**Chebl B.R. et al.2021**	**Chen H.Y. et al 2020**	**Raoula S.et al.**	**P. Fischer et al. 2019**
Q1. were the two groups similar and recruited from the same population	N	N	Yes	yes	yes	N	N	Yes	Yes	N	Yes	yes	yes	Yes
Q2. were the exposure measures similar to assigning people to exposed and unexposed groups?	Yes	N	Yes	Yes	Yes	Yes	N	Yes	Yes	Yes	Yes	Yes	yes	yes
Q3.was the exposures measured in a valid and reliable way?	Yes	yes	yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes	Yes
Q4.were confounding factors identified?	U	N	U	N	N	Yes	U	Yes	yes	N	yes	yes	yes	U
Q5. were strategies to deal with confounding factors stated?	U	N	U	N	N	Yes	U	Yes	yes	N	yes	yes	U	U
Q6.were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)?	Yes	Yes	Yes	Yes	Yes	Yes	N	Yes	yes	Yes	yes	Yes	Yes	Yes
Q7. were the outcomes measured in a valid and reliable way?	Yes	Yes	Yes	yes	Yes	Yes	Yes	Yes	yes	Yes	yes	Yes	Yes	Yes

Q8.was the follow-up time reported sufficient to belong enough for outcomes to occur?	N	Yes	Yes	N	Yes	Yes	yes	Yes	yes	yes	Yes	yes	N	Yes
Q9.was the follow-up complete, and if not, were the reasons for the loss to follow-up described and explored?	N	Yes	Yes	Yes	Yes	Yes	yes	yes	yes	yes	Yes	yes	U	Yes
Q10 Were strategies to address incomplete follow-up utilized?	U	Yes	N	U	Yes	Yes	U	N	yes	yes	N	yes	N	U
Q11.was appropriate statistical analysis used?	Yes	yes	yes	yes	yes	yes	yes	yes	yes	Yes	N	yes	yes	yes

N: no, U: unclear N/A: not applicable