Wiesmann et al conducted a retrospective study about using rate of liver support systems in Germany between 2007 and 2015. The aim of the study was to recruit epidemiologic data about about frequency use of liver assist device and crude mortality and morbidity for this patient cohort.

They found that between 2007 and 2015 a total of 2886 patients were treated within this time frame. Overall mortality was 51.49%, whereas male population suffered from a higher mortality. While in the first 7 years main indication was liver dysfunction, since 2012 liver support system was more used in cardiac surgery due to ischemic liver injury.

The conclusion of the authors was that since 2007 the using rate of liver support systems remains stable, while since 2012 the indication moved from hepatologic patients more to cardiac surgery patients.

There are some major concerns, which should be addressed.

First of all the authors should be define, what kind of liver assist devices they aimed to evaluate. There are biological and non-biological systems. Within the non-biological systems the most used in the recent 20 years was MARS, Prometheus (FPSA) and plasmapheresis. This is not clear in the text and should be figured out.

You should compare each by each and do not put all devices together and talk about liver support.

Introduction:

First sentence:

"Acute liver failure (ALF) might occur in patients with preexisting (acute- on-chronic,
3 ACLF [1]) or non-preexisting (ALF) liver disease."

Well ALF is clearly defined as acute onset of liver dysfunction (transaminases at least 3 times above baseline), coagulopathy (INR > 1.5), jaundice and hepatic encephalopathy (see O'Grady, Gastroenterology 1989 and Lancet 1993). The EASL (European Society of study of the Liver) stratified patients in acute liver injury, which means acute hepatitis without encephalopathy and acute liver failure, which includes hepatic encephalopathy.

ACLF is a distinct liver failure which is first figured out in 2013 (Moreau et al m Gastroenterology 2013).

Your statement that liver assist devices are poorly evaluated is not correct. Only for MARS you will find more than 500 pubmed citation. Please remove this statement.

Line 10: "detoxification functions (e.g. hyper-ammonemia and other protein-bound molecules) 10 to improve morbidity and mortality."

Ammonia is not protein bound, it is a very small molecule, can easily diffuse between different cells. Ammonia can also easily removed with hemodialysis.

Your statement that Liver assist devices is an established treatment option is also not correct. It is a possible treatment, but till today, beside the high-volume plasmapheresis (Larsen, J Hepatol 2016) no device had shown any benefit on survival.

Discussion p. 12, line 21. It is the FUMAR and not FULMAR study. Moreover you cannot compare blind your patient population (by the way you did not mentioned, what kind of patients they are) with the FUMAR study, where all patients were listed high-urgency and transplanted within 16 h.

Moreover, the use of any kind of liver support in cardiac failure does not make any sense. The cited studies in your manuscript provides a limited number of patients (13 against 14 and 14 against 14). In the study of 2004 there was no benefit, just bilirubin improvement and the other in MARS group there was a decreased 30 day mortality. I suppose that in 90 days almost 90% of the patients will pass.

However, the main issue in these patients is the recovery of the heart, which seems to be successful, particular in survivors of the second study.

The whole manuscript has some potential for improvement. My suggestion are stratifying the patients device depending and according the diagnosis. It is impossible to put all patient and liver assist devices together and try to get a conclusion.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.
No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

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If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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