Reviewer’s report

Title: Pharmacologic cholinesterase inhibition improves survival in acetaminophen-induced acute liver failure in the mouse

Version: 1 Date: 19 February 2014

Reviewer: Ali Canbay

Reviewer’s report:

The manuscript of Steinebrunner et al. handles an important therapeutical approach of Acetaminophen (APAP) caused acute liver failure (ALF).

In a mouse model of APAP-induced ALF the authors investigated the co-treatment with the cholinesterase inhibitor neostigmine as a potential therapeutic agent in APAP-mediated ALF. BALB/c mice were treated with neostigmine prior and after APAP-injection. Co-treatment with neostigmine could improve overall survival rates as well as hepatocellular damage, cell death and the release of pro-inflammatory mediators such as IL-1β and TNF-α. The study could show that the cholinesterase inhibitor neostigmine may have a beneficial effect within the therapy of ALF in a mouse model.

The results are reported in a clear and well-organized manner with established and adequate methods and exactness.

While the results shown depict an improving role of neostigmine in ALF-therapy it would be interesting how this cholinesterase inhibitor could probably support the common therapy with NAC. The authors should include this issue to their discussion. Furthermore the authors should include a section within the discussion that focuses more detailed on the role of cell death (apoptosis and overall cell death) in APAP-induced ALF with an indication of the publication of Bechmann et. al. (J Hepatol. 2010 Oct;53(4):639-47.) that describe the supporting role of cell death markers within ALF-therapy and as useful prediction markers.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests