

# JOURNAL CLUB – TERLIPRESSIN VS NORADRENALINE IN ACLF

**Dr Laura Hobbs (anaesthetics registrar) takes us through the background into a hot-off-the-press RCT.**

**TERLIPRESSIN IS SUPERIOR TO NORADRENALINE IN THE MANAGEMENT OF ACUTE KIDNEY INJURY IN ACUTE ON CHRONIC LIVER FAILURE**

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JVF ICU Journal Club

Presented by Dr Laura Hobbs

## STUDY QUESTION

Is Terlipressin superior to Noradrenaline in the management of acute kidney injury in acute on chronic liver failure?

## HOW DOES THIS RELATE TO OUR PRACTICE ON JVF ICU?

The JVf ICU is a 20 bed general ICU admitting over 1000 patients per year from all the major surgical specialities, including liver and multivisceral transplant, as well as complex medical patients from medical specialities such as hepatology and renal.

We admit many patients with AKI in the context of acute on chronic liver failure (ACLF), and as such we are interested in evidence based practice to improve the outcomes of this cohort of patients. This may also have implications for a patients survival and therefore subsequent eligibility for future liver

transplantation.

## **WHAT DO WE CURRENTLY KNOW ABOUT THIS AREA?**

Renal dysfunction occurs in up to 50% of patients with cirrhosis who present with an acute episode of hepatic decompensation. AKI is one of the defining features of ACLF and may be due to underlying chronic kidney disease, an acute insult, or in combination.

There is significant mortality associated with hepatorenal syndrome in patients with ACLF. Often patients will require vasopressor therapy; the use of Terlipressin and Noradrenaline is routine in patients with cirrhosis, with many studies suggesting no difference in efficacy between the two.

Terlipressin is a synthetic vasopressin analogue, with relative specificity for the splanchnic circulation, that improves renal perfusion by vasoconstriction of splanchnic vessels. Noradrenaline is a catecholamine with high affinity for alpha 1 receptors (and some beta 1 agonist actions) which results in vasoconstriction and raised systemic vascular resistance.

## **WHY WAS THIS STUDY NEEDED?**

Prior to publication there have been studies comparing the efficacy of the two drugs in decompensated cirrhosis and hepatorenal syndrome (HRS) which showed equal efficacy between the two. However, none comparing the two drugs as an infusion in the distinct pathophysiological condition of ACLF with HRS-AKI. Many previous studies also looked at bolus regimes of Terlipressin, whereas this is a direct comparison of infusions.

There are concerns regarding the side effect profile of Terlipressin as compared to Noradrenaline which may limit its use. Whilst readily available in the UK, Terlipressin is not available in many countries including the United States, which may limit some of the data available. Terlipressin is more expensive than Noradrenaline. Therefore, robust evidence to show superiority in this cohort of

patients is required.

### **POINTS FOR DISCUSSION...**

- One of the major limitations of the study is that it is open label (both researchers and participants knew which treatment was being given)
- Is the study size large enough to draw conclusions?
- Is the side effect profile with Terlipressin significant enough cause concern?
- What about lower dose combination vasopressor therapy?

### **FURTHER READING**

Cochrane Review: Terlipressin versus other vasoactive drugs for hepatorenal syndrome (2017)