Replies to unanswered Questions during the Live Webinar

Q1 **Could you give us a criteria of succesfull reperfusion in masive PE please?**

These criteria are unfortunately not standardized, but they should reflect clinical/haemodynamic stabilization of the patient already during thrombolytic infusion (2 hrs). This should be accompanied by echocardiographic improvement of the size and function of the right ventricle, usually combined with a decrease of estimated pulmonary hypertension.

Q2 **PE with RV disfunction if fluide chalange required in hypo tention followed by PE**

Only moderate fluid challenge 500-100 ml indicated. Central venous pressure should remain in the normal or slightly elevated levels of 5-10 mmHg. Excessive fluid challenge is contraindicated. Please also consult Harjola et al. Eur J Heart Fail 2016;18:226-241

Q3 **Strategy to use in heparin allergy induced thrmobocytopenia**

If HIT is really present, both unfractionated heparin and low molecular weight heparin cannot be used. DOACs have been used in these patients succesfully in case series. Randomized studies are ongoing.

Q4 **If we have a patient which had symptoms for many days but worsened today and is haemodynamic unstable can we use fibrinolysis?How many days of symptoms can we accept?**

Yes, we can. We can accept up to 14 days of symptoms, as there are always fresh superimposed thrombi that can be lyzed and improve the clinical status.

Q5 **What about the therapy of a recurrentPE in a patient that already takes warfarin or NOAK?**

In most of these cases one may find evidence for lack of compliance. Most guidelines advice an initial course of heparin followed by warfarin or DOAC in the standard doses. Also if compliance was excellent the same approach is adviced. Higher doses are not recommended.

Q6 **Why don't you recommend Echo to evaluate RV volume? And what about the ECG?**

ECG is part of the initial "clinical" workup, not a "standalone exam. It can help suggest, but not independently prove RV dsyfunction. In Echo, RV volume measurements are valid, but probably still too complex for most examiners at present. The most widely used, and best validated thus far, echo signs to diagnose acute RV failure in CLINICAL PRACTICE include signs of 1) RV dilatation (RV/LV end-diastolic diameter ratio), 2) reduced RV free wall motion (mainly by TAPSE measurement) and/or paradoxical septal wall motion (D sign), 3) RA area enlargement (usually more long-standing RV overload/failure), 4) congested vena cava (sensitive sign of RA hypertension), 5) pulmonary hypertension, estimated via the TR jet velocity. Please also consult Harjola et

Q7 **How about the role of warfarin in ESC guidelines to prevent recurrent PE? still role to use ?**

The role of warfarin will gradually diminish, if DOACs become universally available and affordable. Thusfar this is not the case, hence warfarin remains an option.

Q8	**What are the cardio-pulmonary causes of elevated Blood TROPONIN in those with normal ECG +/- dyspnoea / chest pain?**
	It is supposed to be RV "micro"ischemia due to increased wall stress and O2 supply-demand imbalance.This is why troponin elevation is milder than in acute coronary syndromes, in which a major epicardial vessel becomes occluded.
Q9 / Q10	**Is heparin interchangable with LMWH with similar results?** **So if we start with heparin before a DOAC does it have to be for 5 days?**
	Heparin and LMWH are interchangeable. LMWH is preferred in most patients, due to the lack of the need of monitoring and S.C. administration. Intravenous heparin should be considered in case of a very high bleeding risk and severe renal dysfunction, because of availability to immediate switch off and monitoring, respectively . Current evidence indicates that heparin should be given for at least 5 days. Whether shorter courses (3-5 days) are also effective is unproven.
Q11	**Apcial 4 chamber Might means ahuge help to asses LVand RV**
	Yes, definitely. The most widely used, and best validated thus far, echo signs to diagnose acute RV failure in CLINICAL PRACTICE include 1) RV dilatation (RV/LV diameter ratio), 2) reduced RV free wall motion (mainly by TAPSE measurement) and/or paradoxical septal wall motion (D sign), 3) RA area enlargement (susually more chronic conditions), 4) congested, non-collapsing inferior vena cava (sensitive sign of RA hypertension), 5) pulmonary hypertension estimated via TR jet velocity. Please also consult Harjola et al. Eur J Heart Fail 2016;18:226-241 for a review.
Q12	**What about surgery for severe PE?**
	As recommended in the Guidelines, surgery is an alternative reperfusion option in high-risk (and in some cases of decompensated or decompensating intermediate-risk)-PE,
Q13	**Should we combine heparin or clexan with alteplase?**
	Please see the ESC guidelines for details, but the basic concept is that heparin can be continued during alteplase whereas LMWH should be discontinued. After completion of the alteplase infusion, continue first with heparin and start LMWH later. In most of these cases one may find evidence for lack of compliance. Most guidelines advice an initial course of heparin followed by warfarin or DOAC in the standard doses. Also if compliance was excellent the same approach is advised. Higher doses are not recommended.
Q14	**Whats the treatment of choice for reccurrent PE on patients on NOAC?**
	Please see the ESC guidelines for details, but the basic concept is that heparin can be continued during alteplase whereas LMWH should be discontinued. After completion of the alteplase infusion, continue first with heparin and start LMWH later. In most of these cases one may find evidence for lack of compliance. Most guidelines advice an initial course of heparin followed by warfarin or DOAC in the standard doses. Also if compliance was excellent the same approach is advised. Higher doses are not recommended.