Live TV Webcast – Neuromuscular paralysis
Thursday 5th December 2017
Your questions answered

- What about monitoring experiences when mixing the use of Rocuronium and Succinylcholine? Especially at the end of visceral surgery.

Prof. J. Hunter – I do not agree with mixing rocuronium and succinylcholine in a syringe. One should give the succinylcholine, and monitor neuromuscular block. When recovery from block is detected, rocuronium can be given.

- Does the intraoperative stimulation of the acupuncture point P6 as an effect on reducing PONV?

Prof. C. Meistelman – Very interesting question. We looked at that a few years ago but the litterature is very limited. From a theoretical point of view it should work.

- Any thoughts on postoperative residual paralysis and quality of recovery?

Prof. C. Meistelman – An important issue, what is observed by many people in the PACU is that people who have been reversed are doing better in the PACU, for example they use PCA devices more easily, it is likely that they have recovered a better muscular strength.

- Vizualisation of deep radial nerv in cases of supinator compression syndrome

Prof. M. Blobner – NMM at the wrist stimulates the ulnar nerve. Therefore radial nerve compression should not interfere. If the ulnar nerve is also compressed, please consider using the other forearm or the facial nerve for stimulation and measure at any eye muscle.

- I would like to participate in the Live TV program!

GE Healthcare – Thank you for your interest! Please reach out to annamaria.bonetto@ge.com and we will evaluate your profile and suggested clinical topic.

- Does the ceiling effect of neostigmine in antagonism of block at TOF below 0.6-0.7 really exist?

Prof. C. Meistelman – Absolutely; it was demonstrated more than 30 years ago by Payne (see Br J Anaesthe 1980: 52: 79), noestigmine by itself can cause fade of tertanus.

- Heavy metals in the body and neuromuscular paralysis

Prof. M. Blobner – I am not sure if you address heavy metal intoxification which may result in nerve injury. Any nerve or muscle injury may result in inability to standard NMM. Sometimes increasing the current or the duration of the stimulus is a useful approach. But please calibrate the NMM in such cases. Otherwise you do not know if a residual block is related to the disease or the use of NMBAs.

- What medical equipment is most helpful to you? Thanks

GE Healthcare – Sorry difficult to answer as this question is not clear, if you wish please reformulate and contact annamaria.bonetto@ge.com

- Severe bleeding management including fibrinogen administration.

Prof. J. Hunter – This is a different topic which I am not an expert on.

- Dear Professor, Thank you for this great presentation. Do you consider that it is important to integrate Neuromuscular Transmittance Monitoring (NMT) in the multimodal monitoring concept for the polytrauma patients? I mean, if you transfer the patient directly in the ICU for the mechanical ventilation and the extubation is not performed in the OR. Regards, Rogobete

Prof. J. Hunter – Yes, you should still monitor neuromuscular block throughout to guide you on giving increments of relaxant and for when you ultimately reverse the patient. You also need to ensure that the patient is adequately relaxed prior to transfer to the ICU.

- Indications for sugammadex?

Prof. C. Meistelman – Sugammadex can only reverse rocuronium or vecuronium-induced NMB. It reverses moderate NMB block more rapidly than neostigmine; its main indication is the reversal of deep NMB (less than 2 responses at the TOF)

- What if I miss the broadcast? can I watch it later?
- I cannot attend live but would like to be able to access this recording later.

GE Healthcare – Replay is available here: https://www.youtube.com/watch?v=NWKg5tQsp6c&feature=youtu.be. The replay will also be uploaded to our webpage on: http://www3.gehealthcare.co.uk/en-gb/products/categories/perioperative_care

- Few years ago, NMB monitoring was critical mainly to avoid post-operative residual curarization (PORC) and its complications. With the increasing use of new neuromuscular blocking drugs reversal agents where a TOF ratio >0.9 can be achieved in less than 3 minutes how do you anticipate the future and relevance of NMB monitoring?

Prof. M. Blobner – It is still very important. Exact dosing of all reversal agents as well as monitoring of their effect (i.e. recovery of NM transmission) is still necessary for good clinical practice.

- How do you recommend to monitor residual paralysis on the PACU? Any specific monitor? What mA to use?

Prof. M. Blobner – NMM in the PACU setting is not validated so far. Therefore, it is more appropriate to use NMM before the patient is awake. If you are equipped with enough devices in your institutions, you may organize that you get one of your devices at least before your patient recovers from anaesthesia. In case of clinical suspicion of a residual paralysis in the PACU you should test arm lift, head lift for more than 5s plus ability of swallowing water (20ml). In case your patient is not able to complete all three tests, application of a reversal agent is recommended. The effect of the drug may confirm your suspicion.

- Thank you for the invitation. I would like to know what is about cutting-edge research on muscle cell physiology and factors that may be involved to produce this type of neuromuscular block. From a metabolic and anatomical point macro and microscopic…
- Regenerative medicine training, also I would like to know if there are factors influenced by oxidative stress…

Sorry, we cannot answer these questions, they are out of our expertise

- Sugammadex appears to be relatively less efficient with vecuronium than rocuronium, and not at all with benzylisoquinolines (atracurium and derivates). What about calabadion which might appear in animals as "The new sugammadex, that works with all muscle relaxants" I saw no papers in human?

Prof. C. Meistelman – Sugammadex is almost as effective to reverse vecuronium than rocuronium. It does not work at all with ciastracurium and atracurium.

- Should Train-of-four be checked prior to administration of NMBDs / NBDS(Neuro muscular -blocking drugs)? Are we able to achieve a more optimal relaxation if we do it?

Prof. M. Blobner – Yes, you should. Continuous quantitative NMM is recommended in each patient, who needs intraoperative paralysis.

- Do we need to have basic TOF4 reading before giving the NDMR in all type of monitor or there are some monitors that can work without base line reading?

Prof. M. Blobner – Yes, you should. Calibration improves quality of any NMM.

- What alternative stimulation sites can be used when the ulnar nerve is not accessible?

Prof. M. Blobner – In principle every nerve-muscle-combination. Mostly, the facial nerve together with eye muscles are recommended.

- How reliable are NMT on an awake patient?

Prof. C. Meistelman – It depends on patient's movements. It is likely that EMG can be more adapted because it does not depend from patient's movement.

- If you admit the patient intubated in OR form Emergency Department, do you consider important to monitor neuromuscular transmittance? And if yes, is it possible to calibrate the sensor? Thank you, Regards, Rogobete

Prof. J. Hunter – Yes, if possible you must calibrate the sensor for more accurate estimations of the TOF

- What about DBS and PTC ?

Prof. M. Blobner – DBS is invented to improve ability to touch fading. Since I recommend using quantitative devices (EMG if ever possible), DBS is not necessary. PTC is a useful stimulation mode to quantify deeper levels of block. In cases of clinical need you should use it.

- Rocu = long duration NMB agent, with accumulations after multiple injections and or continuous infusion. But what about the lack of accumulation of cisatracurium, and its relatively good predictability, even after continuous infusion?

Prof. J. Hunter – Cisatracurium is undoubtedly less cumulative and I prefer to use it in any patient with renal or hepatic dysfunction, and in the critically ill.

- What about neuro stimulation per operatively to prevent PONV? Does it work?

Prof. C. Meistelman – Theoretically it could work if it stimulates the P6 point, however scientific data are lacking.

- Which companies can monitor EMG?

GE Healthcare – To our knowledge today in addition to GE Healthcare, Senzime company can offer a EMG-based NMT monitor. Please note that sensors, computing algorithms, technology… etc, may be different.

- International guidelines: we do not apply french guidelines, published almost 20 years

Prof. C. Meistelman – The french guidelines published 20 years ago were the first published all over the world. A new version using the Delphi and Grace method has been recently performed and should be published both in French and English in the next 6 months.