APPENDIX. CONFERENCE DISCUSSION

Dr B. Rydst (Freiburg, Germany): Please could you explain what your criteria is for ascending cannulation versus femoral cannulation?

When you cannulate dissected ascending aorta, there is a risk of false lumen cannulation. After opening of the aortic arch, you can easily assess whether the aortic cannula is positioned in the true or in the false lumen. Could you tell us in how many patients did you cannulate the false lumen?

Most surgeons do not use this access considering the risk of aortic rupture, false lumen cannulation, or embolization risk. Did you observe any of these complications in this big series of patients?

Dr Klotz: Yes, great questions. Regarding the second question, it’s correct. I will not say aortic cannulation is dangerous. We saw it, at least what I know, twice in patients with resuscitation in the operation room. We just did the sternotomy and the aortic cannulation with an anaesthesiologist in the night which was not so confirmed to see a guidewire in the TOE. Both patients had false lumen cannulations and false lumen perfusion. One patient died in the operation room and the other patient we just clamped the aorta, pull the cannula out, put all the venous blood in the drainage, and opened the aorta and did a directly cannulation in the aortic arch and started perfusion again.

For the first question, we don’t have absolute rules. It’s depending on the surgeon, on the status of the patient and on the anaesthesiologist on call during the night. Type A dissections are mostly in the night.

The standard approach is subclavian artery; however, if the patient is obese or haemodynamically unstable, we just go for the femoral artery.

So with this data presented here, we could show that our results with femoral artery cannulation are not worse than the subclavian artery, so we just go to the femoral arteries. It’s an easily accessible site, and we don’t have any pain trying to find the subclavian artery and then doing a side branch or just direct cannulation of the subclavian artery because you just go to the femoral artery.

Dr M. Grabenwöger (Vienna, Austria): Maybe you see no difference because you cooled down all patients below 20°C. I think the advantage of the subclavian artery is when you are operating in moderate hypothermia with antegrade perfusion and then maybe you can find the difference. If you cool down to 18°C, I’m with you, maybe there is no difference.

Dr Klotz: This is the only guideline in Lübeck, below 18°C. It never changed so far.

Dr Grabenwöger: Yes, but you should not stick till the end of your life to something which could be improved.

Dr Klotz: That’s correct.

Dr Grabenwöger: It’s easier for the surgeons. It’s easier for the patient. It’s easier for everybody I think not to cool down too far.

Dr Klotz: Yes.

Dr C. Hagl (Munich, Germany): Is it correct when I speculate that your dialysis rate of 30% may be due to prolonged cardiopulmonary bypass time including prolonged cooling and rewarming?

Dr Klotz: We see it in the operation time; it takes a little bit longer.

Dr Hagl: Quite much longer. Your technique is comparable to the Mount Sinai technique of deep hypothermia.

Dr Klotz: These are the guidelines we have, it’s difficult to change.

eComment. Perfusion strategies in type A acute aortic dissection

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This interesting paper raises many questions that could not be answered only by experience of the surgeon and of the anaesthesiologist [1]. It does not describe the modality of selective antegrade cerebral perfusion (SACP), and in particular, the pressures and pH strategies during SACP. This is a very important issue as we know that some degree of auto-regulation is lost at temperatures (~18°C) as low as that used by these Authors. This phenomenon may increase the cerebral vessel pressure and potentially cause excess perfusion and neurological damage by overflow [2].

During hypothermic circulatory arrest, direct cerebral perfusion was used in 55.3% with central cannulation and in 45.8% with femoral cannulation. We do not know the reasons for this choice in the non-SACP-perfused group.

Regardless of the arterial inflow method, we believe, as do many other Authors, that if a supra-aortic vessel is not to be perfused during SACP, it should be clamped to prevent steal and subsequent neurological injury [2]. This technical aspect has not been described in this paper.

There is no mention of the occurrence of visceral malperfusion, which is a major complication in these patients [3, 4]. The site of cannulation may not only affect neurological outcome but may also cause malperfusion of visceral arteries and retrograde emboli to the kidneys [3]. This event, along with a longer bypass time could be the cause of the borderline significant difference in the need for dialysis in the ICU with 40% in the femoral artery group compared with 28% in the central cannulation group (P = 0.073). The dialysis figures are quite high.

Another very important issue is the evolving pattern during extracorporeal circulation. It is mandatory to keep checking the blood flow status both by transoesophageal echocardiography (TOE) [5] and by near infrared spectroscopy (NIRS). This has to be done also at the end of repair in order to diagnose any residual false lumen.

All these tips could help in decreasing complications during surgery of AADA and achieve clear conclusions about the choice of cannulation site.

Conflict of interest: none declared.

References