Response to Letters by Trinquart and Touzé and by Suh et al

Response:

We appreciate the comments of Trinquart and Touzé regarding our recently published article in which we summarized the immediate and long-term outcomes as well as the durability of intracranial stenting based on a systematic review of the literature.1 The authors criticize the statistical methods used to analyze the results. We perfectly agree with our colleagues that proper meta-analyses require procedures such as weighting, testing for heterogeneity as well as using random-effects or fixed-effects models. Today, these apparently complicated statistical procedures can easily be performed using widely available statistical software. In fact, we have used these methods extensively in previous own analyses.2 Although it is beyond doubt that meta-analyses are useful to guide our clinical decisions, it is more than questionable if the current data on intracranial stenting really justify the use of the various statistical techniques outlined by Trinquart and Touzé, which would leave the reader with the impression that sound scientific evidence for or against these procedures currently exists. As outlined in our article, the vast majority of data on intracranial stenting stems from small, retrospective case series. Therefore, we had decided to use a more descriptive approach, leading to the main conclusion that the adverse event rates vary widely among different centers. In support of this notion, Trinquart and Touzé estimate that the overall risk of stroke or death after intracranial stenting varies between 8% and 13.4%.

We realize that the lack of weighting as well as the inclusion of studies, which had enrolled patients with anterior or posterior circulation intracranial artery stenosis only, limits our analyses concerning the different risks between anterior and posterior circulations. On the other hand, only prospectively obtained, large data sets will be able to resolve this issue. In good agreement with our results, posterior circulation stenosis was also identified as a major risk factor for cerebrovascular complication after intracranial stenting in a recently published post hoc analysis of the National Institutes of Health Multicenter Wingspan Intracranial Stent Registry.3 In fact, the primary end point (any stroke or death within 30 days of stenting or stroke in the territory of the stented artery beyond 30 days during a median follow-up of 5.4 months) was significantly associated with posterior circulation stenosis (versus anterior circulation; hazard ratio, 3.4; 95% CI, 1.2 to 9.3; P<0.05) in that large registry. Adding the data of this registry to the analyses of Trinquart and Touzé (despite somewhat different follow-up periods) would yield an OR of 1.66 (95% CI, 0.99 to 2.8), nearly reaching statistical significance.

Suh et al commented on the important influences of the patient condition (stable or unstable) as well as of a learning curve on outcome after intracranial stenting.

We completely agree with Suh et al that patient condition is an important risk factor for an intracranial stent procedure. Therefore, we excluded studies in which the majority of patients had been treated for acute ischemic events and were frequently in an unstable condition. In studies with mixed patient populations, we had extracted the data of the stable patient subgroup for further calculations.

Although it has already been shown that a learning curve does exist for endovascular interventions such as carotid artery stenting and this might also apply for intracranial stenting, we did not find such a relationship within our current analysis. This may in part be attributable to the wide heterogeneity of the studies. With respect to the learning curve and the proposed periprocedural complication rates of <5% for stable patients in high-volume centers, it should clearly be pointed out that Suh et al based their conclusions on a highly selective analysis.

Taken together, we still feel that the widespread application of intracranial stenting outside the setting of randomized trials or in inexperienced centers currently does not seem to be justified.

Disclosures

None.

Andreas Kastrup, MD
Klaus Gröschel
Department of Neurology
University of Göttingen
Göttingen, Germany


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Andreas Kastrup and Klaus Gröschel

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