Reply to Letter to the Editor: “The Predictors of Asymptomatic Cerebral Embolism After Carotid Artery Stenting”

To the Editor,

Deciding to treat carotid stenosis with stenting or endarterectomy is very important and requires a serious clinical experience. The most important periprocedural complication associated with carotid artery stenting (CAS) is cranial embolism. Periprocedural embolism due to CAS has many causes that have been demonstrated so far. Complex vascular anatomy, type III aortic arch, vascular tortuosity, prolonged CAS duration, stent type, plaque morphology, inexperienced operator... to name a few. In particular, investigating the causes of periprocedural asymptomatic cranial embolism related to CAS increases the reliability of CAS. The aim of many studies such as ours is to reveal the causes and solutions of cranial embolism due to CAS.

In our study, many patients and lesion groups who have cranial embolism due to CAS were excluded (Table 1, Supplement Table 1). Therefore, we did not include many groups with a high risk of cranial embolism due to CAS, which the authors mentioned. While doing this, we aimed to reveal the stent type and the risk of cranial embolism due to CAS more clearly in our selected patient group. For example, we did not include the cases mentioned by the authors such as ulcerated and thrombotic lesions, tortuous vascular anatomy, prolonged procedure time (procedure time > 45 minutes), type III aortic arch, etc.

Our study differs from other studies in some aspects. First of all, our study was conducted in a very special group (Table 1, Supplement Table 1). In our patients, not only the distal embolism protection method but also the proximal embolism protection method was used. All cases were multidisciplinary and followed up by an invasive cardiologist and an interventional vascular neurologist. Antiaggregant resistance was studied in all patients before the CAS procedure.

In our study, the duration of fluoroscopy was not given. Because cases with long and complicated CAS procedures such as those with a prolonged procedure time (>45 minutes), those who required repetitive balloon inflation, those with distal internal carotid artery spasm, and those with hemodynamic instability were not included in our study.

The fact that the serum biochemical or physiological indicator suggested by the authors was not used in our study is a shortcoming. Intravascular ultrasound or magnetic resonance imaging may have been more beneficial to evaluate carotid plaque morphology and plaque locations.

REFERENCES

Supplement Table 1. Patients who were at risk for carotid artery stenting and thus underwent CEA

**Patient or lesion characteristics**

- Femoral access problem
- Arcus aorta is severely atherosclerotic or calcified
- Common carotid artery is severely tortuous
- Carotid artery lesion length > 40 mm
- Diameter of carotid artery closer to the bifurcation > 10 mm
- Dense calcification in the carotid artery in the area of stenosis (Gray-Weale Type IV)
- Carotis artery plaque is severely ulcerated or densely thrombotic
- GFR < 30 mL/min/1.73 m²
- Resistance to acetylsalicylic acid and clopidogrel

CEA, carotid endarterectomy; GFR, glomerular filtration rate