

Evolution of surgical treatment of carotid artery stenosis

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Introduction

Carotid artery stenosis increases the risk of transient ischemic attack (TIA) and stroke. Worldwide, stroke is the 2nd most common cause of death. Carotid artery stenosis is responsible for 15-20% of all strokes.

In 2009 and 2011 respectively ESVS and AHA/ASA guidelines recommended to operate patients with a symptomatic carotid artery stenosis within 14 days. This study aimed primarily to determine if an academic hospital has implemented these international guidelines about indication and timing of surgical treatment of carotid stenosis. Secondary, the influence of referral from another hospital on time from symptoms to surgery and the influence of time between neurological event and surgery on 30-day complication rate was studied. Thirdly, the number of asymptomatic carotid artery lesions treated surgically was also evaluated in both periods.

Results

In 2005-2006 38,1% (59/155) of the patients were treated for symptomatic carotid artery stenosis, in 2014-2016 this increased to 66,5% (121/182) ($p < 0,001$) (fig. 2). Median time from qualifying neurological symptom to surgery in symptomatic patients decreased from 30 to 13 days ($p < 0,001$) (fig. 1).

Referral from another hospital almost doubled the time interval between neurological symptoms and surgery in 2014-2016 ($p < 0,001$). When not referred from another hospital the median interval was 9 days. If patients were referred, this interval was 15,5 days ($p < 0,001$, 95% CI: 1,386-2,827). Early surgery did not increase the 30-day postoperative complications ($p = 0,19$).

Methods

Retrospective, monocentric study to compare patients with significant atherosclerotic carotid stenosis who underwent carotid endarterectomy (CEA) or carotid artery stenting (CAS) in 2005-2006 versus patients treated in 2014-2016. Demographics, treatment characteristics, interval between symptom and surgery and 30-day outcomes were analyzed.

Fig. 1

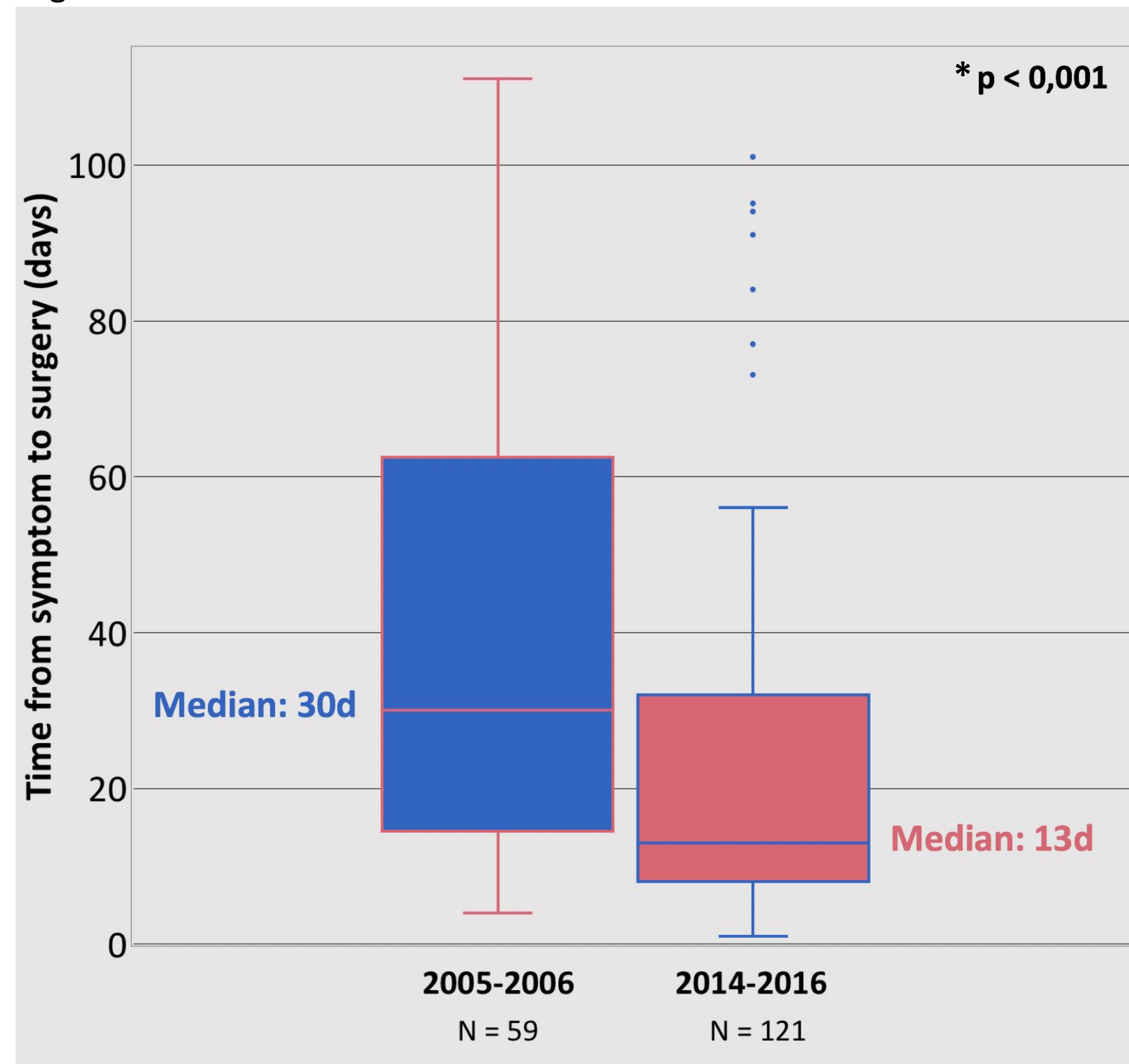
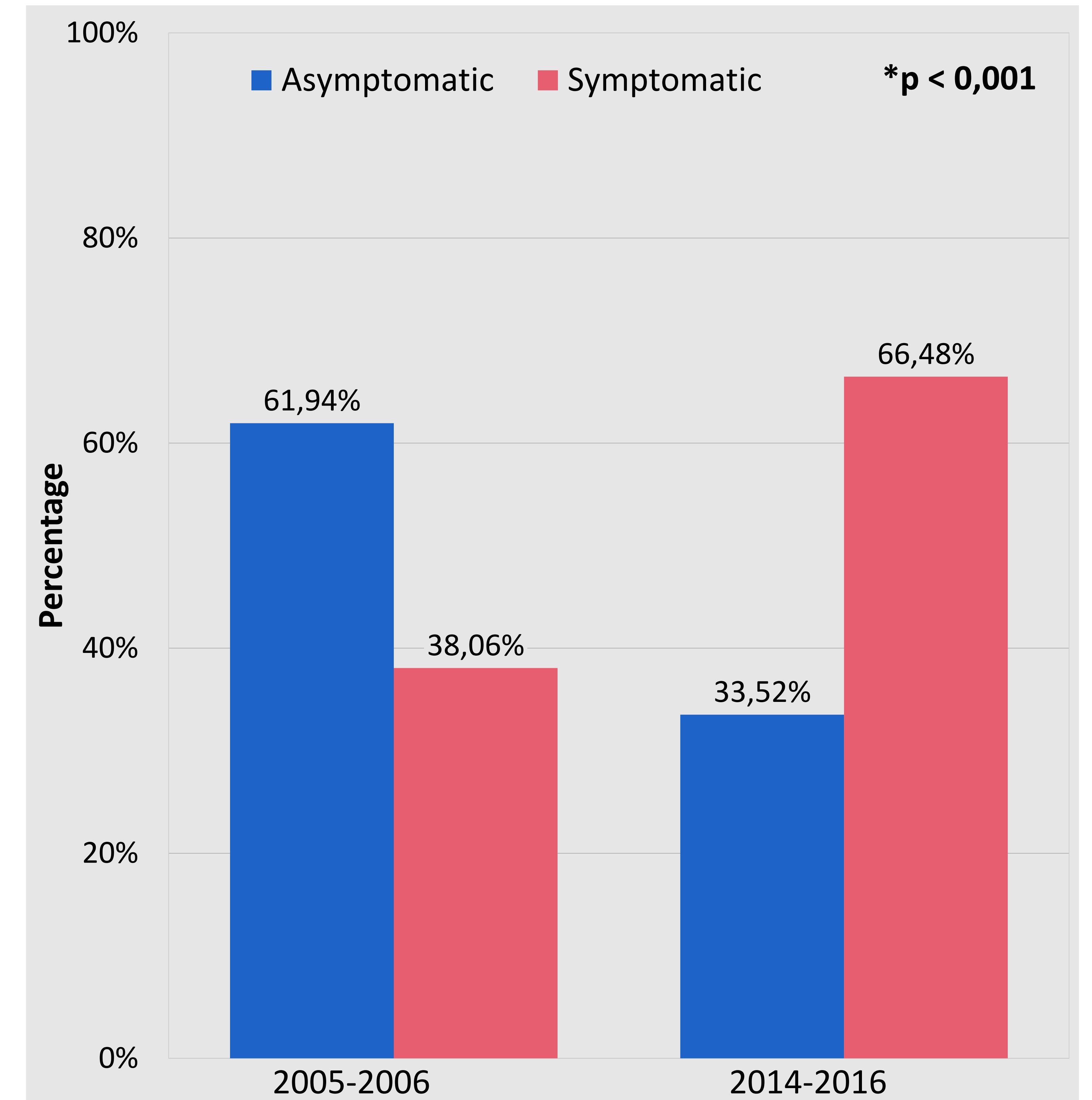


Fig. 2



Conclusion

Since the publication of the international guidelines, patients with symptomatic carotid artery stenosis were preferably surgically treated within two weeks at an academic institution. The number of treated asymptomatic carotid stenoses was drastically reduced.