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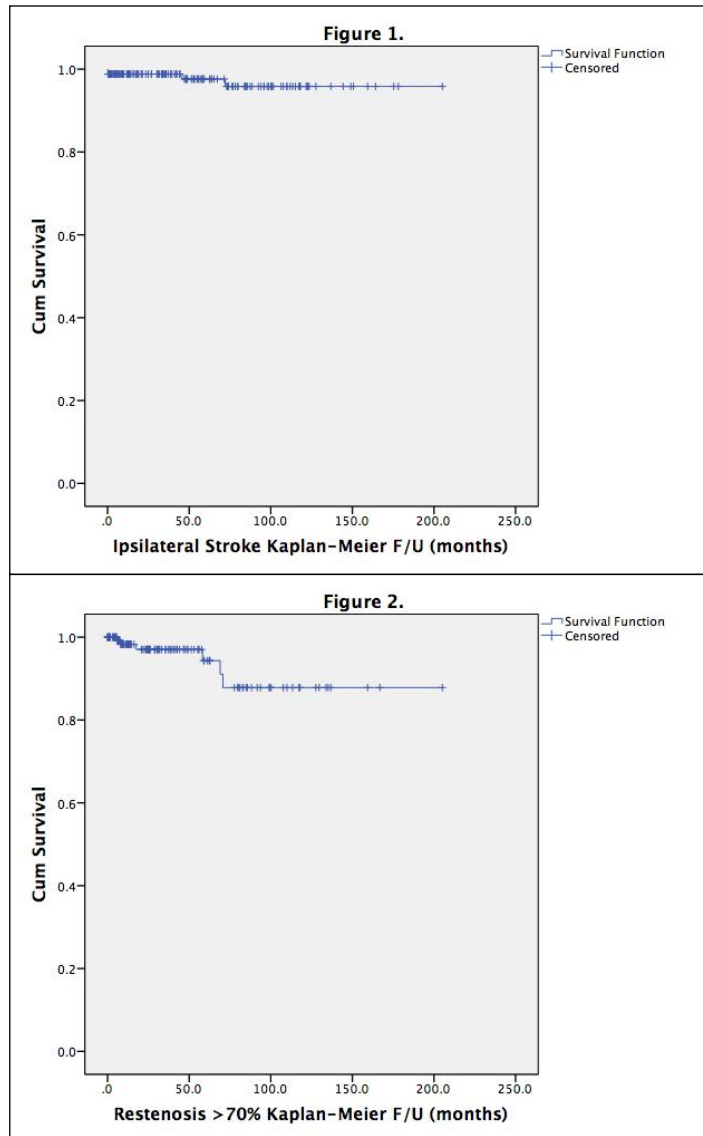
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Although multiple series have been published reporting on the outcomes of carotid endarterectomy (CEA) with primary closure, long-term outcome data are generally lacking. Given that carotid artery stenting (CAS) has been an increasingly utilized modality for carotid revascularization, evaluation of long-term outcomes (>15 years) with CEA can provide an updated outcome standard against which CAS should be compared.

We reviewed a single neurosurgeon's experience with carotid endarterectomy focusing on long term outcomes. All procedures were performed with primary closure of the arteriotomy. All patients were treated at two institutions (Brigham and Women's Hospital, Boston MA, and University of Pittsburgh Presbyterian Hospital, Pittsburgh PA.)

We studied 169 CEAs, performed from 1998 to 2016 (80% for symptomatic disease). Two patients (1.1%) experienced immediate post-operative strokes. During an average clinical follow-up of 55 months (74 months for patients treated in Boston and 22 months for patients treated in Pittsburgh), two more patients experienced strokes corresponding to their ipsilateral carotid circulation (1.1%) and five (2.9%) experienced ipsilateral transient ischemic attacks (TIA's). Five patients (2.9%) experienced contralateral TIA's, and six (3.6%) contralateral strokes. There were also three (1.7%) hemorrhagic strokes and six (3.6%) vertebrobasilar circulation strokes. Notably the Kaplan-Meier ipsilateral stroke-free survival rates at 5, 10 and 15 years were 98%, 96% and 96% respectively (Figure 1). Overall, 6 patients (3.5%) experienced restenosis >70%. The Kaplan-Meier restenosis-free rates are shown in Figure 2. Notably, all restenoses occurred before 5 years. Two patients underwent carotid artery stenting after their CEA because of restenosis. At their last follow-up, most patients were maintained on an antiplatelet medication (94%) and/or a statin (84%).



Carotid endarterectomy provides durable protection from recurrent stroke in the ipsilateral carotid distribution that extends beyond 15 years. Therefore, this procedure should be considered the gold-standard against which other revascularization modalities should be evaluated. Furthermore, this series demonstrates the durability of primary closure of the arteriotomy

By the conclusion of this session participants should be able to describe the long term outcomes associated with carotid endarterectomy

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