

# Regarding an Apparently High Stroke Rate in Patients With Medically Managed Asymptomatic Carotid Stenosis at an Academic Center in the Southeastern United States

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	Journal Pre-proof
1	<b>Revised Manuscript, CLEAN</b>
2	31st July 2022
3	Cover Letter
4	
5	Letter to the Editor of Annals of Vascular Surgery
6	Anne L. Abbott, Oliseneku D. Uyagu, Guillaume Goudot, Hrvoje Budincevic and Stavros
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9	Regarding an Apparently High Stroke Rate in Patients With Medically Managed
10	Asymptomatic Carotid Stenosis at an Academic Center in the Southeastern United States
11	S. Weiner, M. H. Benton, B. Guraziu, Y. Yange, J. He, Y. T. Chen, et al.
12	
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86	Text
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88	We respectfully disagree with Weiner et al and advise that it is premature to give up on current best
89	non-invasive medical intervention (lifestyle coaching and medication) alone for patients with
90	asymptomatic carotid stenosis (ACS).(1) Weiner et al reported an average annual ipsilateral 'stroke'
91	rate of 2.9% (10 ipsilateral strokes, in 173 patients with >70% stenosis over 2 years). This is just a
92	little more than for non-surgically managed patients in the Asymptomatic Carotid Atherosclerosis
93	Study (2.3%/year in patients with 60-99% ACS) and significantly more than in the most recently
94	published quality studies of non-invasively managed patients with $\geq$ 50-75% ACS (approximately
95	0.8%/year).(2-4)
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97	When study results are different, almost certainly the methods are different. In contrast to the
98	quality studies included in previous meta-analyses showing falling stroke rates in non-invasively
99	managed ACS patients(3, 4), the single-centre study by Weiner et al:
100	* Was retrospective
101	* Was without a definition of stroke and transient ischaemic attack (TIA). Including patients with a
102	deficit lasting <24 hours as 'stroke patients' artificially elevates stroke rates.(4)

#### Journal Pre-proof

\* Lacked explanation as to whether or not only the first ipsilateral stroke or TIA was included in the
analyses. Continuing to monitor patents for stroke after a TIA artificially elevates stroke rates.(5)
\* Lacked explanation as to whether or not carotid endarterectomy associated strokes were included
in their analysis of outcomes with non-invasive intervention alone.

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Moreover, the study was not designed to assess current best medical intervention. For example, it 108 was a study of clinician recommendations about medications, not of what medications were 109 taken. Furthermore, Weiner et al gave an overly simplified definition of 'optimal' non-procedural 110 medical management, including by not addressing all leading arterial disease risk factors, not 111 considering the importance of lifestyle factors, not providing current and reproducible definitions of 112 risk factors and medical interventions (including evidence-backed intervention targets) and not 113 providing information about any changes in patient risk factor profiles and non-invasive 114 interventions over the 2 years.(5) 115

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In conclusion, the quality of medical intervention being received by the ACS patients at the 117 academic center in the south-eastern United States is incompletely documented. However, where it 118 is documented, the standard is poor. Rather than default to more carotid procedures, we recommend 119 that the authors are invigorated to optimise medical intervention at their institution. After all, there 120 is current evidence of significant patient benefit from non-invasive medical intervention.(3-5) 121 Further, there is no current randomised trial evidence that any carotid artery procedure provides 122 patient benefit compared to non-invasive medical intervention alone and there is known procedural 123 risk and cost. 124

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### 126 **References**

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