

内膜斑块剥脱术与支架置入术治疗颈动脉狭窄的 Meta 分析

张鹏飞 赵立文 汪子文 唐 铸 赵文可 何一川 杨俊丽 于耀宇

【摘要】目的 探讨颈动脉内膜斑块剥脱术(CEA)与颈动脉支架置入术(CAS)治疗颈动脉狭窄的疗效。方法 计算机检索 Pubmed、Embase 数据库,收集 CEA 与 CAS 治疗颈动脉狭窄的随机对照研究,应用 Stata 软件进行统计分析。结果 共纳入 12 项研究,共 7 401 例患者。Meta 分析结果显示:术后 30 d,CAS 组卒中和死亡联合事件发生率(OR=1.51,95% CI 为 1.23~1.84; $P<0.001$ )、任意卒中事件发生率(OR=1.47,95% CI 为 1.18~1.83; $P<0.001$ )均明显高于 CEA 组;而心肌梗死发生率(OR=0.46,95% CI 为 0.28~0.75; $P=0.002$ )、颅神经损伤发生率(OR=0.08,95% CI 为 0.04~0.14; $P<0.001$ )均明显低于 CEA 组。两组致残性卒中和死亡联合事件发生率(OR=1.28,95% CI 为 0.93~1.77; $P=0.13$ )、病死率(OR=1.52,95% CI 为 0.96~2.41; $P=0.07$ )、致残性卒中发生率(OR=1.16,95% CI 为 0.79~1.71; $P=0.46$ )无明显差异。结论 CAS 治疗颈动脉狭窄短期安全性和有效性与 CEA 类似。

【关键词】颈动脉狭窄;内膜剥脱术;支架置入术;Meta 分析

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Endarterectomy versus stenting for carotid artery stenosis: a meta-analysis of randomized controlled clinical trials

ZHANG Peng-fei<sup>1,2</sup>, ZHAO Li-wen<sup>1,2</sup>, WANG Zi-wen<sup>1</sup>, TANG Zhu<sup>1</sup>, ZHAO Wen-ke<sup>1</sup>, HE Yi-chuan<sup>1</sup>, YANG Jun-li<sup>1</sup>, YU Yao-yu<sup>1</sup>. 1. Department of Neurosurgery, The Affiliated Hospital, Logistics College, People's Armed Police Force, Tianjin 300162, China; 2. Graduate school, Jinzhou Medical University, Jinzhou 121000, China

【Abstract】Objective To evaluate the efficacy of carotid artery stenting (CAS) and carotid enadrtectomy (CEA) for carotid stenoses. Method The randomized clinical trials of CAS versus CEA for carotid stenoses were searched from the databases including Medline and Embase. The meta-analysis of the searched data was performed by Stata software. Results A total of 12 trials involving 7 401 patients were finally included. Meta-analysis showed that the occurent rates of stroke (OR=1.47, 95% CI 1.18 to 1.83,  $P<0.001$ ) and stroke and death (OR=1.51, 95% CI 1.23 to 1.84,  $P<0.001$ ) 30 days after the treatment were significantly higher in CAS group than those in CEA group. The occurent rates of myocardial infarctions (OR 0.46, 95% CI 0.28 to 0.75,  $P=0.002$ ) and cranial nerve injury (OR=0.08, 95% CI 0.04 to 0.14,  $P<0.001$ ) were significantly lower in CAS group than those in CEA group. There were no significant differences in the rate of death (OR=1.52, 95% CI 0.96 to 2.41,  $P=0.07$ ), disabling stroke (OR=1.16, 95% CI 0.79 to 1.71,  $P=0.46$ ), disabling stroke or death (OR=1.28, 95% CI 0.93 to 1.77,  $P=0.13$ ) between both the groups. Conclusion The safety of CAS and its short-term effect on carotid stenosis are similar to CEA.

【Key words】Carotid stenosis; Endarterectomy; Carotid stenting; Meta-analysis

10%~15%缺血性卒中归因于颅外段颈动脉的狭窄<sup>[1]</sup>,颈动脉内膜斑块剥脱术(carotid endarterectomy,CEA)和颈动脉支架置入术(carotid artery stenting,CAS)是治疗颈动脉狭窄两种外科方式,均可降低脑卒中风险<sup>[2]</sup>。但是,如何选择存在争议。本研究通过 Meta 分析比较 CEA 与 CAS 治疗颈动脉狭窄的短期有效性和安全性。

1 材料与方法

- 1.1 检索策略 计算机检索 Pubmed、Embase 数据库,搜索 2000~2015 年关于 CEA 与 CAS 治疗颈动脉狭窄的随机对照研究,以 carotid stenosis,endarterectomy, endovascular, stenting 为检索关键词。
- 1.2 纳入及排除标准 纳入标准:①研究对象为颈动脉狭窄患者;②关于 CEA 与 CAS 的前瞻性随机对照研究;③研究的主要终点包括卒中或死亡联合事件、卒中、死亡发生率。排除标准:①非随机对照研究;②数据不全的文献。
- 1.3 统计学方法 采用 stata 12.0 统计学软件,以比值比(odds ratio, OR)及其 95% 可信区间(confidential

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作者单位:300162 天津,武警后勤学院附属医院神经外科(张鹏飞、赵立文、汪子文、唐 铸、赵文可、何一川、杨俊丽、于耀宇) 300162 辽宁锦州;锦州医科大学研究生院(张鹏飞、赵立文)  
通讯作者:于耀宇,E-mail:yyuyaoyu666@aliyun.com

interval, CI)为效应分析统计量,并对结果进行异质性检验,采用固定效应模型或随机效应模型进行合并, $P<0.05$ 为有统计学差异。

2 结果

2.1 纳入文献的基本特征 纳入文献共12篇<sup>[3-14]</sup>,累计纳入7 401例患者,其中6篇为多中心、前瞻性随机对照研究,6篇为单中心、前瞻性随机对照研究,纳入文献的资料特征详见表1。异质性检验显示同质性好,故使用固定效应模型合并。

2.2 Meta分析结果

2.2.1 卒中、死亡 共10项研究比较了任意卒中发生率,CAS组任意卒中发生率明显高于CEA组(OR=

1.47,95% CI为1.18~1.83; $P<0.001$ ,图1)。4项研究比较了致残性卒中发生率,两组无明显差异(OR=1.16,95% CI为0.79~1.71; $P=0.46$ ,图1)。共11项研究比较了病死率,两组无明显差异(OR=1.52,95% CI为0.96~2.41; $P=0.07$ ,图1)。

2.2.2 死亡和卒中联合事件 CAS组卒中和死亡联合事件发生率明显高于CEA组(OR=1.51,95% CI为1.23~1.84; $P<0.001$ ,图1);但两组致残性卒中和死亡联合事件发生率无明显差异(OR=1.28,95% CI为0.93~1.77; $P=0.13$ ,图1)。

2.2.3 心肌梗死、颅神经损伤 CAS组心肌梗死发生率(OR=0.46,95%CI为0.28~0.75; $P=0.002$ ,图1)、颅神经损伤发生率(OR=0.08,95%CI为0.04~0.14; $P<$

表1 纳入的12项研究的基本特征

研究	发表年份	类型	纳入患者数量(例)			脑保护装置	平均年龄(岁)	
			CAS	CEA	症状性/非症状性		CAS	CEA
文献[3]	2008	单中心	10	10	20/0	100%	69	71
文献[4]	2001	多中心	253	251	488/16	0	67	67
文献[5]	2010	多中心	1240	1246	1321/1181	96.1%	68.9	69.2
文献[6]	2006	多中心	262	265	527/0	92%	69.1	70.2
文献[7]	2010	多中心	857	853	1710/0	72%	70	70
文献[8]	2001	单中心	51	53	104/0	0	66.4	69.6
文献[9]	2004	单中心	42	43	0/85	0	66.6	69.9
文献[10]	2004	多中心	167	167	96/238	95.6%	72.5	72.6
文献[11]	2006	多中心	589	607	1196/0	27%	67.2	68.2
文献[12]	2008	单中心	44	43	87/0	0	67.9	68.4
文献[13]	2006	多中心	84	82			63	63
文献[14]	2001	单中心	112	107	219/0	0	67	70

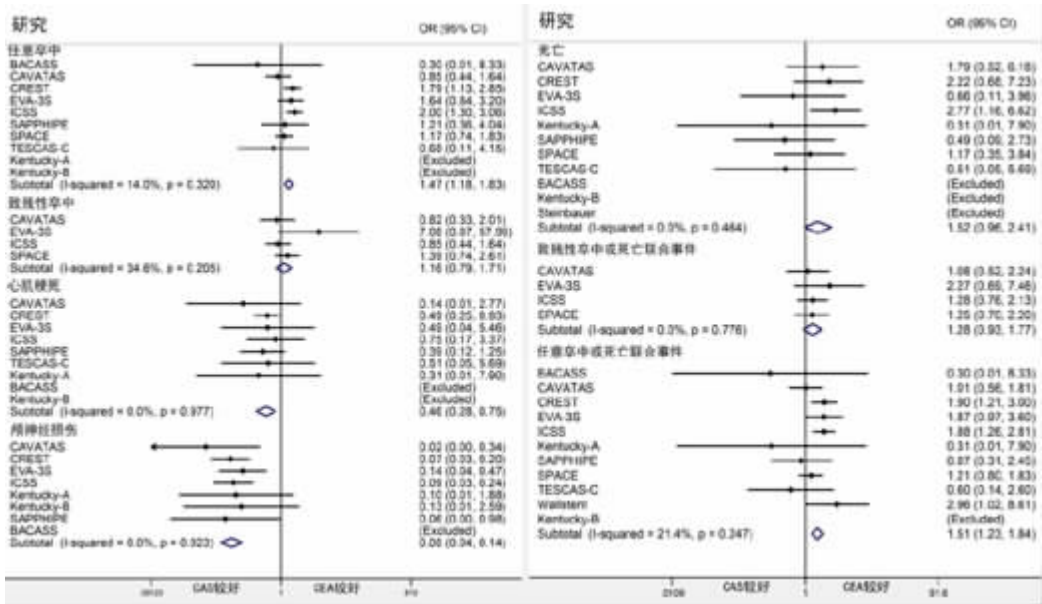


图1 术后30 d颈动脉内膜斑块剥脱术和颈动脉支架置入术治疗颈内动脉狭窄主要不良事件的Meta分析

0.001,图 1)均明显低于 CEA 组。

3 讨论

颈动脉狭窄是缺血性脑卒中最常见的原因,主要有药物、CAS 及 CEA 三种治疗方案。有外科治疗指征的颈动脉狭窄,采取 CAS 还是 CEA 存在争议。

本文 Meta 分析纳入文献全部为前瞻性随机对照研究,质量较高;Meta 分析结果显示,CAS 组除颅神经损伤、心肌梗死发生率低的优势外,在严重不良事件上(死亡、致残性卒中),CAS 的短期安全性和有效性并不劣于 CEA。虽然 CAS 卒中发生率高于 CEA,主要是非致残性卒中占很大比例,通过脑保护装置的有效使用,可以更好地避免术后小血栓形成,从而降低 CAS 非致残性卒中的发生率<sup>[15]</sup>。

本研究存在一定的局限性,部分纳入文献采用脑保护装置,未进行更深入的亚组分析;对 CAS 与 CEA 的远期效果未进行更系统的评价;纳入研究的抗血小板药物使用也未统一,是否对 CAS 的安全性有影响仍有待观察;部分研究存在样本量较小,介入术者熟练程度不同,纳入患者的标准未统一,均对评价结果产生一定影响,从而影响结果及其论证强度。

总之,两种治疗方法各具优势,孰优孰劣,关键在于临床医生对颈动脉狭窄患者的临床症状、年龄和伴随疾病以及术后并发症等诸多因素的把握,从而选择最佳治疗方案。

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