卒中的一级预防

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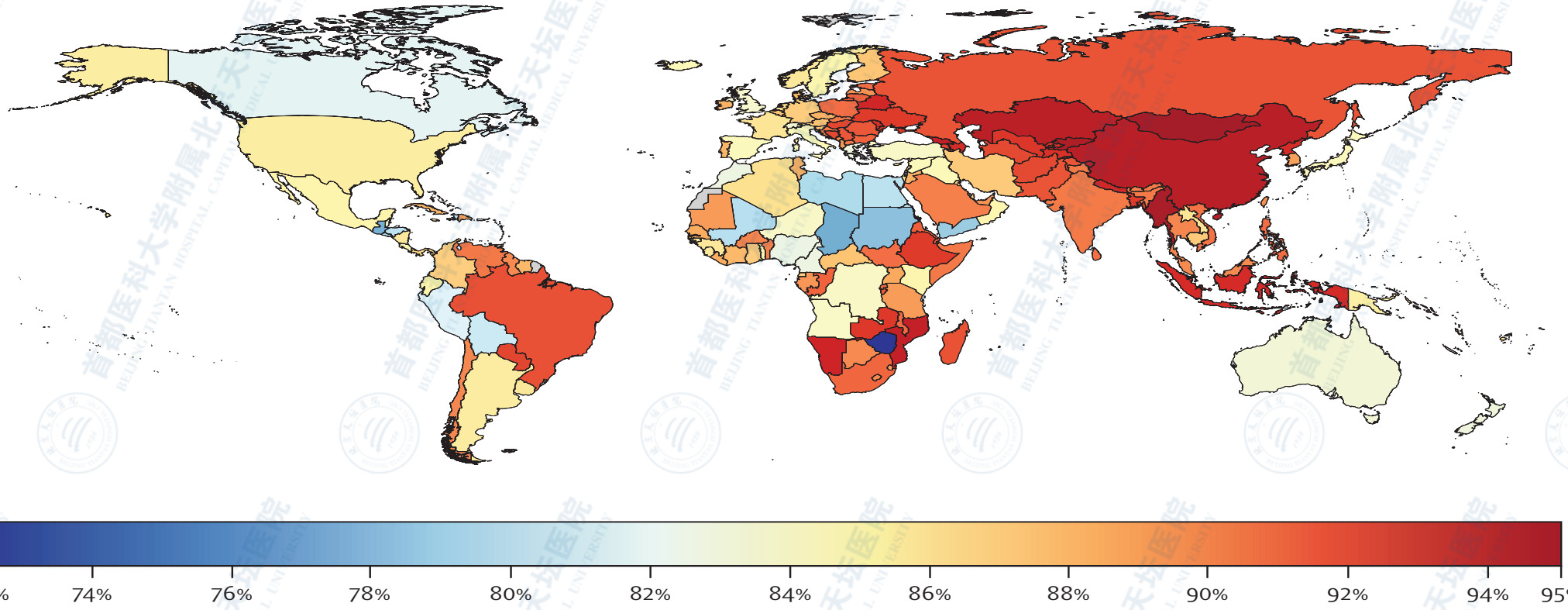
脑血管病一级预防

1. 脑血管病是可预防性的疾病
2. 预防脑血管病的主要策略
3. 成长的烦恼：更加依赖影像学技术

可控危险因素对卒中DALYs的贡献



Lancet Neurol 2016; 15: 913–24

188个国家卒中及其危险因素分析

Global burden of stroke and risk factors in 188 countries, during 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013

*Valery L Feigin, Gregory A Roth, Mohsen Naghavi, Priya Parmar, Rita Krishnamurthi, Sumeet Chugh, George A Mensah, Bo Norrving, Ivy Shiue, Marie Ng, Kara Estep, Kelly Cercy, Christopher J L Murray, Mohammad H Forouzanfar, for the Global Burden of Diseases, Injuries, and Risk Factors Study 2013 and Stroke Experts Writing Group**

Summary

Background The contribution of modifiable risk factors to the increasing global and regional burden of stroke is unclear, but knowledge about this contribution is crucial for informing stroke prevention strategies. We used data from the Global Burden of Disease Study 2013 (GBD 2013) to estimate the population-attributable fraction (PAF) of stroke-related disability-adjusted life-years (DALYs) associated with potentially modifiable environmental, occupational, behavioural, physiological, and metabolic risk factors in different age and sex groups worldwide and in high-income countries and low-income and middle-income countries, from 1990 to 2013.

Methods We used data on stroke-related DALYs, risk factors, and PAF from the GBD 2013 Study to estimate the burden of stroke by age and sex (with corresponding 95% uncertainty intervals [UI]) in 188 countries, as measured with stroke-related DALYs in 1990 and 2013. We evaluated attributable DALYs for 17 risk factors (air pollution and environmental, dietary, physical activity, tobacco smoke, and physiological) and six clusters of risk factors by use of three inputs: risk factor exposure, relative risks, and the theoretical minimum risk exposure level. For most risk factors, we synthesised data for exposure with a Bayesian meta-regression method (DisMod-MR) or spatial-temporal Gaussian process regression. We based relative risks on meta-regressions of published cohort and intervention studies. Attributable burden for clusters of risks and all risks combined took into account evidence on the mediation of some risks, such as high body-mass index (BMI), through other risks, such as high systolic blood pressure (SBP) and high total cholesterol.

Findings Globally, 90·5% (95% UI 88·5–92·2) of the stroke burden (as measured in DALYs) was attributable to the modifiable risk factors analysed, including 74·2% (95% UI 70·7–76·7) due to behavioural factors (smoking, poor diet, and low physical activity). Clusters of metabolic factors (high SBP, high BMI, high fasting plasma glucose, high total cholesterol, and low glomerular filtration rate; 72·4%, 95% UI 70·2–73·5) and environmental factors (air pollution and lead exposure; 33·4%, 95% UI 32·4–34·3) were the second and third largest contributors to DALYs. Globally, 29·2% (95% UI 28·2–29·6) of the burden of stroke was attributed to air pollution. Although globally there

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See Comment page 892

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危险因素排行榜

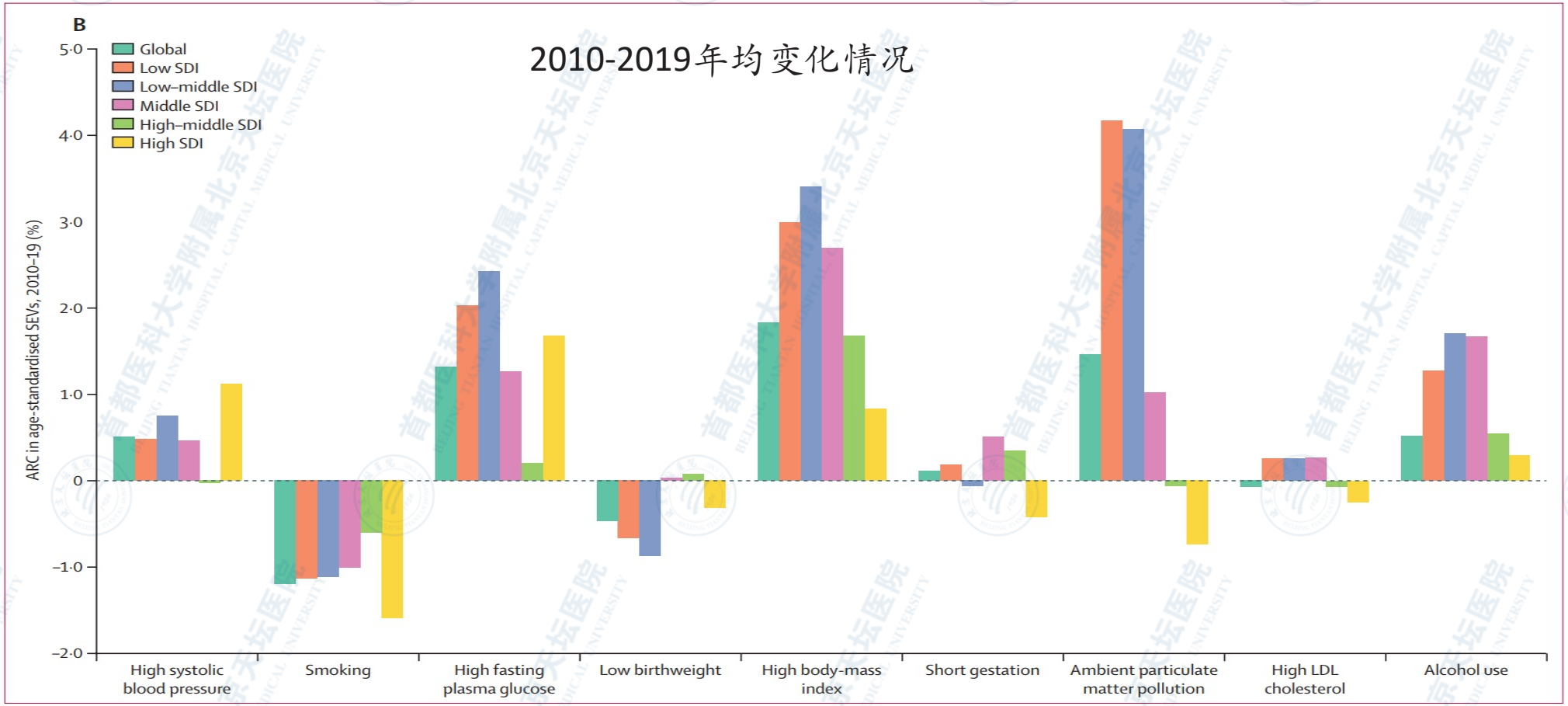
全球五大危险因素：高血压、低水果摄入、高体重指数、高盐、吸烟
东亚五大危险因素：高血压、低水果摄入、高盐、吸烟、可吸入颗粒（2.5um)污染

Rank
1–5　11–15
6–10　>15

危险因素	全球	高收入亚太国家	西欧	澳大利亚	高收入北美地区	中欧	南拉丁美洲	东欧	东亚	拉美热带地区	中美洲	东南亚	中亚	安迪斯山脉拉丁美洲	北非和中东	加勒比地区	南亚	大洋洲	撒哈拉以南非洲南部	撒哈拉以南非洲东部	撒哈拉以南非洲中部	撒哈拉以南非洲西部
高血压	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
低水果摄入	2	2	4	4	3	4	4	3	2	3	4	2	2	3	3	3	2	3	2	2	2	2
高体重指数	3	6	2	2	2	2	2	2	6	2	2	6	3	2	2	2	8	2	3	5	5	4
高盐	4	3	6	10	6	3	8	6	3	4	8	8	4	7	4	12	5	13	7	9	11	8
吸烟	5	4	5	5	5	6	5	5	4	6	6	4	6	6	8	5	7	5	5	8	10	12
低蔬菜摄入	6	5	3	3	4	5	3	4	11	5	3	3	5	4	5	4	4	4	4	4	4	5
可吸入颗粒（2.5um)污染	7	8	11	14	12	8	12	10	5	9	9	9	8	9	6	11	6	15	11	12	6	6
固体燃料产生的家用空气污染	8	..	..	..	..	..	15	..	7	14	12	5	12	11	14	7	3	6	8	3	3	3
饮食低全谷物	9	7	9	8	9	7	6	7	8	7	5	7	7	5	7	6	10	7	10	10	7	9
高空腹葡萄糖	10	10	10	9	7	11	7	9	9	8	7	10	9	10	9	10	9	8	9	11	8	11
低体力活动	11	9	8	6	8	10	11	11	13	11	13	11	13	12	10	8	12	9	13	14	12	10
低肾小球滤过率	12	12	7	7	13	9	10	12	14	10	10	14	10	8	11	9	11	12	6	7	9	7
饮酒	13	11	12	11	10	12	9	8	12	12	11	15	11	14	16	15	15	11	12	13	14	14
铅暴露	14	14	14	13	15	14	16	15	10	15	16	12	14	15	13	13	13	14	14	6	13	13
高总胆固醇	15	13	13	12	11	13	13	13	16	13	14	13	15	13	12	14	14	10	15	15	15	15
二手烟	16	15	15	15	16	15	14	14	15	16	17	16	16	17	15	17	16	16	16	16	16	16
饮食高含糖饮料	17	16	16	16	14	16	17	16	17	17	15	17	17	16	17	16	17	17	17	17	17	17

Lancet Neurol 2016; 15: 913–24

危险因素的变化



Lancet 2020; 396: 1204–22

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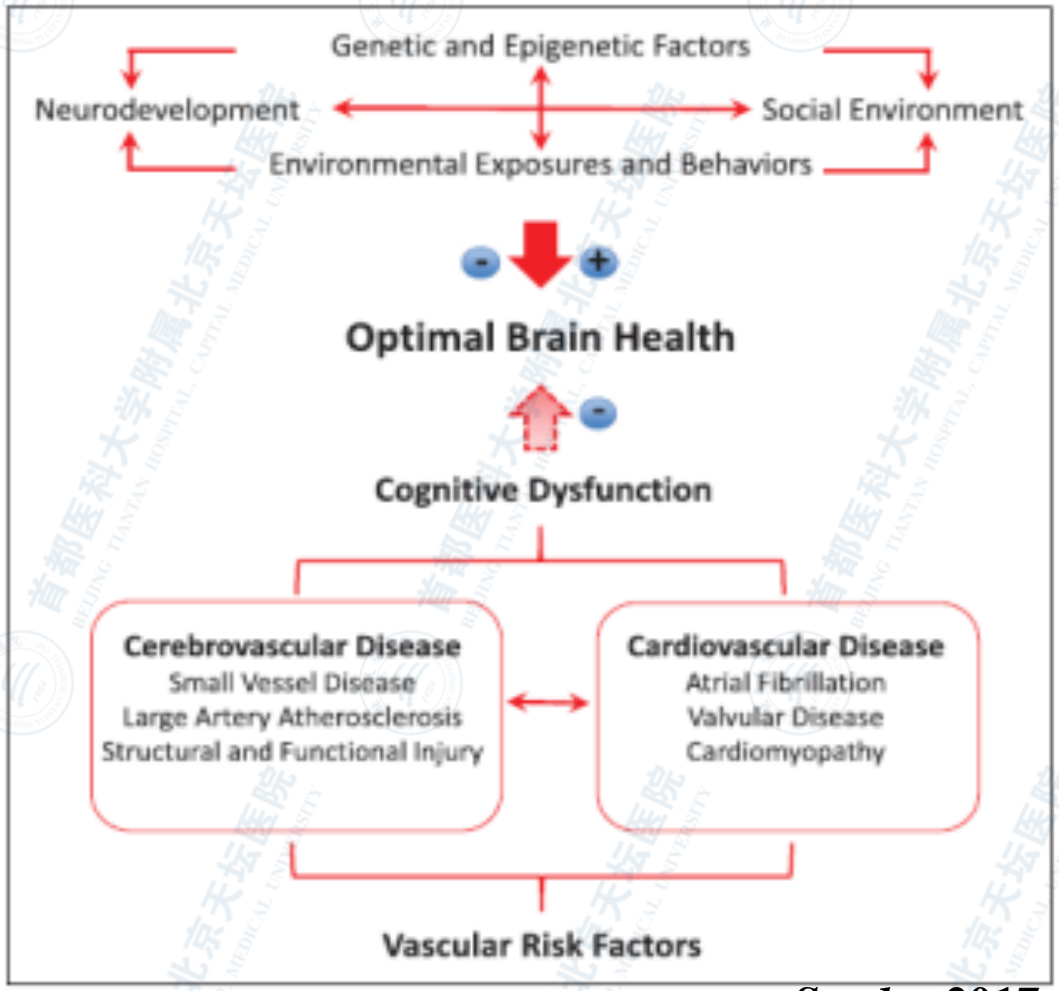
理想脑健康的影响因素



Stroke. 2017;48:e284-e303.

理想脑健康的定义

AHA/ASA Presidential Advisory

Defining Optimal Brain Health in Adults

A Presidential Advisory From the American Heart Association/ American Stroke Association

Philip B. Gorelick, MD, MPH, FAHA, Chair*; Karen L. Furie, MD, MPH, FAHA, Co-Chair†; Costantino Iadecola, MD, FAHA, Co-Chair†; Eric E. Smith, MD, MPH, FAHA‡; Salina P. Waddy, MD§; Donald M. Lloyd-Jones, MD, ScM, FAHA‖; Hee-Joon Bae, MD, PhD, FAHA; Mary Ann Bauman, MD; Martin Dichgans, MD; Pamela W. Duncan, PhD, PT, FAHA; Meighan Girgus; Virginia J. Howard, PhD, FAHA; Ronald M. Lazar, PhD, FAHA; Sudha Seshadri, MD, FAHA; Fernando D. Testai, MD, PhD, MS, FAHA; Stephen van Gaal, MD; Kristine Yaffe, MD, FAHA; Hank Wasiak, MBA; Charlotte Zerna, MD, MSc; on behalf of the American Heart Association/ American Stroke Association

定义：在任何阶段，执行能力达到相应年龄段人群中，没有已知的引起认知水平下降的脑和其他器官系统疾病的平均水平，或者个体能够实施想要承担的工作。

Stroke. 2017;48:e284-e303.

主要策略

体检

- 血压
- 血糖
- 血脂

生活方式

- 饮食
- 体力活动
- 肥胖
- 烟草使用

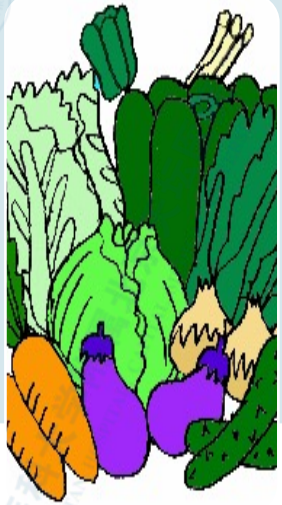
理想脑健康的7个指标

行为：
- 体重指数<25 kg/m^2
- 健康的饮食习惯
- 不吸烟
- 达到目标水平的体力活动

医疗监测：
- 血压未进行治疗时<120/80mmHg
- 总胆固醇未治疗时 <200mg/dL
- 快速血糖<100mg/dL

Stroke. 2017;48:e284-e303.

健康的饮食习惯



蔬菜：200克；

水果：200克

坚果：10克；

橄榄油：25克

巧克力：50克

咖啡和茶：3杯

酒：不饮酒。或男性<25克，女性<15克

降低脑血管病的风险

蔬菜、水果

橄榄油，坚果

巧克力、咖啡、茶

鸡蛋、奶制品

土豆、豆类食品

深加工谷物

含糖饮料

未加工的红肉

深加工肉

盐/钠

增加脑血管病的风险

STROKE, 2017 Oct;48:2905-2911,

运动和体力活动

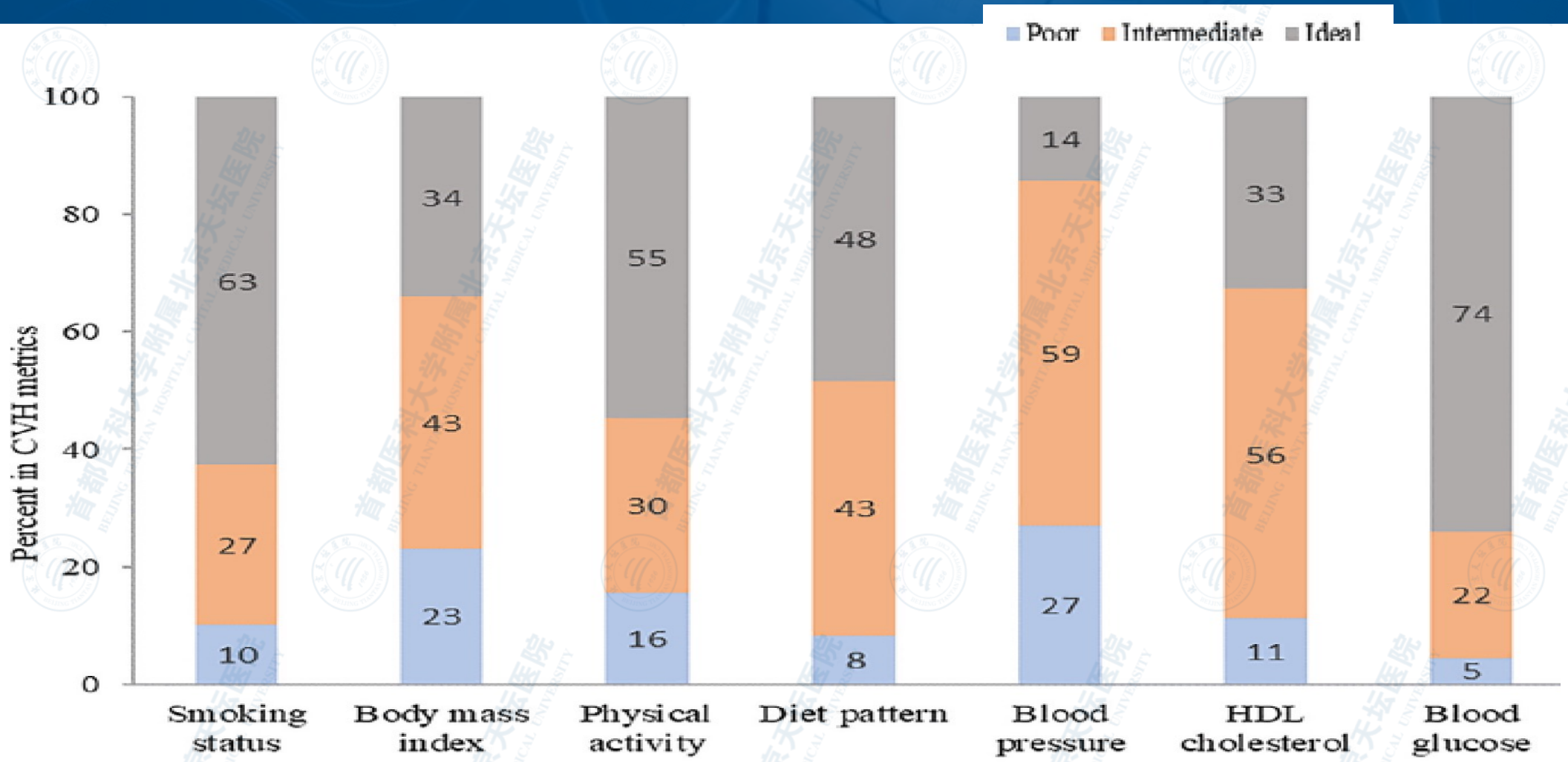
- 中等强度运动（快走、骑车、休闲游泳等）：150分钟
- 剧烈有氧运动（跑步、快速骑车，泳道游泳）：75分钟

7个指标评分

参数	低级水平	中级水平	理想水平
行为学			
吸烟	仍吸烟	戒烟 < 5 月	不吸烟或者戒烟≥ 5 月
体力活动	没有适度或剧烈的体力活动	中等强度活动1-149 分钟/周，或者高强度活动1-74分钟/周，或者中度和高强度活动1-149分钟/周	中度强度活动≥150分钟/周或高强度活动≥75分钟/周或中等和高等强度活动≥150分钟/周
饮食	每天<1份新鲜水果、生蔬菜、熟水果/蔬菜和每周<2份鱼	新鲜水果、生蔬菜、熟水果/蔬菜每天≥1份和鱼每周≥2份	每种类新鲜水果、生蔬菜、熟水果/蔬菜每天≥1份和鱼每周≥2份
体重指数（BMI）	≥ 30 kg/m^2	25-29.9 kg/m^2	BMI < 25 kg/m^2
生物学			
血脂	HDL-C < 40 mg/dL	治疗后HDL-C ≥60 或者40-60 mg/dL	未经治疗HDL-C ≥60 mg/dL
血压	收缩压 ≥140 mm Hg 或者舒张压 ≥90 mm Hg	治疗后收缩压<120 mm Hg 和 舒张压 <80 mm Hg 或者收缩压 120-139 或舒张压80-89 mm Hg	未经治疗收缩压<120 mm Hg 和舒张压 <80 mm Hg
血糖	FPG ≥126 mg/dL 或者HbA1c ≥6.5	治疗后 FPG <100 mg/dL 或者 100-125 mg/dL 或经治疗后 HbA1c <5.7 或者 5.7-6.5	未经治疗FPG <100 mg/dL 或者 HbA1c <5.7 untreated

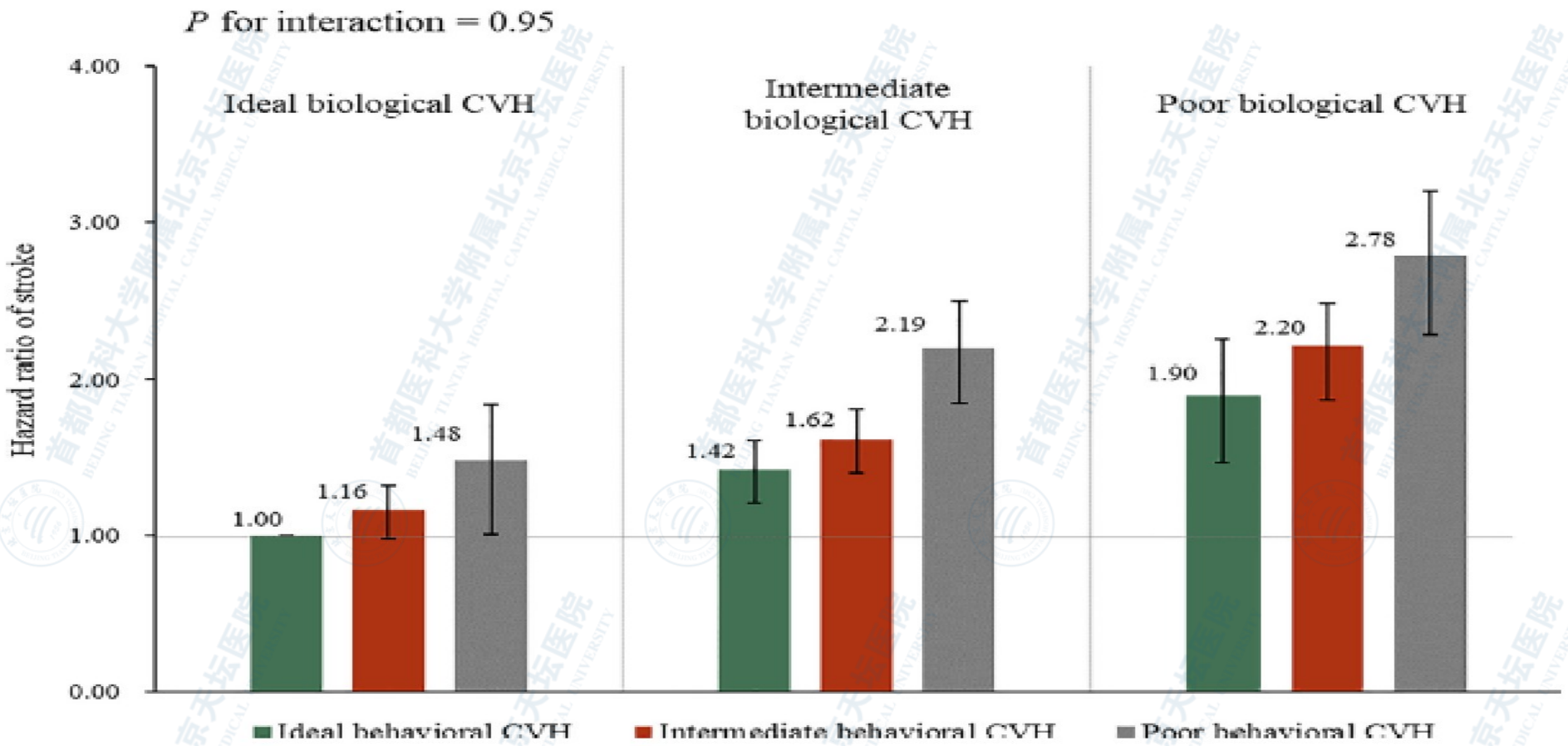
Mol Genet Genomic Med. 2019 Aug;7(8):e846

目前控制水平



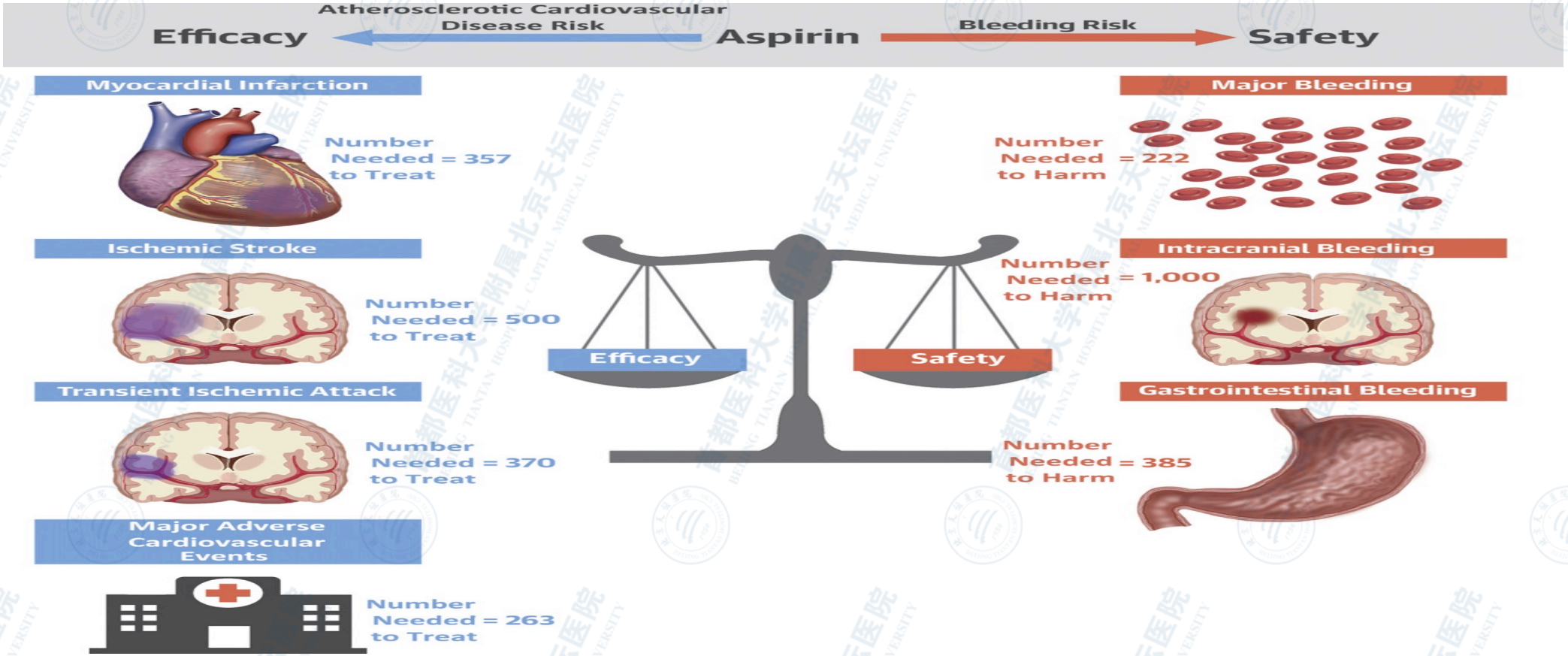
Mol Genet Genomic Med. 2019 Aug;7(8):e846

控制水平与卒中风险



Mol Genet Genomic Med. 2019 Aug;7(8):e846

抗血小板在一级预防中的作用



J Am Coll Cardiol. 2019 Jun 18;73(23):2915-2929

美国指南推荐(2019年3月）

Arnett et al.
2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease: Executive Summary

2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease: Executive Summary

A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines

Endorsed by the American Association of Cardiovascular and Pulmonary Rehabilitation, the American Geriatrics Society, the American Society of Preventive Cardiology, and the Preventive Cardiovascular Nurses Association

- 对于心脑血管事件风险较高且不具有出血高危因素的 40～70 岁患者，可以考虑应用小剂量阿司匹林（75～100mg/d）。（A级证据，IIb级推荐）
- 年龄＞70 岁的个体，不建议将阿司匹林用于心脑血管事件的一级预防。（B-R级证据，III级推荐）
- 伴有任何出血高危因素的个体均不宜将阿司匹林用于心脑血管事件的一级预防。（C-LD级证据，III级推荐）

脑血管病

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成长的烦恼

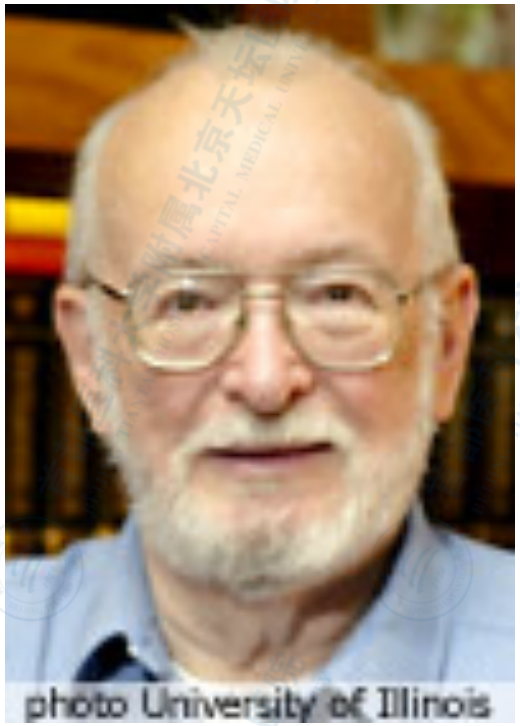
临床评估

结构影像

血管狭窄

斑块性质

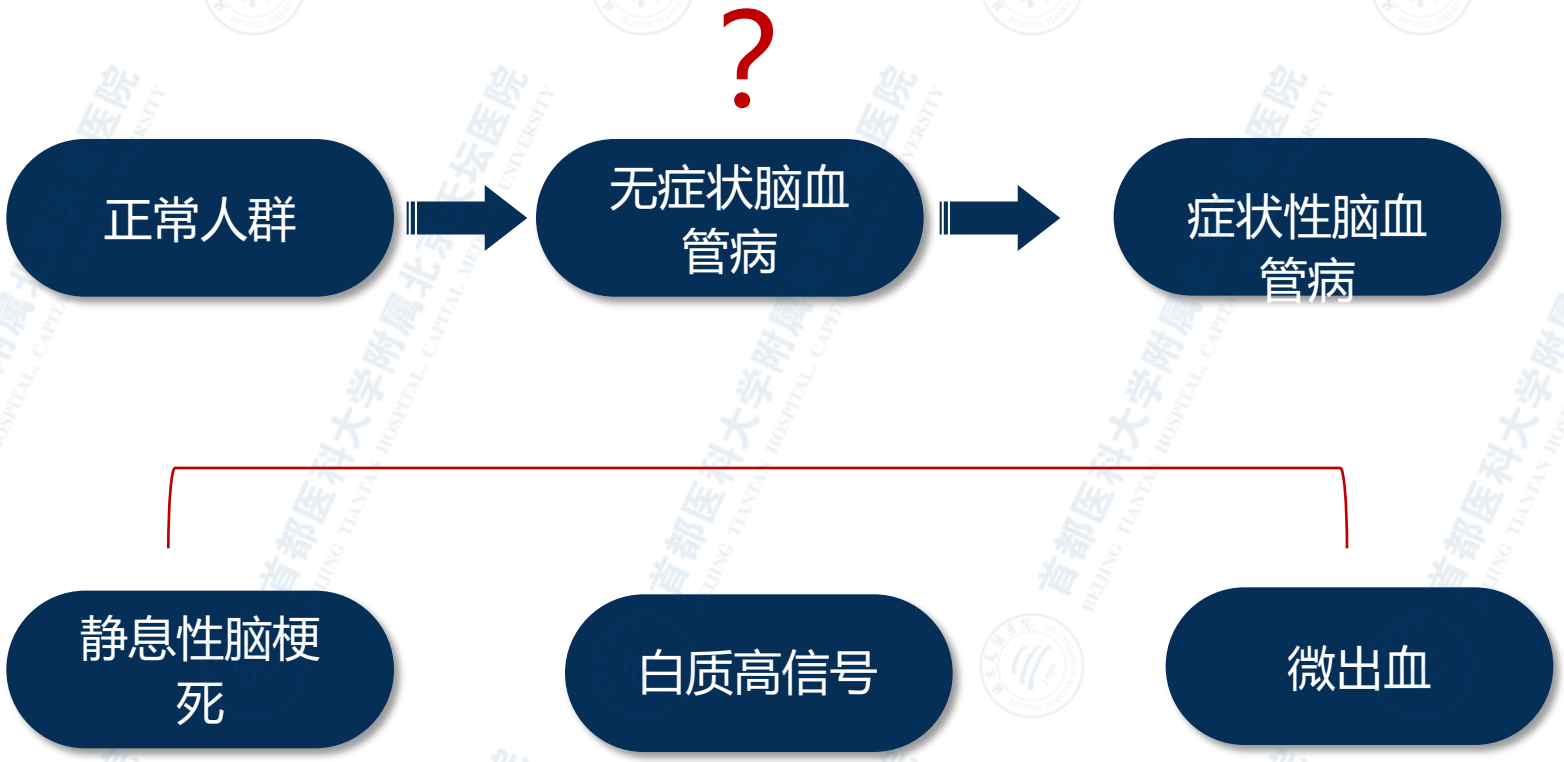
MRI ---- 2003



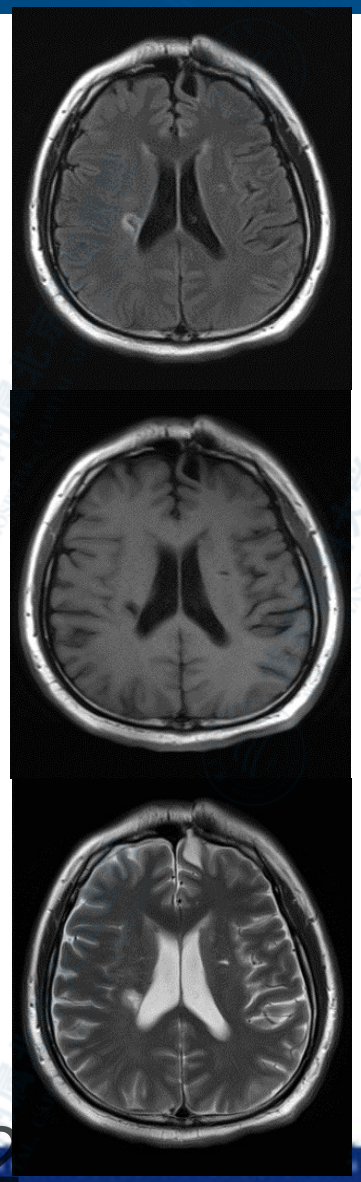
Paul C. Lauterbur

Sir Peter Mansfield

脑血管病



腔隙性脑梗死

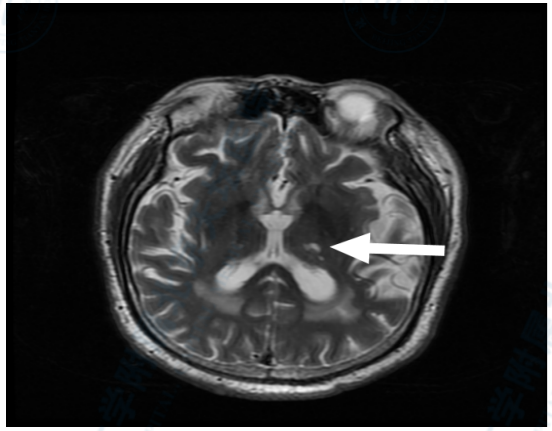


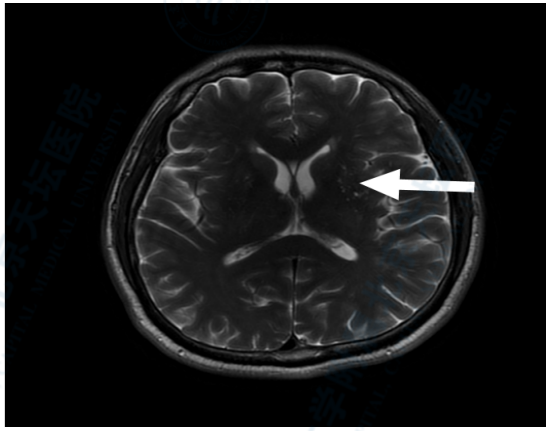
FLAIR像上病灶中心呈低信号，周围高信号；

T_1像上病灶呈低信号；

T_2像上病灶呈高信号。

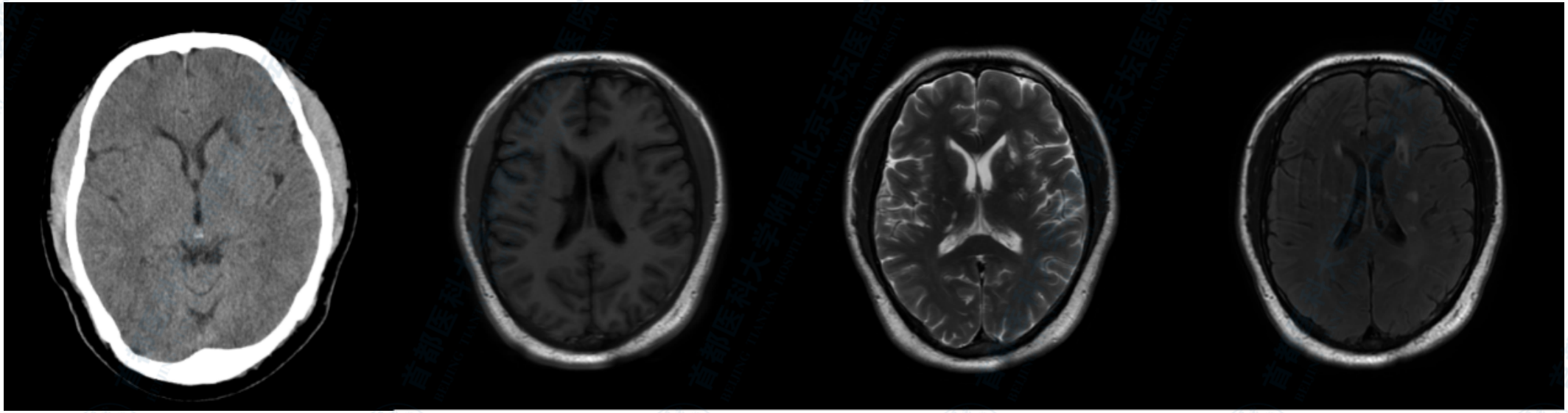
腔隙性梗死和血管周围间隙





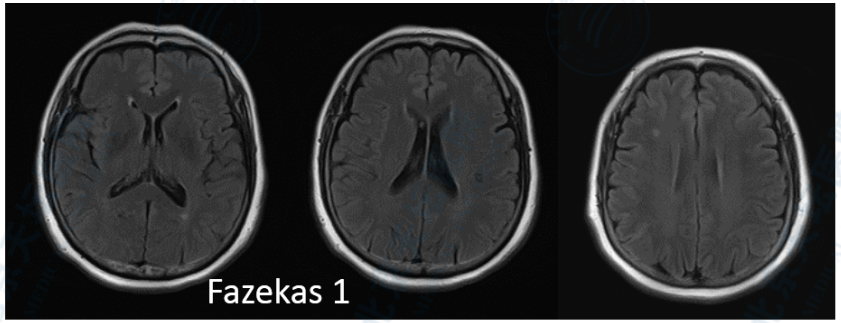
	静息性梗死	血管周围间隙
大小	多数≥3mm	＜3mm
部位	多数在皮质下，少部分在皮质内	通常在基底节和放射冠，很少在脑桥、延髓和小脑
形态	椭圆形或不规则形	线形或香肠型

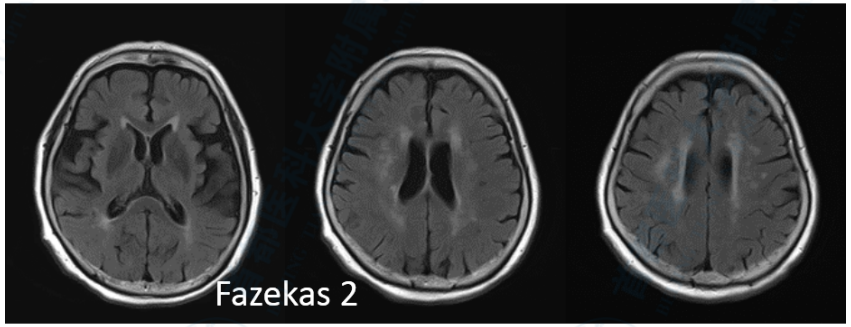
白质高信号

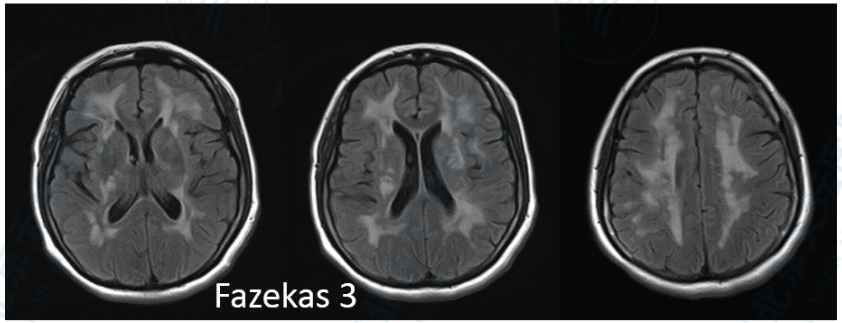


CT　　磁共振T_1　　T_2　　FLAIR

白质高信的分级



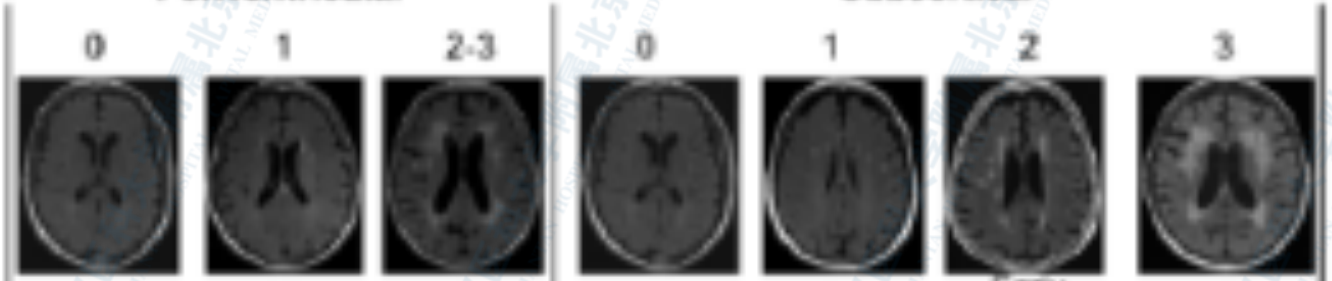




	脑室旁	深部白质
1分	帽状或者铅笔样薄层病变	点状病变
2分	病变呈光滑的晕圈	病变开始融合
3分	不规则的脑室旁高信号，延伸到深部白质	病变大面积融合

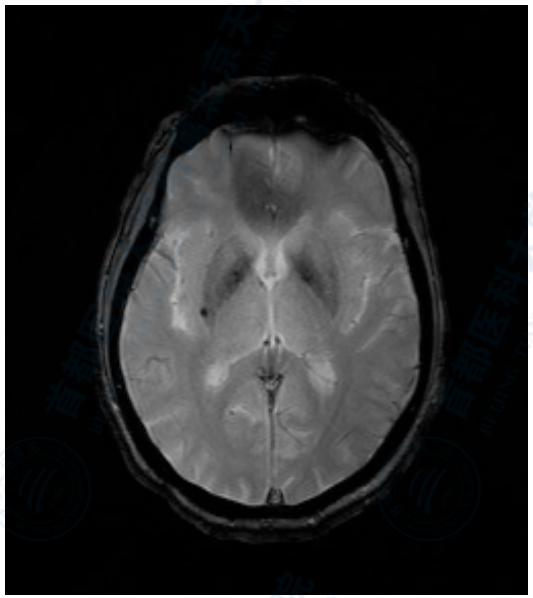
白质高信号在不同年龄人群中占比

MRI Fazekas White Matter Hyperintensity Scale Score



		Periventricular			Subcortical			
		0	1	2-3	0	1	2	3
Age	N	None	Capelining	Halo	None	Punctate	Early Confluence	Confluent
<55	440	72%	28%	0%	52%	45%	3%	0%
55-64	644	51%	47%	2%	27%	66%	5%	2%
65-74	563	34%	57%	9%	12%	60%	22%	6%
≥75	149	6%	74%	19%	3%	44%	30%	23%

脑微出血



疾病

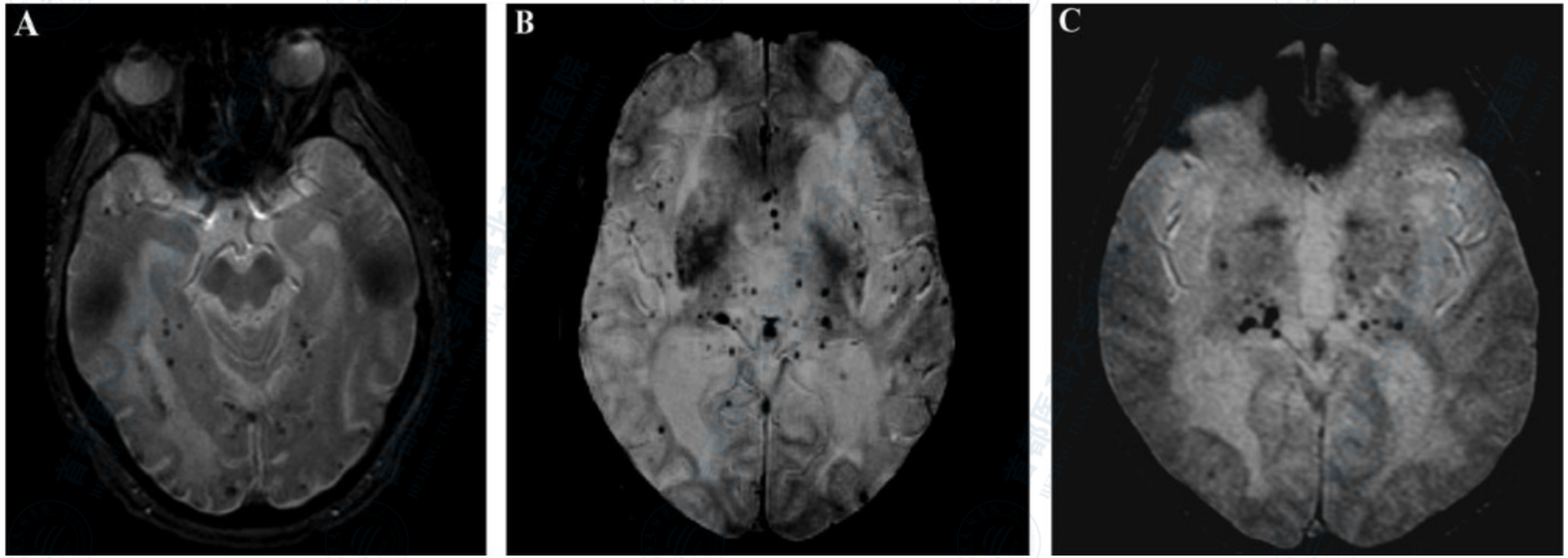
- 正常人群: 5%～21%
- 缺血性卒中: 30%～40%
- 脑出血: 60%～68%

年龄

- 60～69岁:18%
- 80岁以上: 38%。

Stroke. 2017;48

脑微出血的发生部位



- 脑叶的微出血与载脂蛋白E ε4等位基因有关，血管淀粉样变性是脑叶微出血的常见原因。
- 深部的微出血与高血压、吸烟和脑梗死相关。

无症状脑血管病

- 无症状脑出血管病增加卒中发生风险
- 缺少管理无症状性脑血管病的证据，不能直接当做缺血性卒中治疗；

脑血管病一级预防

1. 脑血管病是可预防性的疾病
2. 预防脑血管病的主要策略
3. 成长的烦恼：更加依赖影像学技术