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Rank	Country	Number	Rank	Country	Number	Rank	Country	Number	Rank	Country	Number	Rank	Country	Number	Rank	Country	Number	Rank	Country	Numbe
1	USA	445.8	1	China	1040.6	1	Russian Federation	659.5	1	Brazil	133.9	1	Iran	\$8.0	1	India	1248.0	1	Nigeria	71.6
2	Germany	155.8	2	Indonesia	242.8	2	Ukraine	338.1	2	Mexico	77.0	2	Egypt	78.8	2	Pakistan	195.5	2	Ethiopia	43.5
3	Japan	105.5	3	Myanmar	58.2	3	Turkey	81.2	3	Argentina	36.4	3	Morocco	33.7	3	Bangladesh	163.4	3	Sudan	39.2
4	United Kingdom	92.3	4	Philippines	57.8	4	Romania	56.7	4	Colombia	27.7	4	Iraq	26.7	4	Afghanistan	30.9	4	Dem Republic Congo	27.0
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Role of Complement

- I/R results in complement activation and the formation of several proinflammatory mediators that alter vascular homeostasis
- C3a, C5a, iC3b, C5b9
- Most potent is C5a
- complement may compromise blood flow to an ischemic organ by altering vascular homeostasis and increasing leukocyte– endothelial adherence.



Postconditioning

Postconditioning is the phenomenon whereby several brief coronary artery reperfusion/reocclusion cycles at the end of a long coronary artery occlusion (stuttering reperfusion) reduces infarct size

- Zhao, Z-Q et al. Am J Physiol 2003;285:1574
- Yang, X-M et al. JACC 2004;44:1103











































Treatment

tPA, the Gold Standard

The only FDA approved treatment for ischemic strokes is tissue plasminogen activator (tPA, also known as IV rtPA, given through an IV in the arm). tPA works by dissolving the clot and improving blood flow to the part of the brain being deprived of blood flow. If administered within 3 hours (and up to 4.5 hours), tPA may improve the chances of recovering from a stroke. A significant number of stroke victims don't get to the hospital in time for tPA treatment; this is why it's so important to identify a stroke immediately.

Endovascular Procedures

Another treatment option is an endovascular procedure* called mechanical thrombectomy, strongly recommended, in which trained doctors try removing a large blood clot by sending a wired-caged device called a stent retriever, to the site of the blocked blood vessel in the brain. To remove the brain clot, doctors thread a catheter through an artery in the groin up to the blocked artery in the brain. The stent opens and grabs the clot, allowing doctors to remove the stent with the trapped clot. Special suction tubes may also be used. The procedure should be done within six hours of acute stroke symptoms, and only after a patient receives tPA.

*Note: Patients must meet certain criteria to be eligible for this procedure.









































































Idea is not new, but...

'Young blood' company Ambrosia halts patient treatments after FDA warning

The FDA warned consumers against infusions of plasma from young donors, saying there is no evidence that they slow aging or memory loss, and can be dangerous.



Reviews to read
Review
Mitochondria in acute myocardial infarction and cardioprotection
Chrishan J.A. Ramachandra ^{a,b} , Sauri Hernandez-Resendiz ^{a,b,c} , Gustavo E. Crespo-Avilan ^{a,b,c} , Ying-Hsi Lin ^{a,b} , Derek J. Hausenloy ^{a,b,d,e,f,g,*}
https://www.thelancet.com/journals/ebiom/article/PIIS2352-3964(20)30259-0/fulltext
Succinate metabolism: a new therapeutic target
for myocardial reperfusion injury
Victoria R. Pell ¹ , Edward T. Chouchani ^{2,3} , Christian Frezza ⁴ , Michael P. Murphy ⁵ , and Thomas Krieg ^{1*}
https://academic.oup.com/cardiovascres/article/111/2/134/2237248
Mechanism of mitochondrial complex I damage in brain ischemia/ reperfusion injury. A hypothesis
Vadim Ten, Alexander Galkin*
Division of Neonatology, Department of Pediarsics, Columbia University, William Black Building, 650 W 168th St, New York, NY 10002, United States of America
https://https://www.sciencedirect.com/science/article/abs/pii/S1044743119301022
Immune responses to stroke: mechanisms,
modulation, and therapeutic potential
Costamino Judecola, Marion S. Buckwalter, ² and Josef Annather ¹ Yal fam) bianad Mida Anna Shatika, Mill Cand Heddore, Ker Mul. Her Mul. Ker Mul. Object and Housebag and Neurologiad Sciences, Standard Obiensky, Hedda Center, Standard Califeria, ISA
https://www.jci.org/articles/view/135530