

尿酸は脳卒中後機能的予後を改善する (Abstract LB1)

標準的な血栓溶解薬に尿酸を追加することにより虚血性脳卒中後の障害を軽減できる

Adding uric acid to standard stroke clot-busting medication reduces disability following ischemic stroke

脳卒中患者において、標準的治療に加え、症状発現から4.5時間以内に尿酸を投与することにより、安全かつ効果的に障害を軽減することができるとのlate-breaking scienceの結果が2014年American Stroke Association's International Stroke Conferenceで報告された。高尿酸値は腎結石、痛風、心臓および血管疾患および糖尿病と関連するとされてきた。しかし尿酸は強力な抗酸化物質であり、動物実験では脳細胞に尿酸を追加投与することにより細胞を脳卒中による損傷から保護することが示されている。今回のスタディにおいては、スペイン周辺の脳卒中センター10箇所の急性脳卒中患者421人(半分女性、平均年齢76歳)を登録した。全ての患者が組織プラスミノゲンアクチベータ(tPA)を投与され、尿酸またはプラセボ投与群にランダムに割り付けられた。90日後に障害を有さなかったのは尿酸およびtPA投与を受けた患者の40%近くであったのに対し、プラセボ投与を受けた患者では33%であった。尿酸は血糖値が高く中等度の脳卒中の女性において最も恩恵をもたらした。スタディの患者数が少なかったため、今回の結果は大規模なトライアルで検証する必要がある。今回のスタディは、より重篤な脳卒中を発症し他の合併症を有する高齢者を含めたことが強みであると筆者らは述べている。

Full Text

Giving ischemic stroke patients uric acid along with standard clot-busting medication within 4.5 hours of first symptoms appears safe and effective at limiting disability, according to late-breaking science presented at the American Stroke Association's International Stroke Conference 2014.

In a study of 421 acute stroke patients, nearly 40 percent treated with uric acid and clot busters were relatively free of disability at 90 days compared to 33 percent of patients treated with a placebo. Uric acid produced the greatest benefits for women and patients with high blood sugar and moderate stroke.

High levels of uric acid in the blood can lead to serious medical illness including kidney stones or the inflammatory arthritic condition known as gout and has been linked with heart and vascular problems and diabetes. However, animal studies have shown that adding uric acid to brain cells protected the cells from stroke-related damage.

"When used in stroke, uric acid is a firefighter, not an arsonist," said Angel Chamorro, M.D., Ph.D., study author and director of the Comprehensive Stroke Center, at Hospital Clinic in Barcelona, Spain. He said extensive research in patients and in animals found that a higher level of uric acid in acute stroke patients was associated with better recovery.

"That was kind of surprising because everyone knows uric acid has a pretty bad reputation because it is associated with gout attacks, renal problems and perhaps also with cardiovascular disease," he said. "But what people do not know so well is that uric acid is an extremely potent antioxidant, which is it prevents the formation of free radicals that can result when a brain artery is blocked."

Researchers suggest that uric acid may have a greater role in regulating human health and is a possible new approach to managing acute stroke. Chamorro noted that the study may explain why women have more disability after stroke than men.

"We believe women are less equipped to combat oxidative stress as the result of their lower uric acid levels," he said.

Half of patients in the study were women and the average age of all patients was 76. Most had other medical conditions and were treated at 10 stroke centers around Spain. All patients received the anti-clotting drug tissue plasminogen activator (tPA) and were randomly assigned to receive uric acid or a placebo. Sixty patients died.

While the study group was small and the results will need validation in larger trials, Chamorro said the study's strength is that it involved elderly patients who had more serious strokes and other health problems.

"We may need to acknowledge that there's promise for uric acid in patients with acute stroke treated with a clot buster within 4.5 hours of symptoms onset," Chamorro said. "The results of this trial are exciting and offer new hope in a field that was full of failures."

Co-authors are Sergio Amaro, M.D.; Mar Castellanos, M.D.; Tomás Segura, M.D.; Juan Arenillas, M.D.; Joan Martí-Fàbregas, M.D.; Jaime Gállego, M.D.; Jurek Krupinski, M.D.; Meritxell Gomis, M.D.; David Cánovas, M.D.; Xavier Camé, M.D.; Luis San Román, M.D.; Laura Oleaga, M.D.; Ferrán Torres, M.D. and Anna M. Planas, M.D. Author disclosures are on the abstract.

The Institute of Health Carlos III of the Spanish Ministry of Health and a private grant from Fundació Doctor Melchor Colet of Barcelona funded the study.

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tPAは年齢や脳卒中重症度に関係なく脳卒中による傷害を軽減させる (Abstract: LB2)

静脈内血栓溶解薬の適時の投与は脳卒中患者の年齢や重症度にかかわらず予後を改善する

Timely administration of intravenous thrombolysis improves outcomes regardless of patient age or stroke severity

脳卒中患者の年齢や重症度にかかわらず、静脈内血栓溶解薬の迅速な投与は脳卒中による障害を軽減するとのlate-breaking scienceの結果が2014年American Stroke Association's International Stroke Conferenceで発表された。組織プラスミノゲンアクチベーター(tPA)は急性虚血性脳卒中に対し推奨される治療である。しかし、tPAを投与するべき時間枠および高齢患者や微小または重度の脳梗塞における使用に関しては依然として議論の余地がある。専門家による国際協力グループが9つの臨床試験に参加した脳卒中患者6,756人の記録をレビューした。その結果、tPAはプラセボより有効であり長期障害率を低下させた。また早期治療により予後が改善した。tPAを脳卒中発症から3時間以内に投与された患者のうち脳卒中後に有意な障害を来さなかった者は33%であったのに対し、tPAを投与されなかった患者では23%であった。tPAを脳卒中発症後3~4.5時間に投与された患者のうち有意な障害を来さなかったのは35%であり、プラセボ群では30%であった。脳卒中発症4.5時間後に投与された群では、33%がほとんど障害を来さなかったのに対しプラセボ群では31%であった。

Full Text

Regardless of a patient's age, or severity of stroke, prompt treatment with intravenous thrombolysis limited stroke-related disability, according to late-breaking science presented at the American Stroke Association's International Stroke Conference 2014.

Administration of tissue plasminogen activator (tPA) is the recommended treatment for acute ischemic stroke. However, there is still debate regarding the time window in which it should be given and its use in older patients or those with a minor or severe stroke.

An international collaboration of experts reviewed the records of 6,756 stroke patients participating in nine clinical trials. The experts reported that tPA worked better than placebo and decreased a patient's odds of having long-term disability. Earlier treatment also improved outcomes. Among patients who received the clot buster:

- Within three hours of stroke onset, 33 percent did not experience significant disability after stroke compared with 23 percent of those who did not receive tPA.
- Between 3 and 4.5 hours of stroke, 35 percent did not experience significant disability after stroke compared with 30 percent of the placebo group.
- After 4.5 hours from stroke onset, 33 percent of the tPA group had little disability compared with 31 percent of the placebo group.

"Our results may have implications for treatment guidelines on both sides of the Atlantic," said Jonathan Emberson, Ph.D., study author and senior statistician from the University of Oxford in the United Kingdom. "In the United States, use of tPA is currently limited to treatment within three hours, while in some European countries use is limited to patients aged 80 or younger. The appropriateness of both of these restrictions may be revisited in light of our results."

Prompt recognition of stroke symptoms and speedy treatment are the key to success.

"The problem causing the stroke is often a fresh blood clot, blocking the artery. tPA is a naturally occurring clot-dissolving drug, doing what nature designed it to do," said Kennedy Lees, M.D., joint study author and professor of Cerebrovascular Medicine at the University of Glasgow, United Kingdom. "If we give it early enough, while the clot is still fresh, it is extremely effective. The earlier the treatment is delivered, the bigger the expected benefits."

Those who received tPA in a timely manner were significantly more likely to be free of stroke-related disability three to six months later based on the results of the modified Rankin scale.

While the use of tPA was associated with a significant increase in the risk of potentially deadly bleeding in the brain in the initial phase of treatment, by three months after stroke, deaths in the tPA and placebo group were not significantly different.

"tPA is under-used in older people, especially those aged over 80, so I am delighted these data support the use of tPA in this somewhat neglected patient group," said Peter Sandercock, D.M., joint study author and professor of Neurology at the University of Edinburgh.

Based on these findings, the research team plans to investigate in greater details the effects of tPA, how it may further mitigate against stroke-related disability, and whether it would work in other types of patients.

Other co-authors are Patrick Lyden, M.D.; Lisa Blackwell, BSc; Gregory W. Albers, M.D.; Erich Bluhmki, Ph.D.; Thomas G. Brott, M.D.; Geoffrey Cohen, MSc; Stephen Davis, M.D.; Geoffrey Donnan, M.D.; James Grotta, M.D. George Howard, DrPH; Markku Kaste, M.D., Ph.D.; Masatoshi Koga, M.D., Ph.D.; Ruediger Von Kummer, M.D.; Maarten Lansberg, M.D., Ph.D.; Richard Lindley, M.D.; Gordon Murray, Ph.D.; Jean Marc Olivot, M.D., Ph.D.; Mark Parsons, M.D., Ph.D.; Barbara Tilley, Ph.D.; Danilo Toni, M.D.; Kazunori Toyoda, M.D., Ph.D.; Nils Wahlgren, M.D., Ph.D.; Joanna Wardlaw M.D.; Gregory J. del Zoppo, M.D.; Colin Baigent, M.Sc.; and Werner Hacke, M.D., D.Sc.; for the Stroke Thrombolysis Trialists' Collaboration. Author disclosures are on the abstract.

The U.K. Medical Research Council and British Heart Foundation funded the study.

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心臓内部の孔を発見するのに代替検査が優れている (Abstract: LB10)

卵円孔開存の患者における将来のリスクを経頭蓋ドプラにより鑑別できる可能性
がある

Transcranial Doppler may differentiate future risk of stroke in patients with patent
foramen ovale

一部の患者の脳卒中の原因となり得る危険な卵円孔開存症(PFO)の検出において、経頭蓋ドプラ検査—脳への血流を計測する安価な超音波法—は標準的な心エコー検査よりも感度が高い可能性があるとのlate-breaking scienceの結果が2014年American Stroke Association's International Stroke Conferenceで発表された。さらに、経頭蓋ドプラ検査によりこの異常の程度に関連した将来の脳卒中や一過性脳虚血発作(TIA)のリスクを鑑別することが可能である。過去の研究から人口の25%、および潜在性脳卒中患者において高率にPFOを有していることが示された。このシャントは血栓を右心系から左心系に逃してしまい、脳へ向かう血管内に進入し奇異性塞栓症を生じさせる。研究者らは、既に経頭蓋ドプラで検出されたPFOが、広く用いられている経食道心エコー検査においても検出されるかを検査した。心エコー検査ではPFOを有する患者340人中15%以上を検出できなかった。見逃されたPFOの約4分の1は重症度の最も高い3つであった。

Full Text

Transcranial Doppler testing — an inexpensive ultrasound tool for measuring blood flow to the brain — may be more sensitive than standard echocardiography for finding dangerous patent foramen ovale (PFO) that might underlie some patients' strokes according to late-breaking science presented at the American Stroke Association's International Stroke Conference 2014. In addition, the transcranial Doppler test could differentiate the risk of future stroke or transient ischemic attack (TIA) as related to the severity of the defect.

An echocardiogram uses ultrasound to see if bubbles injected in a vein have flowed from the right atria to the left, while the transcranial Doppler detects the bubbles in the brain arteries, said J. David Spence, M.D., senior researcher for the study and director of the Stroke Prevention & Atherosclerosis Research Centre, Robarts Research Institute at Western University in London, Ontario, Canada.

Previous research indicates that 25 percent of the population, and a higher percentage of patients who have had cryptogenic strokes, have a patent foramen ovale (PFO), which occurs when an opening between two heart chambers fails to close at birth. Many people never have symptoms. However, such a hole, or "shunt," can allow a blood clot that forms in a vein to escape from the right to the left side of the heart, enter the arteries to the brain and cause a paradoxical embolism.

Researchers tested whether PFOs already detected by transcranial Doppler would also be found by transesophageal echocardiography, a widely used approach.

Echocardiography — which included contrast dye before saline bubbles were injected — failed to find the PFO in more than 15 percent of the 340 patients in the study with the defect, the researchers reported.

Researchers did not investigate whether transcranial Doppler detected all such defects in patients with PFO found by echocardiogram.

"Surprisingly, some of those shunts were quite large," Spence said — about one-quarter of the missed defects were in the three highest grades of severity, according to a five-grade measure.

Accurately detecting PFOs, and knowing its grade, can help doctors decide whether a stroke was due to a paradoxical embolism, Spence said. Other clues related to the patient's stroke are also helpful, including shortness of breath at stroke onset; sitting for a long time, such as on an airplane; waking up with a stroke; and having a history of migraine, sleep apnea, deep vein thrombosis, varicose veins or pulmonary embolism.

Diagnosing the underlying cause of a stroke is essential to choosing the right medicine to help prevent future strokes, Spence said. Anticoagulant drugs are three times more effective than antiplatelet agents in preventing the type of stroke that can be caused by a clot passing through a PFO, he said.

The study's findings may also be important in understanding which patients with PFO might benefit from closing the hole surgically or with a catheter-deployed device. PFO is present in about one-quarter of the population but accounts for only about 5.5 percent of strokes caused by paradoxical embolism. This suggests the defect isn't a problem in about 80 percent of patients with it, Spence said. "That's why these clinical clues are so important," he said.

Compared with echocardiography, the cost of transcranial Doppler equipment is about one-fifth that of a modern echocardiogram machine; heavy sedation is not used as it typically is with transesophageal echocardiogram; and transcranial Doppler is helpful for other purposes, such as learning which patients with asymptomatic narrowing of the carotid artery may warrant surgery. "More stroke centers should be doing transcranial Doppler," Spence said.

Co-authors are Joshua Tobe, B.Sc.; Chrysi Bogiatzi, M.D.; Claudio Munoz, M.D., Ph.D.; and Arturo Tamayo, M.D.

Heart & Stroke Foundation of Canada (Ontario) and donations to the Stroke Prevention & Atherosclerosis Research Centre funded the study.

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潜在性脳卒中における心房細動をモニターによって検出できる (Abstract: LB11)

CRYSTAL-AF:挿入型心モニターは原因不明の脳卒中後の発見しづらい心房細動を検出する

CRYSTAL-AF: Insertable heart monitor finds elusive atrial fibrillation after unexplained stroke

皮下に植え込まれた小型の心臓モニターは標準的なモニター法よりも、患者に脳卒中を引き起こした不規則な心調律の検出率が6〜7倍高いことが示されたとのlate-breaking scienceの結果が2014年American Stroke Association's International Stroke Conferenceで発表された。虚血性脳卒中のうち潜在性(つまり原因不明)のものは30%にも及ぶ。CRYSTAL-AF (CRYptogenic STroke And UnderLying Atrial Fibrillation) スタディでは、潜在性脳卒中を来した患者441人を対象とした。対象患者全員が脳卒中発症後90日以内に少なくとも24時間の心臓モニターを施行され、そのうち半数は最長3年間持続的にデータを供給する植込み型モニターにより追跡された。6か月間に心房細動が検出されたのは植込み型モニター群で8.9%であったのに対し、標準的検査群では1.4%であった。1年間に心房細動が検出されたのは植込み型モニター群で12.4%であったのに対し、もう一方の群では2%であった。3年間では、植込み型モニター群30%に対し標準検査群で3%であった。合併症のため植込み型装置を除去せざるを得なかったのは、わずか2.4%であった。

Full Text

A small cardiac monitor implanted under the skin proved six to seven times more likely than standard monitoring methods to find an irregular heart rhythm that may have caused a patient's stroke, according to a late-breaking science report presented at the American Stroke Association's International Stroke Conference 2014.

As many as 30 percent of ischemic strokes are labeled as cryptogenic — meaning no known cause. But one possible explanation is atrial fibrillation (AF). Stroke risk is about five times higher in people with atrial fibrillation.

"Atrial fibrillation can be difficult to detect due to its sometimes intermittent nature, and the fact that it isn't always accompanied by symptoms," said Richard A. Bernstein, M.D., Ph.D., an author of the new study and professor of neurology at Northwestern University's Feinberg School of Medicine in Chicago. "For a patient who has had an unexplained stroke, it's really important to determine if they have AF, because left untreated, it could result in a second and even more devastating stroke."

The new study, called CRYSTAL-AF (CRYptogenic STroke And UnderLying Atrial Fibrillation), included 441 patients who had an unexplained stroke. All had at least 24 hours of standard cardiac monitoring within 90 days of the stroke, and half were tracked with an insertable monitor (the Reveal[®] XT by Medtronic) which can provide data continuously for up to three years.

Six months later, atrial fibrillation had been found in 8.9 percent of patients with an insertable monitor, versus 1.4 percent of those who had standard testing. At one year, the condition had been detected in 12.4 percent of patients with the insertable monitor, compared with 2 percent of the others. After three years, that gap was 30 percent with the insertable monitor, versus 3 percent for standard testing.

The study was conducted in 55 centers in the United States, Canada and Europe. Limitations of the research include variation in methods of standard cardiac monitoring in the control arm, due to different local practices, he said.

Most people who have a stroke caused by a blood clot are given aspirin or similar drugs, such as clopidogrel, to prevent another stroke, said Bernstein, who is also director of the Stroke Program at Northwestern Memorial Hospital. But in patients with atrial fibrillation, anticoagulants, such as warfarin, or the newer anticoagulants, have been found much more effective at preventing stroke. Anticoagulants aren't routinely given in the absence of atrial fibrillation because they can be riskier and more inconvenient for patients.

"Finding AF after a stroke changes therapy from the aspirin class of drugs, which are not very effective in AF, to anticoagulants," he said. Among patients in the study found to have AF, oral anticoagulants were prescribed for 97 percent of cases, the researchers reported.

An insertable cardiac monitor resembles a USB flash drive and has two electrodes to monitor heart rhythm. It can detect various kinds of heart irregularities and stores a log of events that indicates when and for how long each event occurred, and what was the heart rate.

The device is slipped under the skin of the chest via a small incision, using local anesthetic in a brief outpatient procedure. The monitor does not touch the heart.

The benefits of the insertable device far outweigh risks, Bernstein said, noting just 2.4 percent of the devices had to be removed in the study because of complications, and the patients had no long-term problems. "On the other hand, if a stroke patient has AF that hasn't been caught, they could be at very high risk of another potentially disabling stroke because they aren't on the right medication."

However, the study did not have enough participants to see whether there was a difference between the two groups in rates of subsequent stroke. Stroke guidelines currently call for only 24-hour monitoring. The new study suggests long-term continuous monitoring may uncover more AF in patients with unexplained stroke, and can be useful if traditional monitoring fails.

Co-authors are Vincenzo Di Lazzaro, M.D.; Marilyn Mollman Rymer, M.D.; Hans-Christoph Diener, M.D., Ph.D.; Tommaso Sanna, M.D.; Johannes Brachmann, M.D., Ph.D.; Rod S. Passman, M.D., M.S.C.E.; Carlos Morillo, M.D.; Vincent Thijis, M.D.; Tyson Rogers, M.S.; Frank Beckers, Ph.D.; and Katherine Lindborg, Ph.D.

Device manufacturer Medtronic funded the study.

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小児において軽微な感染が脳卒中リスクを上昇させる可能性がある (Abstract: 39)

VIPS: 小児において一般的な感染と脳卒中リスク上昇とに関連が認められるがワクチン接種によりリスクが低下する可能性がある

VIPS: Common infections linked to increased stroke risk in children but vaccines may reduce risk

一般的な感染が小児において脳卒中の危険性を有意に上昇させるが、ルーチンのワクチン接種によりリスクが低下する可能性があるとの予備的な研究結果が2014年American Stroke Association's International Stroke Conference で発表された。この国際スタディ Vascular effects of Infection in Pediatric Stroke (VIPS) は、感染と虚血性脳卒中との関連を調査した前向きスタディである。研究者らは、過去1週間の一般的な感染が脳卒中リスクを6倍以上上昇させることを明らかにした。過去1週間に何らかの微小感染を有していたと報告したのは、脳卒中患者では17%であったのに対し脳卒中を有さない者では3%であった。感染のうちで最も頻度が高かったのは感冒および他の上気道感染であった(脳卒中患者の8%および非脳卒中患者の2.4%が過去1週間にこれらの感染を有していたと報告した)。ポリオ、麻疹、流行性耳下腺炎、風疹および肺炎球菌などに対するルーチンのワクチン接種を"いくつか受けたかほとんどまたは全く受けていない"者は"全てまたはほとんど受けた"者よりも虚血性脳卒中を発現する確率が6.7倍高かった。

Full Text

Common infections are associated with a significantly higher chance of stroke in children, but routine vaccinations may help decrease risk, according to preliminary research presented at the American Stroke Association's International Stroke Conference 2014.

"The protective association of routine vaccination against childhood stroke provides a widely available means of prevention, and this information can easily be dispersed by pediatric healthcare providers," said Nancy Hills, Ph.D., M.B.A., lead researcher and assistant professor of neurology at the University of California, San Francisco Medical Center.

The international study, Vascular effects of Infection in Pediatric Stroke (VIPS) is a prospective study examining the link between infections and ischemic stroke, the most common type of stroke.

Previous research by Hills and co-authors found that minor infections were related to an increased risk, but it was unclear whether infection actually could help predict future stroke.

In the VIPS study, researchers found that common infections within the past week were linked to more than six times the risk of stroke, Hills said. Seventeen percent of the stroke patients vs. 3 percent of the non-stroke patients were reported to have had any minor infection in the prior week. The most frequent types of infection were colds and other upper respiratory infections (8 percent of the stroke and 2.4 percent of the non-stroke patients reported an occurrence of these kinds of infections in the prior week).

However, routine vaccinations were associated with a lower stroke risk.

Children who had "some, few or no" routine vaccinations were 6.7 times more likely to have an ischemic stroke than those receiving "all or most" vaccines, including those against polio, measles, mumps, rubella and pneumococcus.

Researchers interviewed parents or guardians of 310 children who had a stroke to determine the presence and timing of any infectious illnesses prior to their stroke. They compared their findings with 289 children who hadn't experienced a stroke, but had visited the doctor for an annual checkup, routine follow-up for headaches or developmental delay, or trauma.

The median age of the children who had a stroke was 7.5 years, and the median age among the comparison group was slightly more than 8.

"Because many childhood strokes appear to have no clear cause, and others likely have more than one cause, preventive measures have not been forthcoming," Hills said. "It is very promising that childhood vaccinations appear to have a protective effect."

"VIPS is the largest-ever NIH-funded study of childhood stroke," said Heather J. Fullerton, M.D., M.A.S., principal investigator for the VIPS study and Professor of Neurology and Pediatrics at University of California San Francisco. "These three abstracts represent the first results of this important international effort."

Other VIPS researchers are: Gabrielle A. DeVeber, M.D., M.Sc.; Mitchell S. Elkind, M.D., M.S.; Max Wintermark, M.D.; Carol A. Glaser, M.D.; Katherine Sear, M.P.H.; Jorge M. Luna, M.P.H.; W. Ian Lipkin, M.D.; Kawthar Muhammad, B.A.; and Rafal Tokarz, Ph.D.

The VIPS study is funded by the National Institutes of Health.

VIPS represents the work of the International Pediatric Stroke Study (IPSS), a consortium of pediatric stroke investigators established in 2003 by Dr. Gabrielle DeVeber at the Hospital for Sick Children, Toronto. The 40 IPSS centers enrolling in VIPS are located on five continents and have now enrolled almost 350 cases and 350 controls — numbers that can only be achieved through a large collaborative effort like this. The VIPS study is co-lead by Fullerton and DeVeber, Hospital for Sick Children in Toronto.

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天候の変化は脳卒中による入院および死亡と関連する (Abstract: WP123)

脳卒中による入院率や死亡率は周囲の温度や露点温度の変化と関連する
Stroke hospitalization and death rates associated with changes in environmental temperature and dew points

脳卒中による入院率や死亡率は周囲の温度や露点温度の変化により上昇したり低下したりする可能性があるとの研究結果、2014年American Stroke Association's International Stroke Conferenceで発表された。研究者らは2009~2010年に虚血性脳卒中で入院した18歳以上の患者134,510人を同定した。その後この期間の温度や露点温度に関するデータを手に入れた。その結果、気温の日較差が大きく平均露点温度が高い(湿度が高いことを示唆)ことと、脳卒中入院率が高いことに関連があることを見いだした。年間平均気温が低いことは脳卒中入院および死亡と関連した。平均気温が1°F上昇するごとに脳卒中入院確率が0.86%低下し、脳卒中による入院後に死亡する確率が1.1%低下した。1日の気温の変動および平均露点温度が上昇すると脳卒中入院確率が上昇したが、院内死亡とは関連がなかった。脳卒中リスクの高い人々は有意な気温変化や高露点温度を避けた方がよいであろうと筆者らは提案している。しかし、これらの関連のメカニズムを調査することに加え、天候の変化により脳卒中が増加する原因や天候変化の影響について理解を深める研究が今後必要であると筆者らは指摘している。

Full Text

Stroke hospitalization and death rates may rise and fall with changes in environmental temperature and dew point, according to research presented at the American Stroke Association's International Stroke Conference 2014.

"Weather is not something people would typically associate with stroke risk; however, we've found weather conditions are among the multiple factors that are associated with stroke hospitalizations," said Judith H. Lichtman, Ph.D., M.P.H., study author and an associate professor in Epidemiology at the Yale School of Public Health in New Haven, Conn.

Researchers identified a nationwide sample of 134,510 people, 18 years and older, admitted to hospitals in 2009-10 for ischemic stroke. They then obtained temperature and dew point data during that period.

They found:

- Larger daily temperature changes and higher average dew point (indicating higher air moisture) were associated with higher stroke hospitalization rates.
- Lower average annual temperatures were associated with stroke hospitalizations and death.
- With each 1°F increase in average temperature, there was a 0.86 percent decrease in the odds of stroke hospitalization and a 1.1 percent decrease in the odds of dying in the hospital after stroke.
- Increases in daily temperature fluctuation and average dew point were associated with increased odds of stroke hospitalization, but not with dying in the hospital.

"This study suggests that meteorological factors such as daily fluctuations in temperature and increased humidity may be stressors that increase stroke hospitalizations," Lichtman said. "People at risk for stroke may want to avoid being exposed to significant temperature changes and high dew point and, as always, be prepared to act quickly if they or someone they know experiences stroke signs and symptoms."

"Future research is needed to better understand the cause and effect of changes in weather conditions, as well as to explore potential mechanisms for this association."

Co-authors are: Erica C. Leifheit-Limson, Ph.D., and Larry B. Goldstein, M.D.

The study was funded by the Yale School of Public Health.

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脳卒中による脳幹損傷患者において睡眠時無呼吸は多く認められる (Abstract: 52)

脳卒中による脳幹の損傷は睡眠時無呼吸の存在および重症度に影響する
Stroke damage to brainstem associated with presence and severity of sleep apnea

脳卒中により脳幹を損傷した患者は脳の他部位が損傷された患者よりも睡眠時無呼吸の有病率が高いとの研究結果が2014年American Stroke Association's International Stroke Conferenceで発表された。スタディに参加した虚血性脳卒中患者355人(平均年齢65歳、男性55%)は、既に登録されていたBrain Attack Surveillance in Corpus Christi (BASIS) プロジェクトから抽出された。スタディ対象の59%がヒスパニック系であり、非ヒスパニック系白人が35%、アメリカ先住民が1%、アフリカ系米国人が4%であった。参加者は脳卒中から13日後に携帯用呼吸モニターを用いた睡眠時無呼吸のスクリーニングを受けた。神経科医が脳のCTおよびMRI画像を読影し、脳幹病変を有しているかを判断した。355人の脳卒中患者のうち11%が脳幹損傷を有し、84%が睡眠時無呼吸を有していた。脳幹に病変のない者において、睡眠時無呼吸を有するのは59%であった。今回のスタディは、脳卒中後患者において脳損傷部位と睡眠時無呼吸との関連に関する地域住民を対象としたこれまでで最も大規模なものである。

Full Text

People whose brainstems are affected by their stroke have a significantly higher prevalence of sleep apnea than those who have stroke-related injury elsewhere in the brain, according to research presented at the American Stroke Association's International Stroke Conference 2014.

Sleep apnea is marked by interrupted breathing during sleep and can lead to serious health problems including heart disease and stroke.

"This is the largest population-based study to address the issue of the location of the brain injury and its relationship to sleep apnea in post-stroke patients," said Devin L. Brown, M.D., M.S., lead author of the study and associate professor of neurology and associate director of the stroke program at the University of Michigan in Ann Arbor.

The 355 ischemic stroke patients, average 65 years and 55 percent men, who participated in the study, were drawn from those already enrolled in the Brain Attack Surveillance in Corpus Christi (BASIS) Project. Hispanics represented 59 percent of the study group; Non-Hispanic whites 35 percent; Native Americans 1 percent; and African-Americans 4 percent.

According to researchers, patients were also offered sleep apnea screening with a portable respiratory monitor and were screened about 13 days after a stroke.

Neurologists interpreted CT and MRI brain imaging scan results to determine if patients had brainstem involvement or no brainstem involvement.

Of the 11 percent of 355 stroke patients with brainstem injury, 84 percent had sleep apnea. Of those without brainstem involvement, 59 percent had sleep apnea.

"While these numbers are high, more research into the relationship between stroke and sleep apnea is needed before we recommend routine sleep apnea screening in post-stroke patients," Brown said.

In the future, Brown said her group will continue to explore the relationship between sleep apnea and stroke.

Co-authors are Mollie McDermott, M.D.; Ashkan Mowla, M.D.; Ronald Chervin, M.D., M.S.; Lewis Morgenstern, M.D.; Kevin Kerber, M.D.; Garnett Hegeman III, RPSGT; Melinda Smith, Dr.PH.; Nelda Garcia, B.S.; and Lynda Lisabeth, Ph.D.

The National Institutes of Health funded the study.

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出産後の血栓症リスクは少なくとも12週間持続する (Abstract: 216)

出産後12週間は通常よりも血栓症リスクが高い状態が持続する

Blood clot risk remains higher than normal for at least 12 weeks after delivering a baby

女性の血栓症リスクは出産後少なくとも12週間(これまで考えられていたよりも2倍長い)は高い状態が持続するとの大規模スタディの結果が2014年American Stroke Association's International Stroke Conferenceで発表された。研究者らは、2005～2010年にカリフォルニアの病院に出産のために入院した女性1,687,930人のデータを用いて血栓症の確率を算出した。これらの女性のうち1,015人がその後1.5年の間に血栓症を発症した。これらの中には脳卒中、心筋梗塞、肺塞栓症または深部静脈血栓症などを引き起こした血栓症患者が含まれた。血栓症発症のリスクは、血小板や他の血液凝固因子が増加する妊娠中に上昇する。リスクは出産時辺りにピークとなるが、今回その後0～6週間は10.8倍、7～12週間は2.2倍、13～18週後は1.4倍(有意ではない上昇)高い状態が持続することが明らかにされた。19～24週後までに血栓リスクは出産をしなかったのと同等のレベルに戻った。出産後6～12週に妊娠に関連した血栓症を発症するのは10,000人に1人未満である。

Full Text

Women's risk for thrombosis remains elevated for at least 12 weeks after childbirth — twice as long as previously recognized, according to a large study presented at the American Stroke Association's International Stroke Conference 2014.

The chance of thrombosis rises during pregnancy, when platelets and other blood-clotting factors increase. The risk peaks around the time of delivery, but researchers found that afterwards it remained:

- 10.8 times higher during weeks 0-6;
- 2.2 times higher during weeks 7-12; and
- 1.4 times higher (a non-significant rise) during weeks 13-18.

By weeks 19-24, the chance of a blood clot returned to what it would have been if a woman had not given birth.

Fewer than one in 10,000 women suffer a pregnancy-related blood clot six to 12 weeks after delivery.

"While rare, blood clots are a serious cause of disability and death in pregnant and post-partum women, and many members of our research team have cared for young women with these complications," said Hooman Kamel, M.D., lead researcher and assistant professor in the Department of Neurology and the Brain and Mind Research Institute of Weill Cornell Medical College in New York City.

"If you have recently delivered a baby, seek medical attention if you develop symptoms such as: chest pain or pressure; difficulty breathing; swelling or pain in one leg; sudden severe headache; or sudden loss of speech, vision, balance, or strength on one side of your body."

The researchers calculated the odds using data on 1,687,930 women admitted for labor and delivery at a California hospital in 2005-2010. Of those, 1,015 women had a clot during the following 1.5 years. These included women with clots that caused a stroke, myocardial infarction, pulmonary embolism or deep vein thrombosis.

"Clinicians should consider our results when caring for high-risk postpartum patients, such as those with previous clots, or postpartum patients with symptoms concerning for thrombosis," Kamel said.

Co-authors are: Babak B. Navi, M.D.; Nandita Sriram, B.S.; Dominic A. Hovsepian, B.S.; and Mitchell S.V. Elkind, M.D., M.S.

The National Institute of Neurological Disorders and Stroke funded the study.

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中等度の運動が脳卒中リスク低下と最も関連する (Abstract: TMP67)

中等度の運動が女性の脳卒中リスクを低下させホルモン補充療法によるリスク上昇を相殺するのに役立つ

Moderate physical activity cuts women's stroke risk and helps offset increased risk from hormone therapy

女性が脳卒中リスクを低下させるためにマラソンをしたりハードなエアロビクスをする必要はない。早歩きやテニスなどの中等度の運動で十分であろうとの研究結果が2014年American Stroke Association's International Stroke Conferenceで発表された。研究者らはCalifornia Teachers Studyの対象女性133,479人の情報を解析し、何人が脳卒中を発症したかを観察した。スタディに登録する前の3年間に中等度の運動をしていたと回答した者は、運動をしなかったと回答した者よりも脳卒中に罹患する確率が20%低かった。この脳卒中リスク低下効果は、中等度の運動を少しずつ持続的にやっている女性群においても認められた。スタディの結果、中等度の運動はホルモン補充療法を受けている閉経後女性に認められる脳卒中リスク上昇を相殺するのに役立つことも明らかにされたが、完全に相殺したわけではなかった。ホルモン補充療法を受けている閉経後女性は、一度もホルモン療法を受けたことがない女性よりも脳卒中リスクが30%以上高かった。ホルモン内服を中止するとリスクは低下し始めた。さらに、糖尿病の女性は脳卒中リスクが高かったが、この中には過剰体重の女性も含まれていた。

Full Text

Women don't need to run marathons or do intense aerobics to reduce their stroke risk. Moderate-intensity exercise — such as brisk walking or playing tennis — may be enough, according to research presented at the American Stroke Association's International Stroke Conference 2014.

"I was surprised that moderate physical activity was most strongly associated with a reduced risk of stroke," said Sophia Wang, Ph.D., the study's lead author and professor in the department of population sciences within the Beckman Research Institute at the City of Hope in Duarte, Calif. "More strenuous activity such as running didn't further reduce women's stroke risk. Moderate activity, such as brisk walking appeared to be ideal in this scenario."

The study found that moderate exercise also helps offset the increased stroke risk seen with postmenopausal women taking menopausal hormones, but not completely.

Researchers analyzed information from the 133,479 women in the California Teachers Study to see how many suffered a stroke between 1996 and 2010. Those who reported doing moderate physical activity in the three years before enrolling in the study were 20 percent less likely than women who reported no activity to suffer a stroke. "The benefits of reducing risk of stroke were further observed among the group of women who had a sustained moderate level of physical activity over time," she said.

Postmenopausal women taking menopausal hormone therapy had more than a 30 percent higher risk of stroke than women who never used menopausal hormone therapy. After the women stopped taking hormones, their risk began to diminish.

"The effects of physical activity and hormone therapy appear immediate and the benefits of physical activity are consistent in premenopausal and postmenopausal women," Wang said. Therefore, Wang recommends that women incorporate some type of physical activity into their daily routine. "You don't have to do an extreme boot camp. The types of activities we're talking about are accessible to most of the population." Power walking and recreational tennis, for example, do not necessarily require special memberships to gyms.

The study also found that women with diabetes had elevated stroke risk, although this group encompassed women who also were overweight. "Physical activity, obesity and diabetes are all highly correlated with one another," Wang said. "Stroke prevention among diabetics is thus a particularly important scientific question to address."

Although 87 percent of the women were white, Wang said she believes the study's results may also apply to women in other racial/ethnic groups because the amount of stroke risk reduction was so robust. Further studies are needed to determine how much moderate exercise helps those with diabetes avoid strokes.

Co-authors are: Leslie Bernstein, M.S., Ph.D.; James Lacey, Jr., M.P.H., Ph.D.; Kamakshi Lakshminarayan, M.D., Ph.D. Mitchell Elkind, M.D., M.S., M.Phil; Daniel Woo, M.D.; Ph.D.; Jenna Voutsinas, M.P.H.; and Chengyi Zhong, M.P.H.

The study was funded by the National Institute of Neurological Disorders and Stroke. The California Teachers Study group is funded by the National Cancer Institute.

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一般的な感染症により記憶力低下リスクが上昇する可能性がある (Abstract: 107)

一般的な感染症への曝露は記憶や認知能力と関連する

Exposure to common infections is linked to problems with memory and cognitive skill

一般的な感染症への曝露は、たとえその感染症が発病しなくとも記憶や脳機能に関連するとの研究結果が2014年American Stroke Association's International Stroke Conferenceで発表された。先行研究から、一部の感染症が脳卒中やアルツハイマー病のリスクを上昇させることが既に示されている。研究者らは、これらの感染症に過去に曝露したとのエビデンスが記憶力、思考速度および他の脳機能に影響しているかどうかを調査した。彼等は、Northern Manhattan Studyに参加した588人に脳機能検査を施行し血液検体を採取した。参加者の半分が5年後に再度認知機能検査を受けた。その結果、クラミジア肺炎、ヘルペスウイルス1、サイトメガロウイルス、および単純ヘルペスウイルス1および2型への曝露により引き起こされる抗体価と記憶、精神的処理速度、抽象的思考、計画および推論能力などの認知機能検査の成績が悪いことと関連があった。これらの感染症への曝露は動脈硬化や炎症を引き起こすだけでなく脳卒中リスクを上昇させることと関連しているのであろうと筆者らは考えている。今回のスタディは、感染症が認知機能低下と関連する理由を説明するものではないが、感染症への免疫反応により引き起こされる可能性があることを示唆している。

Full Text

Exposure to common infections is linked to memory and brain function, even if the infections never made you ill, according to research presented at the American Stroke Association's International Stroke Conference 2014.

Researchers found an index of antibody levels caused by exposure to Chlamydia pneumoniae, Helicobacter pylori, cytomegalovirus, and herpes simplex viruses 1 and 2 was associated with worse cognitive performance, including memory, speed of mental processing, abstract thinking, planning and reasoning ability.

"We were very interested in what were the risk factors for cognitive performance and decline," said Clinton Wright, M.D., M.S., the study's lead researcher and scientific director of the Evelyn F. McKnight Brain Institute at the University of Miami.

Earlier studies have already linked certain infections to an increased risk of stroke and Alzheimer's disease. Researchers investigated if evidence of past exposure to these infections contributed to performance on tests of memory, thinking speed and other brain functions.

The study conducted brain function tests and took blood samples from 588 people who participated in the Northern Manhattan Study. Half of the participants then took cognitive tests again in five years.

Researchers believe exposure to these infections may be associated with an increase in stroke risk, as well as an increase in atherosclerosis and inflammation, said Dr. Wright, who is also chief of the division of cognitive disorders and associate professor of neurology, neuroscience, and epidemiology and public health at the Leonard M. Miller School of Medicine at the University of Miami.

The study doesn't explain why the infections are related to worsening cognitive function. "It could be caused by an immune system response to the infections or the infection itself could result in clinical damage that we're not aware of," Wright said.

Wright, who conducted the study in collaboration with researchers at Columbia University, isn't suggesting that people take any action to combat these infections. "There is no evidence yet that treating these infections is beneficial," he said, because the initial exposure to the viruses may have happened decades earlier and the damage may be the result of a gradual process. "It would be great if treatment prevented these bad outcomes, but we're very far away from having that type of evidence." Further studies will need to be conducted to see if the findings are duplicated in other populations, he said, since most of the participants in the study — 70 percent — were Hispanic.

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The study was funded by the National Institute of Neurological Disorders and Stroke.

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