冠動脈CTAから睡眠時無呼吸と動脈硬化の関連性が認められた

冠動脈CT造影により、閉塞性睡眠時無呼吸を有する人々が進行性動脈硬化のハイリスクであることが示された

Coronary CT angiography shows people with obstructive sleep apnea at higher risk for aggressive atherosclerosis

閉塞性睡眠時無呼吸（OSA）を有する人々は冠動脈に非石灰化プラークを有する確率が高いと2010年RSNAで発表された。このスタディにおいて、平均年齢61歳のOSAを有する平均ボディマスインデックス（BMI）33の肥満者49人と、OSAを有さない肥満者（平均年齢60歳、平均BMI 30）に冠動脈CT造影（cCTA）を施行した。OSA群は男性26人と女性23人であり、それとマッチさせたコントロール群は男性22人および女性24人であった。造影検査から、冠動脈の石灰化プラークは両群間で差がないことが示されたが、血管内プラークの全体の構成が著しく異なっていた：OSAを有する患者は非石灰化および混合性プラークを有する確率が有意に高かった。OSAを有する患者はまた冠動脈狭窄を有する率が有意に高く、より広範な血管に病変が認められた。OSA患者の88%が少なくとも1枝に狭窄を有し、OSAを有さない患者におけるその割合は59%であった。OSAを有する患者の3分の1が4本の血管に狭窄を有していた。

Full Text

People with obstructive sleep apnea (OSA) have more non-calcified plaque in their coronary arteries, according to a study presented at the 2010 annual meeting of the Radiological Society of North America (RSNA).

"Our study reveals that individuals with obstructive sleep apnea are prone to developing an aggressive form of atherosclerosis that puts them at risk for impaired blood flow and cardiovascular events," said U. Joseph Schoepf, M.D., professor of radiology and medicine and director of cardiovascular imaging at the Medical University of South Carolina in Charleston, S.C.

In the study, 49 obese patients, mean age 61, with OSA and a mean body mass index (BMI) of 33, and 46 obese patients without the disorder (mean age of 60 and mean BMI of 30) underwent coronary CT angiography (cCTA), which provides detailed pictures and information on plaque buildup and narrowing in the vessels. The OSA group included 26 men and 23 women, and the matched control group included 22 men and 24 women.

The imaging revealed that the amount of calcified plaque in the coronary arteries was not significantly different between the two groups, but the overall composition of vessel plaque was notably different.

"Compared to the non-OSA group, the patients with OSA had a significantly higher prevalence of non-calcified and mixed plaque," Dr. Schoepf said.

Non-calcified plaque is more vulnerable to rupturing and causing a blood clot, which could lead to a myocardial infarction or other cardiovascular event.

Patients with OSA also had a significantly higher prevalence of vessel narrowing and more extensive vessel involvement. Eighty-eight percent of OSA patients had narrowing in at least one vessel, compared to 59 percent of non-OSA patients. One-third of OSA patients had narrowing in four vessels.

"Coronary CT angiography is an effective way to noninvasively diagnose non-calcified and mixed plaque," Dr. Schoepf said. "With technological advancements that are lowering the radiation dose required for cCTA, this exam could become a screening tool for obese individuals at increased risk for cardiovascular disease."

Coauthors are Garrett Rowe, B.S., Andrew Armstrong, B.Sc., Joseph Abro, M.A., Adrian Parker, B.A., and Sunil Sharma, M.D.

TOPICS

医療用放射線によるがんのリスクは過大評価されていた可能性がある

コンピュータ断層撮影による被曝のリスクはこれまで考えられていたよりも低い可能性がある

Radiation risk from computed tomography may be lower than previously thought

コンピュータ断層撮影（CT）による放射線誘発性がんを発症するリスクはこれまで考えられていたよりも低い可能性があるとのスタディ結果が2010年RSNAで発表された。研究者らは米国メディケア請求を用いてレトロスペクティブスタディを行い、CTスキャンの分布を解析し電離放射線被曝量を計測し関連するがんを推定した。データには1998～2001年および2002～2005年の2グループの100万以上の記録が含まれていた。彼らはCTスキャンの数および型を解析し、各々の患者の被曝量を“低”用量（50～100mSv）または“高”用量（100mSv超）に分類した。1998～2001年に42%の患者、2002～2005年には49%の患者がCTスキャンを施行された。放射線を被曝した患者の割合は低および高用量のいずれも1998～2001年の群から2002～2005年の群までに、2倍に増加した。この結果は診断および管理に高速CTの使用が増加したことと一致している。CTの電離放射線による発がんはそれぞれの群で0.02%および0.04%と推定されたのに対し、過去のスタディではそれぞれ1.5～2.0%と推定されていた。

Full Text

The risk of developing radiation-induced cancer from computed tomography (CT) may be lower than previously thought, according to a study presented at the 2010 annual meeting of the Radiological Society of North America (RSNA).

"Radiation from medical imaging has gotten a tremendous amount of attention in recent years," said Aabed Meer, an M.D. candidate at Stanford University in Palo Alto, Calif. "This is one of the first studies to track CT utilization in such a large population."

The researchers conducted a retrospective study using US Medicare claims from 1998 through 2005 to analyze the distribution of CT scans, determine the ionizing radiation exposure associated with the exams and estimate the associated cancer risk in a population of older adults.

"The study focused on the elderly Medicare population, which receives the highest amount of per capita radiation," Meer said. "We analyzed more than 10 million records from the Medicare claims database."

The data were studied in two groups, including 5,267,230 records from 1998 through 2001 and 5,555,345 records from 2002 through 2005. For each group, the researchers analyzed the number and types of CT scans that each patient received to determine the percentage of patients exposed to "low" radiation doses of 50 millisieverts (mSv) to 100mSv and "high" radiation doses, in excess of 100mSv. They then used standard cancer risk models to estimate the number of cancers induced.

CT scans of the head were the most common examinations, representing 25 percent of the first group and 30 percent of the second group. However, abdominal CT delivered the greatest proportion of radiation, accounting for approximately 40 percent of the total radiation exposure in each group. Imaging of the pelvis and chest represented the second and third largest sources of radiation.

From 1998 to 2001, 42 percent of patients underwent CT scans. From 2002 to 2005, 49 percent of patients underwent CT scans. The percentage of patients exposed to radiation doses in both the low and high ranges approximately doubled from the first group to the second group. The researchers found this to be consistent with the increasing use of high-speed CT in patient diagnosis and management.

Cancer incidences related to ionizing radiation from CT were estimated to be 0.02 percent and 0.04 percent of the two groups, respectively.

"Our findings indicate a significantly lower risk of developing cancer from CT than previous estimates of 1.5 percent to 2.0 percent of the population," said coauthor Scott Atlas, M.D., chief of neuroradiology at the Stanford University Medical Center. "Regardless, the increasing reliance on CT scans underscores the importance of monitoring CT utilization and its consequences."

Other coauthors are Laurence Baker, Ph.D., and Pat A. Basu, M.D.

TOPICS

乳がん既往歴を有する女性はMRIでスクリーニングすべきである

乳房MRIは乳がん遺伝歴または家族歴を有する女性よりも乳がん既往歴を有する女性に対しより多くの乳がんを検出し偽陽性は少ない

Breast MRI identified more cancers with fewer false positives in women with a personal history of breast cancer than in women with a genetic or family history

乳がん既往歴を有する女性には年1回のマンモグラフィーに加えMRIによるスクリーニングも考慮すべきであるとのスタディ結果が2010年RSNAで発表された。研究者らは、2004年1月から2009年6月にかけて女性1,026人の初回スクリーニング乳房MRI検査の結果をレトロスペクティブ解析した；327人が乳がん遺伝歴または家族歴を有しており、646人が乳がん治療歴を有していた。全体で、MRI検査によりこの患者グループの27件のがんのうち25件が検出され、感度は92.6%であった。乳がん既往歴を有する女性の乳がん発症率（3.1%）は遺伝歴または家族歴を有する女性（1.5%）の倍であった。乳がん既往歴を有する女性における特異度は93.6%であり、これと比較し、他の群の特異度は86.3%であった。生検を勧められたのは乳がん既往歴を有する女性の9.3%であり、遺伝歴および家族歴を有する女性におけるその割合は15%であった。生検の陽性適中率もまた、乳がん既往歴群において高く、生検の35.7%からがんが検出されたのに対し他の群では12.2%であった。

Full Text

Women with a personal history of breast cancer should consider annual screening with MRI in addition to mammography, according to a study presented at the 2010annual meeting of the Radiological Society of North America (RSNA).

The American Cancer Society (ACS) guidelines currently recommend annual screening with breast MRI in women with a known gene mutation or with a strong family history indicating a lifetime risk of breast cancer greater than 20 percent. However, the guidelines say there is insufficient evidence to recommend for or against MRI screening in women who have already had breast cancer themselves.

"In our study using breast MRI screening, we actually detected proportionally more cancers in women with a personal history of breast cancer, compared with those women with a genetic mutation or strong family history who are currently recommended to have breast MRI," said Wendy B. DeMartini, M.D., assistant professor in the Department of Radiology at the University of Washington Medical Center and Seattle Cancer Care Alliance in Seattle. "Further, women with a personal history were less likely to be recalled for additional testing and less likely to have a biopsy for a false positive MRI finding."

Dr. DeMartini and colleagues performed a retrospective review of initial screening breast MRI examinations of 1,026 women from January 2004 to June 2009. Of the 1,026 women, 327 had a genetic or family history of breast cancer and 646 had a personal history of treated breast cancer.

Overall, MRI testing identified 25 of 27 cancers in the group for a sensitivity rate of 92.6 percent.

The cancer yield in the women with a personal history of breast cancer (3.1 percent) was double that of the women with a genetic or family history (1.5 percent). Specificity in women with a personal history was 93.6 percent, compared with 86.3 percent for the other group.

Biopsy was recommended in 9.3 percent of the women with a personal history of breast cancer, compared with 15 percent of the genetic and family history group. The positive predictive value of biopsy was also higher in the personal history group, with 35.7 percent of biopsies yielding cancer, compared with only 12.2 percent in the other group.

"Our findings show that the diagnostic performance of MRI in patients with a personal history of treated breast cancer supports consideration of screening MRI as an adjunct to mammography," Dr. DeMartini said. "Additional studies such as ours are necessary to establish guidelines for screening this important group of women."

Coauthors are Grace Kalish, M.D., Sue Peacock, M.Sc., Peter Eby, M.D., Robert Gutierrez, M.D., and Constance Lehman, M.D., Ph.D.

TOPICS

Cardiology

冠動脈CTAから睡眠時無呼吸と動脈硬化の関連性が認められた

Oncology

医療用放射線によるがんのリスクは過大評価されていた可能性がある

乳がん既往歴を有する女性はMRIでスクリーニングすべきである

50歳未満の女性において年1回のマンモグラフィーにより乳房切除術のリスクが低下する

Psychiatry

ウォーキングはアルツハイマー病の進行を遅延させる

診断の不確定により不安が増強する

50歳未満の女性において年1回のマンモグラフィーにより乳房切除術のリスクが低下する

年1回のマンモグラフィーを40歳から開始することにより乳房切除術のリスクが低下する

Annual screening mammography beginning at age 40 reduces mastectomy risk

40～50歳の女性において年1回のマンモグラフィー検査を受けることにより乳がんに対する乳房切除術のリスクが非常に低下するとのスタディ結果が2010年RSNAで発表された。研究者らは乳がんと診断されLondon Breast Instituteで治療を受けた40～50歳の女性の臨床データを解析した。2003～2009年に971人の女性が乳がんと診断された。診断時に393人（40%）が50歳未満であり、うち156人がこの施設で治療を完了した。治療された女性のうち114人（73%）が過去のマンモグラムを有していなかった。42人は過去にマンモグラフィーによるスクリーニングを受けており、うち29人が過去2年以内のマンモグラムを有していた。そのうち16人が過去1年以内のマンモグラムを有していた。データから、過去1年以内にスクリーニングを受けた女性16人中3人（19%）において必要な治療法が乳房切除術であるとされ、一方、過去1年間にスクリーニングを受けなかった女性140人のうち乳房切除を必要とされたのは64人（46%）であることが示された。

Full Text

Having a yearly mammogram greatly reduces the risk of mastectomy following breast cancer in women between the ages of 40 and 50, according to a study being presented at the 2010 annual meeting of the Radiological Society of North America (RSNA).

"The results of this study support the importance of regular screening in the 40 to 50 age group," said lead author Nicholas M. Perry, M.B.B.S., F.R.C.S., F.R.C.R., director of The London Breast Institute at The Princess Grace Hospital in London. "Women in this age group who had undergone mammography the previous year had a mastectomy rate of less than half that of the others."

An estimated 207,090 new cases of invasive breast cancer will be diagnosed in American women in 2010. Currently, the American Cancer Society recommends annual mammography screening for women beginning at age 40 in the U.S., but last year, the U.S. Preventive Services Task Force recommended changing the guidelines to begin screening biennially (every other year) at age 50. There are no routine screening guidelines for women under 50 in the U.K.

The researchers studied the benefits of screening women between the ages of 40 and 50, the frequency of mammography and the type of treatment after breast cancer diagnosis.

Dr. Perry and colleagues reviewed the clinical data available on women from 40 to 50 that had been diagnosed with breast cancer and treated at The London Breast Institute. Between 2003 and 2009, 971 women had been diagnosed with breast cancer. At the time of diagnosis, 393 (40 percent) of the women were under 50, with 156 of these women completing treatment at the center. Of the treated women, 114 (73 percent) had no prior mammograms. Forty-two women had been previously screened with mammography, of whom 29 had at least one mammogram within the previous two years. Of those, 16 women had a mammogram one year prior.

"We reviewed the records of the women needing mastectomy to determine whether or not they had undergone mammography the previous year," Dr. Perry said. "We were surprised at the degree of benefit obtained from yearly screening in this age group."

Data showed that mastectomy was the required treatment for 3 (19 percent) of the 16 women who had been screened the prior year, compared to 64 (46 percent) of the 140 women who had not been screened in the past year.

"Regular screening is already proven to lower the chance of women dying from breast cancer," Dr. Perry said. "The results of our study support the importance of regular screening in the under-50 age group and confirm that annual mammography improves the chances of breast conservation should breast cancer develop."

Dr. Perry's coauthors are Sue Milner, B.Sc., D.C.R., Kefah Mokbel, M.B.B.S., M.S., F.R.C.S., Stephen W. Duffy, B.Sc., M.Sc., and Katja Pinker, M.D.

TOPICS

Cardiology

冠動脈CTAから睡眠時無呼吸と動脈硬化の関連性が認められた

Oncology

医療用放射線によるがんのリスクは過大評価されていた可能性がある

乳がん既往歴を有する女性はMRIでスクリーニングすべきである

50歳未満の女性において年1回のマンモグラフィーにより乳房切除術のリスクが低下する

Psychiatry

ウォーキングはアルツハイマー病の進行を遅延させる

診断の不確定により不安が増強する

ウォーキングはアルツハイマー病の進行を遅延させる

1週間に5マイルのウォーキングは脳容積を保ち認知機能低下を遅延させる

Walking five miles per week protects brain volume and slows cognitive decline

ウォーキングは健常成人同様、軽度認知機能障害（MCI）およびアルツハイマー病を有する成人の認知機能低下をも遅延させる可能性があるとのスタディ結果が2010年RSNAで発表された。現在進行中の20年間のスタディのために研究者らは、299人の健常成人（平均年齢78歳）および認知症患者127人（平均年齢81歳、MCI 83人およびアルツハイマー型認知症44人）の計426人における身体活動と脳の形態との関連を解析した。その結果、全体的に身体活動量が大きいほど脳容積が大きいことが示された。認知機能の低下した人々は脳容積を維持し認知機能低下を遅延させるために1週間に58ブロック、つまり約5マイル歩く必要がある。健常人は脳容積を維持し認知機能低下を有意に軽減するためには1週間に72ブロック、つまり6マイル歩く必要がある。十分なレベルの身体活動を厳守しなかった認知機能低下患者はmini-mental state exam（MMSE）スコアが5年間で5ポイント低下したのに対し、必要とされる身体活動を行った患者のスコアは1ポイント低下したのみであった。

Full Text

Walking may slow cognitive decline in adults with mild cognitive impairment (MCI) and Alzheimer's disease, as well as in healthy adults, according to a study presented at the 2010 annual meeting of the Radiological Society of North America.

"We found that walking five miles per week protects the brain structure over 10 years in people with Alzheimer's and MCI, especially in areas of the brain's key memory and learning centers," said Cyrus Raji, Ph.D., from the Department of Radiology at the University of Pittsburgh in Pennsylvania. "We also found that these people had a slower decline in memory loss over five years."

In cases of MCI, a person has cognitive or memory problems exceeding typical age-related memory loss, but not yet as severe as those found in Alzheimer's disease. About half of the people with MCI progress to Alzheimer's disease.

"Because a cure for Alzheimer's is not yet a reality, we hope to find ways of alleviating disease progression or symptoms in people who are already cognitively impaired," Dr. Raji said.

For the ongoing 20-year study, Dr. Raji and colleagues analyzed the relationship between physical activity and brain structure in 426 people, including 299 healthy adults (mean age 78), and 127 cognitively impaired adults (mean age 81), including 83 adults with MCI and 44 adults with Alzheimer's dementia.

Patients were recruited from the Cardiovascular Health Study. The researchers monitored how far each of the patients walked in a week. After 10 years, all patients underwent 3-D MRI exams to identify changes in brain volume.

"Volume is a vital sign for the brain," Dr. Raji said. "When it decreases, that means brain cells are dying. But when it remains higher, brain health is being maintained."

In addition, patients were given the mini-mental state exam (MMSE) to track cognitive decline over five years. Physical activity levels were correlated with MRI and MMSE results. The analysis adjusted for age, gender, body fat composition, head size, education and other factors.

The findings showed across the board that greater amounts of physical activity were associated with greater brain volume. Cognitively impaired people needed to walk at least 58 city blocks, or approximately five miles, per week to maintain brain volume and slow cognitive decline. The healthy adults needed to walk at least 72 city blocks, or six miles, per week to maintain brain volume and significantly reduce their risk for cognitive decline.

Over five years, MMSE scores decreased by an average of five points in cognitively impaired patients who did not engage in a sufficient level of physical activity, compared with a decrease of only one point in patients who met the physical activity requirement.

"Alzheimer's is a devastating illness, and unfortunately, walking is not a cure," Dr. Raji said. "But walking can improve your brain's resistance to the disease and reduce memory loss over time."

Coauthors are Kirk Erickson, Ph.D., Oscar Lopez, M.D., James Becker, Ph.D., Caterina Rosano, M.D., Anne Newman, M.D., M.P.H., H. Michael Gach, Ph.D., Paul Thompson, Ph.D., April Ho, B.S., and Lewis Kuller, M.D.

TOPICS

Cardiology

冠動脈CTAから睡眠時無呼吸と動脈硬化の関連性が認められた

Oncology

医療用放射線によるがんのリスクは過大評価されていた可能性がある

乳がん既往歴を有する女性はMRIでスクリーニングすべきである

50歳未満の女性において年1回のマンモグラフィーにより乳房切除術のリスクが低下する

Psychiatry

ウォーキングはアルツハイマー病の進行を遅延させる

診断の不確定により不安が増強する

診断の不確定により不安が増強する

患者は検査結果を待機している時の方が疾患を有していると知った後よりもストレスを感じる

Patients often more stressed while waiting for medical test results than by knowing they have illness

検査結果を待っている間の不安感は重篤な疾患を有していると知った後よりもさらにストレスを感じる可能性がある、とのスタディ結果が2010年RSNAで発表された。研究者らは確定診断のための精密検査および治療を施行される予定の女性214人（112人は乳房生検、42人は肝動脈化学塞栓療法、60人は子宮筋腫塞栓術を待機）のストレスレベルを調査した。施術直前に各々の女性がストレスおよび不安レベルを測定する4つの標準的な検査（the State Trait Anxiety Inventory[STAI]、Impact of Events Scale[IES]、Center for Epidemiologic Studies Depression Scale [CES-D]、Perceived Stress Scale[PSS]）を受けた。4つの異なるストレス検査のスコアは、確定診断のための乳房生検を施行された女性において、良性および悪性疾患に対し低侵襲治療を施行された女性よりも高かった。乳房生検を受けた患者の平均STAIスコアは48であり、STAIスコアがそれぞれ26および24であった肝動脈化学塞栓療法施行患者および子宮筋腫塞栓術施行患者よりも有意に不安レベルが高かった。筆者らは、診断検査による感情的損害を軽視すべきではないと強調している。

Full Text

The feeling of anxious uncertainty while waiting for medical test results can be more stressful than knowing you have a serious illness, according to a study presented at the 2010 annual meeting of the Radiological Society of North America.

"Not knowing your diagnosis is a very serious stressor," said the study's lead author, Elvira V. Lang, M.D., associate professor of radiology at Harvard Medical School in Boston, Mass. "It can be as serious as knowing that you have malignant disease or need to undergo a possibly risky treatment."

Dr. Lang and her colleague, Nicole Flory, Ph.D., studied the stress levels of 214 women scheduled to undergo different diagnostic and treatment procedures. Immediately prior to the procedures, each of the women completed four standardized tests measuring stress and anxiety levels: the State Trait Anxiety Inventory (STAI), Impact of Events Scale (IES), Center for Epidemiologic Studies Depression Scale (CES-D) and Perceived Stress Scale (PSS).

Of the 214 women, 112 were awaiting breast biopsy; 42 were awaiting hepatic chemoembolization; and 60 were awaiting uterine fibroid embolization.

Breast biopsy patients reported significantly higher levels of anxiety, with an average STAI score of 48, than chemoembolization patients, who had an average STAI score of 26, and fibroid embolization patients, with an average STAI score of 24.

IES scores were not significantly different, but were higher among the breast biopsy patients (average score 26) than the other patient groups (average score 23). Average CES-D scores were 15 for breast biopsy patients, 14 for chemoembolization patients and 12 for fibroid embolization patients. PSS ratings were also highest among breast biopsy patients (average rating 18), compared to fibroid embolization patients (16) and chemoembolization patients (15).

"These results really drive the point home that the distress of not knowing your diagnosis is serious," Dr. Lang said. "We believe that healthcare providers and patients are not fully aware of this and may downplay the emotional toll of having a diagnostic exam."

According to Dr. Lang, simple steps can be taken to alleviate patient stress prior to a procedure. "Training the medical team in how to talk to patients makes a huge difference," she said. "This can diffuse tension right away and can help patients to shape expectations in a more helpful fashion."

TOPICS