

# Organized Acute Stroke Care Flourishes in U.S.

*American Stroke Association task force releases recommendations to implement stroke care systems.*

BY MITCHEL L. ZOLER  
Philadelphia Bureau

NEW ORLEANS — The number of certified stroke centers in the United States continues to rapidly increase, complemented by state mandates that require emergency medical services to take patients with acute strokes to designated stroke centers.

"It's a brush fire. System changes at the state level are rapidly growing," Lee H. Schwamm, M.D. said during a press conference at the 30th International Stroke Conference.

Another step toward creating more expedited and integrated systems for managing stroke patients was taken in early February, when the American Stroke Association's Task Force on the Development of Stroke Systems published online their recommendation on establishing stroke systems of care. A print version of the guidelines appears in the March 1 issues of both *Stroke* and *Circulation*.

"There is a wide variability in the delivery of stroke care" in the United States today, said Dr. Schwamm, associate director

of the acute stroke service at Massachusetts General Hospital in Boston and chairman of the task force. But "communities can identify the centers that do the right stroke care, and can preferentially send stroke patients to those centers."

The new recommendations from the task force outline "a way to build and implement a [stroke care] system that has all of the components working together," said Joe E. Acker III, executive director of the Birmingham (Ala.) Emergency Medical Services System and a task force member. "A state can take this document [the task force's recommendation] and create a stroke system; it's that easy," Mr. Acker said.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) began certifying hospitals as primary stroke centers in February 2004, and exactly 12 months later it had certified 88 hospitals in 28 states, said Maureen Connors Potter, executive director for international accreditation at JCAHO in Oakbrook, Ill. By last month, JCAHO was reviewing 15 hospitals each month for certification as primary stroke centers.

Out of the 4,900 hospitals in the United States, 1,200 had self-reported to JCAHO their intent to eventually file applications for certification, said Ms. Potter, who presented a first-year report on the process at the conference. JCAHO review of all 1,200 hospitals could probably be completed in 2 years, once all of the formal applications are filed, she estimated.

Once a significant number of stroke centers exist within a region, another key step is to make sure that acute stroke patients are preferentially brought to the centers by emergency medical technicians. Several states—Alabama, Florida, Maryland, Massachusetts, New York, and certain counties in California—already have programs or legislation in place that mandate this approach, although some of these programs are just now becoming implemented.

Documentation of the impact that can occur from designated stroke centers and an integrated emergency medicine response plan was presented at the conference by Toby I. Gropen, M.D., chairman of the department of neurology at Long Island College Hospital in Brooklyn, N.Y. He reported on the pilot phase experience of the New York State program, which began with 14 designated stroke centers in Brooklyn and Queens in May 2003.

During 3 months prior to the start of this program, 2.4% of all patients with acute stroke who were seen at hospitals in Brooklyn and Queens were treated with tissue plasminogen activator (TPA). During the 3 months shortly after the program was in place, the overall rate of TPA use had more than doubled, rising to 5.2% of all acute stroke patients. And among patients arriving at the 14 designated stroke centers, TPA was used on 7.7% of all acute stroke patients, said Dr. Gropen at the meeting, sponsored by the American Stroke Association.

The initial experience in Brooklyn and Queens also showed other signs of improved patient care.

The average time elapsed before a stroke patient underwent a CT examination at the 14 participating hospitals was cut in half, compared with the delay before the program started. And the number of patients who were admitted to stroke units, the next step beyond the emergency department, rose from 15% just before the program began to 38% in the first months after it was in place.

Dr. Gropen was also optimistic that these numbers are still improving. "We had a rapid deployment. The more experience people have, the better treatment will get," he said. ■

## Pituitary Dysfunction May Occur After Brain Injury

BY MICHELE G. SULLIVAN  
Mid-Atlantic Bureau

NEW ORLEANS — A head injury can cause immediate hypopituitarism that may last for up to 12 months and set the stage for new-onset pituitary deficiencies during that time, researchers said at the annual meeting of the Endocrine Society.

Neuroendocrine abnormalities are common in the acute phase of a traumatic brain injury (TBI), said Amar Agha, M.D., of Beaumont Hospital, Dublin, Ireland. Dr. Agha tested pituitary function in 50 TBI patients and 31 age-matched healthy controls and found that almost all patients had some form of pituitary dysfunction in the first 2 weeks after a mild or moderate brain injury.

All subjects had a glucagon stimulation test. For TBI patients, the test was performed within 12 days of the injury. Of the injured patients, 16% had subnormal peak cortisol responses and 18% had subnormal growth hormone responses; these findings were unrelated to age, body mass index, initial Glasgow Coma Score (GCS), or levels of insulinlike growth factor I.

A gonadotropin deficiency unrelated to the presence of hyperprolactinemia was seen in 80% of the injured patients. In males, low serum testosterone concentrations were associated with low (more severe) GCS scores.

Hyperprolactinemia was present in 52% of the patients. High serum prolactin levels were associated with low GCS scores.

Cranial diabetes insipidus was present in 26% of the patients, and 14% had inappropriate antidiuretic hormone secretion.

"Recognition of post-head injury hypopituitarism is important, as undiagnosed hormone deficiencies may have serious consequences," Dr. Agha said. "Appropriate and timely hormone replacement in affected patients may accelerate recovery and improve prognosis."

Whether these abnormalities are permanent remains unclear, Dr. Agha said. But even though some pituitary dysfunction resulting from traumatic brain injury is transient, total hypopituitarism diagnosed in the early postinjury period persists after a full year of recovery, said Gianluca Aimaretti, M.D., of the University of Turin (Italy).

Dr. Aimaretti followed 47 TBI patients for 1 year, testing their pituitary function at 3 months and 12 months post injury. The patients' average age was 37 years; 33 patients were male.

At the 3-month evaluation, some degree of hypopituitarism was present in 40.4% of the patients, including 8.5% with total dysfunction, 6.3% with multiple deficits, and 25.6% with isolated deficits.

At 12 months, only 27.6% showed some degree of hypopituitarism, but all of the patients with early total hypopituitarism maintained that diagnosis. Also, about 4% of the patients whose pituitary function was normal at 3 months had developed isolated deficits (either secondary adrenal or secondary gonadal insufficiency). ■

## Attention Problems Common With Sleep Apnea and Insomnia in Adults

BY DOUG BRUNK  
San Diego Bureau

SEATTLE — Many adults who have obstructive sleep apnea or insomnia also have attention-deficit disorder as well as neuromuscular and psychiatric conditions, results from a detailed analysis suggest.

"The sleep specialist isn't done when he says, 'It's sleep apnea. Use continuous positive airway pressure,' or 'It's insomnia; take a sleeping pill,'" Clifford G. Risk, M.D., said at a press briefing during the annual meeting of the American College of Chest Physicians. "He has to work out what the concurrent conditions are at the same time he's trying to improve the insomnia or sleep apnea. The assessment of patients with a sleep disorder and impaired daytime cognition may represent a complex interplay between the sleep disorder and comorbid dual diagnoses."

He and his associates at a sleep disorder center in Marlborough, Mass., evaluated 58 patients who presented with sleep apnea or insomnia. Investigators administered a wide battery of standardized tests to assess the severity of obstructive sleep apnea, attention-deficit problems, depression, and insomnia.

All patients received treatment for their respective conditions, including continuous positive airway pressure (CPAP) treatment for obstructive sleep apnea, cognitive behavior therapy and/or hypnotic medication for insomnia, and psy-

chiatric evaluation and possible medication for primary ADD.

Of the 34 patients who were found to have sleep apnea, 16 had baseline Adult Self-Report Scale (ASRS) symptom checklist scores that suggested moderate or severe impairment of attention. After CPAP treatment, 60% of these patients substantially improved their attention scores. "However, 40% continued to report serious attention deficits following treatment, and required further neuropsychiatric evaluation and specific interventions," said Dr. Risk, who directs the sleep disorder center.

Of the 24 patients who had insomnia, 54% had baseline ASRS scores that suggested moderate or severe impairment of attention. Nine patients suffered from a primary muscular disorder, including fibromyalgia, chronic fatigue, multiple sclerosis, peripheral neuropathy, and post-polio syndrome; 15 suffered from a primary psychological disorder, including depression, bipolar disorder, and anxiety.

There were serious rheumatologic and neurologic diseases causing sleep disturbances in patients with insomnia, Dr. Risk said. "If they slept through the night, we found that they were mostly in stage 1 or 2 sleep. They never got to restorative sleep stage 3 or 4. So they had a lack of restorative sleep due to a light or fragmented sleep."

He and his associates have begun trying to identify reversible risk factors in each patient with insomnia to design specific interventions that may be of benefit. ■