Therapeutic Hypothermia Urged in TBI

By Jane Salodoff McNeil
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Scottsdale, Ariz.—The next re-
vision of 9-year-old guidelines for ma-
agement of severe traumatic brain injury should endorse patient cooling, Donald Marion, M.D., chair of a committee evaluating changes in the guidelines, told reporters here at the annual meeting of the Neurocritical Care Society. Dr. Marion, a neurosurgeon and senior research fellow at the Brain Trauma Foun-
dation, New York, said he intends to rec-
ommend that therapeutic hypothermia be a standard consideration in these cases and that "therapeutic hypothermia for 48 hours or less should be considered for patients with elevated ICP [intracranial pressure]."

His remarks were intended to give the scorecard on the revised guidelines, which are expected to be released in December. Dr. Marion said he anticipated the revised guidelines would be released in 2006 and encouraged physi-
cians to send him comments at donmarr-
oni@yahoo.com.

The guidelines, created in 1996, are a joint project of the Brain Trauma Foun-
dation and the American Association of Neu-
rological Surgeons, the Congress of Neuro-
surgical Surgeons, and the AANS/CNS Joint Section on Neurotrauma and Criti-
cal Care. Dr. Marion said evidence-based conclusions would support the following statements:

- Hypothermia improves outcomes.

- Hypothermia reduces elevated ICP.

- If the patient is cooled to greater than or equal to 32°C for no more than 48 hours, there are no clinically significant changes in risk of cerebral arthritic or coagulopathy.

He reported 10 of the 15 trials had at least 13 patients in each arm. Among those trials, 34 of the 15 complete manu-
scripts (the exception being a study from China). That seven were single-center studies should not make them less highly regarded, according to Dr. Marion. In all seven there is a trend to improved outcomes, and most reach statisti-
cal significance. The only ones that don’t show a trend to improved outcomes are the two multicenter trials, he said, ques-
tioning whether randomized multicenter trials are realistic for a condition as com-
plex as traumatic brain injury (TBI).

Dr. Marion said that the main cum-
ulative outcomes from all nine studies found 52% of patients treated with hy-
pothemia were alive and functional at des-
ignated times compared with 33% of those treated after normal temperatures during the last 40 years. Only 39% of those treated at normal temperatures did as well, he said. This 13% difference became 24% when the two multicenter trials were excluded.

He also should be a mitigated meta-
analysis of hypothermia trials as flawed (Arch. Neurol. 2002;59:1077-108). It only gave weight to four trials, one of which had 2% of subjects whose data were unanalyzable. Of the three combined trials, he said. A second negative study (Ann. Surg. 1997;226:439-47) included only TBI patients and did not consider functional outcomes as distinct from mortality, Dr. Marion said.

A second presenter on clinical use of hy-
pothemia, Stefan Schwab, M.D., of the University of Heidelberg (Germany), re-
ported that his institution has cooled about 200 stroke patients. He character-
ized hypothermia as a promising neuro-
protective therapy with the potential to combat fever but said the evidence does not support it as a standard for ischemic stroke.

Among the many open questions still to be resolved, Dr. Schwab listed optimal time to target temperature, duration of cooling, target temperature, ventilation mode, and methods of cooling and re-warming. He also cited safety, efficacy, and whether hypothermia might be better practiced in patients with moderate, severe, or very severe strokes.

For optimal treatment of severe stroke, 
decompensation surgery is still the stan-
ard, Dr. Schwab concludes for hypothermia might be beneficial as an add-
ted or therapy case in strokes that are severe but not very severe. "Obviously hypothermia is not for everyone, but we need to see how it is used," he said.

Michael A. De Girolamo, M.D., of the Cleveland Clinic Foundation reviewed studies that led to the International Lia-
onal Stroke Alliance (ILSA) collaborative task force advisory statement endorsing use of therapeutic hypothermia after car-
dar arrest. (Circulation 2003;108:118-21). Dr. De Girolamo concluded that for cardiac arrest. Maybe this is something we should be doing in selective patients," Dr. De Girolamo said.