# Hormonal Precursor Could Make Dx of Sepsis Easier

BY JONATHAN GARDNER
*Contributing Writer*

GLASGOW, SCOTLAND — Swiss researchers have identified a hormonal precursor that may make it easier for physicians to identify patients suffering from sepsis, according to a study presented at the 8th European Congress of Endocrinology.

The substance is copeptin, a precursor to vasopressin, which is produced when the body undergoes stress, such as septic shock. Vasopressin is unstable and has a short half-life, making it difficult to use in identifying patients who are suffering from sepsis. Copeptin, on the other hand, is more stable and is derived from the same precursor molecule.

A team of researchers from the departments of endocrinology and internal medicine at University Hospital, Basel, Switzerland, led by Dr. Mirjam Christ-Crain, evaluated 101 consecutive critically ill patients over a 9-month period and compared their relative serum copeptin levels with relative copeptin levels in 50 healthy control subjects. Copeptin levels were measured at admission, day 2, and hospital discharge or death.

Copeptin levels were identified in the blood using a test that will soon be available commercially from the German medical equipment manufacturer Brahms AG.

Of the 101 critically ill patients, 53 had sepsis, severe sepsis, or septic shock; 48 had systemic inflammatory response syndrome (SIRS).

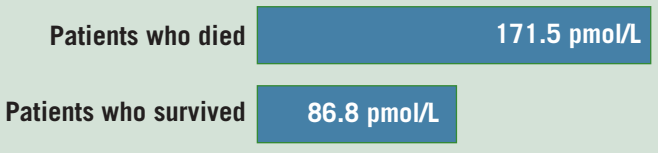
At admission, patients with SIRS had a median copeptin level of 27.6 pmol/L of blood, those with sepsis 50 pmol/L, those with severe sepsis 73.6 pmol/L, and those with septic shock 171.5 pmol/L. In comparison, healthy controls had a median copeptin level of 5 pmol/L, Dr. Christ-Crain said.

Patients with sepsis, severe sepsis, or septic shock who died had median copeptin blood levels of 171.5 pmol/L, compared with 86.8 pmol/L among those who survived.

Septicemia is the 10th-leading cause of death in the United States, claiming 33,464 lives in 2004, according to the Centers for Disease Control and Prevention.

"Copeptin is a novel tool to assess the prognosis of sepsis," Dr. Christ-Crain observed. "It might help to guide the resource allocation of hospital care to those patients especially in need for intensive surveillance." ■

**Median Copeptin Levels of Patients With Sepsis**




Note: Based on a study of 101 critically ill patients.
Source: Dr. Christ-Crain

ELSEVIER GLOBAL MEDICAL NEWS

# *Suspect Chronic Zoster In All Compromised Kids*

BY SHERRY BOSCHERT
*San Francisco Bureau*

SAN FRANCISCO — Suspect chronic varicella zoster in all immunocompromised children, not just those with HIV, Dr. Christopher Bohyer said at the annual meeting of the American Academy of Dermatology.

Test zosterlike lesions in immunocompromised children for drug resistance, because chronic varicella typically implies antibiotic resistance, said Dr. Bohyer of Indiana University, Bloomington.

He presented what may be the first case of chronic varicella zoster in a child after bone marrow transplant. Other cases have been reported in children who have undergone chemotherapy or who have HIV.

Dr. Bohyer's patient was an 11-year-old boy who was diagnosed in 2003 with acute myelogenous leukemia and was treated with chemotherapy. He relapsed in April 2004, underwent donor stem cell transplant, and developed acute graft-versus-host disease.

He was out of the hospital in September 2004, when he developed significant abdominal pain. Clinicians feared this was a worsening of his graft-versus-host disease, but a GI work-up that included an intestinal biopsy showed no findings consistent with that diagnosis.

Three days after admission, he had an eruption of multiple vesicles on his head and neck. Culture identified them as varicella zoster infection, and he was treated with high-dose IV acyclovir 10 mg/kg for 15 days.

The patient went home and was doing well until a month later when he was readmitted with another unusual cutaneous eruption on his whole body.

The vesicles and papules housed varicella zoster, culture showed.

Another round of high-dose acyclovir stemmed the eruption of any new lesions, but the chronic lesions did not resolve.

Around this time the patient's condition deteriorated to the point that support was withdrawn, and he died. ■

# *Multiple Vaccinations Pose Minimal Risk to Children*

The measles, mumps, rubella, and varicella vaccine can safely be given at the same time as other childhood vaccines are administered, reported Dr. Henry Shinefield of the University of California, San Francisco, and his colleagues.

The researchers conducted an open, multicenter trial in which 1,779 healthy children aged 11-16 months were randomized into three groups. Group 1 received the measles, mumps, rubella, and varicella vaccine (MMRV), the combined *Haemophilus influenzae* type b conjugate–hepatitis B vaccine (HH), and the combined diphtheria-tetanus–acellular pertussis vaccine (DTaP) at the same visit. Group 2 received the MMRV at the initial visit, followed by HH and DTaP 42 days later. Group 3 received separate MMR and varicella vaccines at the initial visit, followed by HH and DTaP 42 days later.

Overall, the antibody response rates and geometric mean antibody titers to measles, mumps, rubella, and varicella were similar, regardless of whether MMRV was given at the same time as the other vaccines or 42 days earlier. When MMRV was given at the same time as HH and DTaP, the antibody response rates for measles, mumps, rubella, and varicella were 97.8%, 95.4%, 98.6%, and 89.7%—higher than the previously established acceptability criteria.

Children who received all the vaccines at once were significantly more likely to report pain or tenderness at the injection site, compared with the other groups. Other safety results, including rates of fever, congestion, and cough, were comparable among the groups.

Dr. Shinefield has received an honorarium for preparing informational material for doctors about the MMRV vaccine ProQuad, and he is a member of the Merck Advisory Committee on Varicella and ProQuad.

**—Heidi Splete**

# Stress Hyperglycemia Predictive in Sepsis

BY PATRICE WENDLING
*Chicago Bureau*

NICE, FRANCE — A new study suggests that stress hyperglycemia may be an important predictor of morbidity and mortality in nondiabetic patients with sepsis.

The investigation included 242 patients without diabetes who were hospitalized with severe sepsis in three hospitals in southwestern Greece during a 1-year period.

Hyperglycemia was defined as an admission or in-hospital fasting glucose level of 126 mg/dL or more, or a random blood glucose level of 200 mg/dL or more on two or more evaluations.

Stress hyperglycemia—defined as a transient elevation of blood glucose levels due to various factors including stress, injury, and surgery—was present in 20% of the participating patients, Dr. Lydia Leonidou reported at the 16th European Congress on Clinical Microbiology and Infectious Diseases.

Moreover, a significantly higher percentage of septic patients with stress hyperglycemia died, compared with those participants who had normal glucose levels (43.4% vs. 13.2%), the investigator reported.

Stress hyperglycemia was not related to a genetic predisposition to diabetes mellitus. Only 6% of hyperglycemic patients had a first-degree relative with diabetes, compared with 11% of normal glycemic patients, reported Dr. Leonidou and her colleagues at the University of Patras (Greece).

**Stress hyperglycemia—defined as a transient elevation of blood glucose levels due to various factors including stress, injury, and surgery—was present in 20% of the participating patients.**

Sources of infection in all patients were: respiratory tract 42%, urinary tract 35%, intraabdominal 16%, central nervous system 3%, soft tissue 3%, and endocarditis 1%.

Hyperglycemic patients were older than normal glycemic patients, but the difference was not statistically significant (73.4 years vs. 65.7).

There was no significant difference in gender, body mass index, C-reactive protein, blood cultures, and hospitalization days between groups.

Hemoglobin $A_{1c}$ levels were significantly higher among hyperglycemia patients (5.73% vs. 5.44%) but were within the normal range of 4%-5.9%.

The investigators also found that patients with stress hyperglycemia had a significantly higher sepsis-related organ failure assessment (SOFA) score than patients with normal glycemia (mean 4.9 vs. 2.9).

This finding led some of the people who were attending the meeting to question whether stress hyperglycemia caused poor outcomes or was just another surrogate marker such as the SOFA score itself.

The study's lead author Dr. Charalambos Gogos responded, "We believe that hyperglycemia is not [just] a surrogate marker, but something you have to fight in your patients with good glycemic control." ■