cating quantitative estimates of risk such as those in our decision model.

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RESEARCH LETTERS

Retained Needle Fragments in Patients With Diabetic Neuropathy

To the Editor: Long-standing peripheral neuropathy often compromises the normal protective mechanisms of pain in the affected extremities. In addition to chronic ulceration, acute injury due to foreign bodies also may occur. Broken fragments of insulin needles may “silently” penetrate the soft tissues, acting as a constant source of infection and reinjury. While the risk of such “silent needle” penetration seems apparent, only a single case of this complication has been reported previously.1

Report of Cases. From 1988 to 1999 we evaluated 6 patients with insulin-dependent diabetes with sensory neuropathy and needle fragments in soft tissues. The patients were aged 47 to 75 years, 5 were women, and 5 were African American. Four patients had needle fragments in the soft tissues of their feet, 1 patient had a fragment in the abdominal wall, and 1 with coincidental syringomyelia had a fragment in the shoulder. Two patients had severe proximal muscle weakness, and 3 had neuropathic arthropathy of the foot and ankle. One patient had amputation of the right great toe secondary to osteomyelitis. Radiography of this patient’s left foot and ankle (Figure) revealed neuropathic arthropathy and 2 needle fragments embedded in the soft tissues.

Comment. The most common cause of peripheral sensory neuropathy is type 2 diabetes mellitus.2 The sensory deficit often results in significant morbidity such as neuropathic arthropathy and soft tissue injuries with secondary ulcers on the foot. These lesions are caused by a loss of pain-mediated compensatory mechanisms during normal weight-bearing movement.3 Unfortunately, regular insulin injections, which are so vital in treating diabetes, pose a risk by exposing the patient to small and very sharp foreign bodies, particularly if these needles are broken off prior to disposal. The feet of diabetic patients are prone to frequent complications from even trivial injuries due to their relative ischemia and neuropathic insensitivity.4 Furthermore, walking barefoot, carpeted floors, compromised visual acuity due to retinopathy,5 and abnormal gait due to myopathy all increase the risk of injury. Physicians caring for patients with sensory neuropathy should look for evidence of puncture wounds, and radiographs of the foot should be examined carefully for tiny metal fragments.

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Cholera Incidence and El Niño–Related Higher Ambient Temperature

To the Editor: Since the 1991 epidemic, cholera continues to be an important health problem in Peru. More than 260000 cases were reported in Lima alone by the end of 1993, when the epidemic was brought under control. Recent investigations suggest the existence of an environmental aquatic reservoir for Vibrio cholerae O1.1-5 Furthermore, cholera seasonality in endemic areas suggests possible long-term survival of V cholerae in the environment. Therefore, extreme weather
phenomena like the 1997-1998 El Niño may facilitate the growth of V cholerae in the environment, which may in turn trigger the onset of a cholera outbreak. We have previously suggested probing sewage water for the presence of V cholerae as an environmental surveillance measure against future cholera outbreaks.5

Methods. Sewage samples were probed weekly for V cholerae O1 from November 1997 to July 1998 and from November 1998 to May 1999 in Lima, Peru. Methods are described elsewhere.5 During this period we obtained the weekly number of new cholera cases in Lima from the Ministry of Health and the weekly average ambient temperature from the Peruvian Weather Service.

Results. Between January 1997 and May 1999, 1175 clinical cholera cases were reported in Lima, but 1039 of these occurred between January and May of 1998 (FIGURE). From November 1997 to July 1998, V cholerae O1 was isolated in 10 (29%) of 35 surveillance weeks and in 11 (4%) of 280 sewage samples. However, V cholerae O1 was not isolated from any of the 208 sewage samples obtained between November 1998 and May 1999. On average, 62 cholera cases per week were reported when V cholerae O1 was isolated vs 11 cases per week when no V cholerae O1 was detected (P<.001).

Ambient temperature was positively correlated with the number of cholera cases (r=0.49; P<.001). This outbreak coincided with the exceptionally high 1998 summer ambient temperature increase due to the El Niño phenomenon, and the peak in ambient temperature also preceded the peak of the outbreak by 3 weeks. Regression analysis revealed that 19.3°C was the threshold ambient temperature that predicted a large increase in cholera cases. V cholerae O1 detection in sewage preceded the mid March 1998 outbreak peak by 14 weeks. After August 1998, no more than 2 new cases of cholera were reported per week, nor was V cholerae O1 isolated from sewage samples. As of March 2000, no cases of cholera have been reported.

Comment. As in our previous study,3 cholera was detected in sewage several weeks prior to the onset of the cholera outbreak, thus confirming our previous observation that sewage surveillance can therefore assist in preparedness measures for cholera outbreaks. Furthermore, the higher ambient temperatures associated with the 1997-1998 El Niño event appear to have led to an increase in environmental V cholerae O1 and in turn to the 1998 cholera outbreak, after the nearly complete absence of cholera cases in Lima since late 1995. During the 1998 summer (January-March 1998) the mean ambient temperature was 26°C, which is 3.4°C higher than the previous 5 summers.6 Previous studies have demonstrated a positive relationship between water temperature and survival and reproduction of V cholerae.3 Our results support the use of sewage surveillance to predict cholera outbreaks and suggest a link between the 1998 cholera outbreak in Lima and the excess ambient temperature associated with the El Niño phenomenon.

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Figure. Relationship Between Number of Weekly Reported Cholera Cases in Lima, Peru, Ambient Temperature, and Isolation of Vibrio cholerae From Sewage, 1997-1999
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**Periconceptional Intake of Folic Acid Among Low-Income Women**

To the Editor: The US Public Health Service in 1992 and the Food and Nutrition Board of the Institute of Medicine in 1998 recommended that all women of reproductive age consume 400 µg of synthetic folic acid daily, whether or not they are planning a pregnancy. These recommendations were issued to prevent spina bifida and anencephaly. By 1997, only 20% of newly pregnant women in the United States were consuming the recommended amount of folic acid. Low-income women, on average, consume vitamin supplements even less frequently. We sought to estimate how many low-income women in Atlanta are following the current folic acid recommendations.

Methods. In fall 1999, we interviewed 150 African American inner-city women who came to the Grady Memorial Hospital for their first prenatal visit to determine their use of folic acid supplements before and during pregnancy. We also obtained information about dietary habits and other potential predictors of synthetic folic acid consumption. The Human Investigations Committee of Emory University approved the study and all participating women gave informed consent.

Results. We found that 6 (4%) of the 150 women reporting taking a synthetic folic acid supplement properly prior to becoming pregnant.

Comment. Eight years after the Medical Research Council Vitamin Study demonstrated that folic acid prevents spina bifida and anencephaly, most low-income women in our sample were still not receiving appropriate folic acid supplementation. Higher levels of food fortification may help to ensure that all women consume the recommended daily levels of folic acid. The Food and Drug Administration has projected that the current low level of folic acid food fortification in the United States will result in only approximately 25% of women of reproductive age consuming 400 µg of synthetic folic acid daily from all sources, including supplements.

On January 13, 2000, the UK Committee on Medical Aspects of Food and Nutrition Policy published a recommendation for folic acid fortification of grains in the United Kingdom at a concentration twice that used in the United States. Our findings suggest that these higher standards should also be adopted in the United States.

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**CORRECTION**

Incorrect Word: In the A Piece of My Mind entitled “Faith and Doubt” published in the April 5, 2000, issue of THE JOURNAL (2000;283:1661-1662), there was an incorrect word. On page 1661, the sentence that read “There was the neurosurgeon, that oft-deified caretaker of the organ that houses the intellect;...” should have read “There was the neurosurgeon, that oft-deified caretaker of the organ that houses the intellect;...”