

Flocked Swabs Beat Aspiration for Virus Recovery

BY BRUCE JANCIN

SAN DIEGO — Nasopharyngeal flocked swabs are significantly more effective than nasopharyngeal aspirates for recovery of respiratory viruses, according to a nostril-to-nostril comparative study.

The cost of the flocked swab method was 58% less in terms of equipment and procedural time than for nasopharyngeal aspiration in this 106-patient study, Dr. Gaurav Sangwan reported at the annual meeting of the American College of Chest Physicians.

Moreover, the nasopharyngeal flocked swabs were significantly more environmentally friendly, with a carbon footprint less than 5% of that involved in obtaining nasopharyngeal aspirates. Health care personnel participating in the study indicated they found the flocked swabs

easier to use and preferable to obtaining nasopharyngeal aspirates. Nasopharyngeal flocked swab sample collection is also far more amenable to outpatient settings, added Dr. Sangwan of Southern Illinois University, Springfield.

Each of the 106 study participants with suspected viral respiratory infection underwent flocked swabbing of one nostril and nasopharyngeal aspiration in the other. Swabbing yielded 67 positive results, significantly more than the 60 positives with nasopharyngeal aspiration.

Respiratory syncytial virus was detected by immunoassay in 25 specimens obtained by flocked swabbing and in 21 nasopharyngeal aspirates. Immunoassays for influenza A/B were positive in 10

flocked swab specimens and 4 nasal aspirates. Direct fluorescent antibody testing for respiratory viruses was positive in

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eight flocked swab samples and three nasopharyngeal aspirates. Culture was positive for 24 flocked swab samples and 28 nasopharyngeal aspirates.

The average estimated yield of epithelial cells rated by laboratory personnel on a 1-4 scale was a score of 3.6 per

flocked swab and 3.0 per nasal aspirate.

Traditional fiber or foam swabs have been shown to be inferior to nasopharyngeal aspirates in terms of the amount of the sample obtained for respiratory virus diagnostic testing. Nasopharyngeal flocked swabs, a proprietary technology recently developed by Copan Diagnostics, overcome the problems of poor sample uptake and release inherent to traditional swabs. The flocked swabs utilize a brush-like action to dislodge epithelial cells and capillary hydraulics to draw liquid material between the swab fibers. ■

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Interval Between H1N1 Symptom Onset, Antiviral Treatment Affects ICU Risk

BY MIRIAM E. TUCKER

The time interval between the onset of symptoms and antiviral treatment was the strongest predictor of intensive care admission for severe infection with 2009 pandemic influenza A(H1N1) and increased the risk for ICU admission up to eightfold in a cumulative case-control study of 795 patients in Manitoba, Canada.

Other predictors of ICU admission, compared with more mild disease cared for in the community, included First Nations ethnicity and

admitted to the ICU. The mean age of the 795 infected individuals analyzed was 25.3 years, and 52% were female. Of 588 for whom ethnicity was known, 37% described their ethnicity as "First Nations," one of three officially recognized groups of Canadian aboriginal peoples.

First Nations residents accounted for 28% of the 410 community cases for whom ethnicity was known, compared with 54% of those admitted to the hospital and 60% of 42 admitted to the ICU. Females represented 52% of the total 569 community cases and 50% of the 181

hospital admissions, but 69% of the 45 ICU cases. The presence of an underlying medical condition—including heart or lung disease, diabetes, malignancy, and substance abuse as well as pregnancy—also increased with severity of disease, from 35% of the community cases to 57% of the hospital admissions to 76% of those admitted to the ICU, Dr. Zarychanski and his associates reported.

Two-thirds of the 34 adults with comorbid conditions admitted to the ICU were clinically obese (body mass index greater than 30), but height and weight were not recorded consistently enough for patients in the two control groups to allow analysis of obesity as a risk factor for severe outcomes, they noted.

Antiviral therapy was known to have been prescribed for 34% of patients in the community group, 54% admitted to the hospital, and 95% of those who ended up in the

ICU. Severity of illness correlated with increasing interval from symptom onset to the start of antiviral therapy, with the median interval 2 days for the community patients, 4 days for those hospitalized but not in ICU, and 6 days for those admitted to the ICU (CMAJ 2010, [doi:10.1503/cmaj/.091884]).

In a multivariate analysis that accounted for age, sex, First Nations ethnicity, medical comorbidity, interval from symptom onset to antiviral initiation, urban vs. rural status, and income quintile, a treatment interval of greater than 2 days vs. 2 days or fewer increased the risk for ICU admission, compared with being treated in the community by more than eightfold, with an odds ratio of 8.24. First Nations ethnicity increased the ICU risk by an odds ratio of 6.52 and medical comorbidity by an odds ratio of 3.19.

Similarly, in an analysis comparing those admitted to the ICU with those admitted to the hospital but not the ICU, First Nations ethnicity increased the risk by more than threefold, with an odds ratio of 3.23. In this comparison, the odds ratio for treatment interval of more than 2 days vs. 2 or fewer was 2.44 but did not reach statistical significance, the investigators noted.

The finding of increased illness severity among First Nations people is consistent with historical records from the 1918 influenza pandemic and more recent studies. Some evidence suggests a genetic predisposition, Dr. Zarychanski and his associates commented.

The Public Health Agency of Canada provided salary support to help facilitate data collection and statistical consultation. ■

Federal Panel Finds No Safety Signals With H1N1 Vaccine

BY MIRIAM E. TUCKER

The National Vaccine Advisory Committee has endorsed a working group report concluding that no safety signals have been identified so far with the 2009 pandemic influenza A(H1N1) vaccine.

In a public teleconference, working group chair Dr. Marie McCormick said the group reviewed data for a total of 74 million doses of inactivated (injected) vaccine and 19 million doses of live attenuated (intranasal) H1N1 vaccine distributed as of around Christmas. They concluded that the data do not suggest a safety signal between the outcomes examined and the vaccine, defining "signal" as an outcome occurring more than anticipated by chance alone.

No serious increases in adverse events have been seen to date in any of the pandemic H1N1 vaccine clinical trials, and a comparison of serious events reported to the Vaccine Adverse Events Reporting System have shown similar levels between the H1N1 vaccine and the seasonal influenza vaccine, as well as other

vaccines. In addition, active surveillance systems that are using rapid-cycle analysis of prespecified outcomes have also been within expected values, said Dr. McCormick, the Sumner and Esther Feldberg professor of Maternal and Child Health at Harvard University, Boston.

However, she cautioned, the size of the population captured under active surveillance is still somewhat limited. A new federal project called Post-Licensure Rapid Immunization Safety Monitoring (PRISM), designed to monitor H1N1 vaccine safety in real-time using data from large health plans covering approximately 10% of the U.S. population, was getting underway at the time of the teleconference.

"As more data are available through active surveillance, conclusions will be based on a larger accumulation of data. Larger samples may be needed to detect rare adverse events," she said.

The NVAC members voted to endorse the report during the teleconference. It was then sent to the U.S. assistant secretary for health for review and formal implementation. ■

VITALS

Major Finding: Interval to treatment, First Nations ethnicity, and medical comorbidities independently predicted ICU admission for 2009 pandemic H1N1 influenza in Manitoba, Canada.

Data Source: Cumulative case-control study of 795 Manitoba residents with confirmed H1N1 infection.

Disclosures: None declared.

the presence of a medical comorbidity, said Dr. Ryan Zarychanski of the University of Manitoba, and his associates.

"These data may have implications for proactive public health and primary care using outreach models at the community level, whether for public health education, prioritization of vaccination efforts, or strategies for antiviral treatment," the investigators said.

The 795 study patients came from a total 894 confirmed H1N1 cases among Manitoba residents for whom the location of care could be determined: 569 remained in the community, 181 were admitted to the hospital but not the ICU, and 45 were