1818. Immunogenicity of Inactivated Varicella Zoster Vaccine (VZV) in Autologous Hematopoietic Stem Cell Transplant (auto-HSCT) Recipients

Michael Boechk, MD, FIDSA; Ann Arvin, MD, FIDSA, FPID; Kathleen Mullane, DO, FIDSA; Drew J. Winston, MD; Janice (Wes) Brown, MD; Steven Pergam, MD, MPH, FIDSA; Kimberly Hurtado, BS; Lei Pang, PhD; Ingi Lee, MD, MSCE; Zoran Popmihajlov, MD, MS; and on behalf of the V212 Protocol 001 Study Team; 1 Fred Hutchinson Cancer Research Center, Seattle, Washington; 2 Division of ID/Department of Ped, Stanford University School of Medicine, Stanford, California; 3 Medicine, University of Chicago Medicine, Chicago, Illinois; 4 University of California at Los Angeles Medical Center, Los Angeles, California; 5 Division of Blood and Marrow Transplant and Division of Infectious Diseases, Department of Medicine, Stanford University School of Medicine, Stanford, California; 6 Vaccine and Infectious Disease Division, Fred Hutchinson Cancer Research Center, Seattle, Washington; 7 Merck & Co., Inc., Kenilworth, New Jersey; 8 Merck & Co., Inc., North Wales, Pennsylvania

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**Background.** Recipients of auto-HSCT have an increased risk of herpes zoster (HZ) infection; however, live attenuated varicella-zoster virus (VZV) vaccine is contraindicated in these patients. In this pivotal Phase III study (V212-001; NCT0122967) inactivated VZV vaccine (VZV) reduced the rate of HZ infection compared with placebo (estimated vaccine efficacy, 63.8%) and was well tolerated. Immunogenicity of VZV in recipients of auto-HSCT was assessed in the Phase III study as an exploratory objective.

**Methods.** Adults undergoing auto-HSCT were randomized to receive either VZV (n = 560) or placebo (n = 564), administered in a 4-dose regimen. Doses 1 through 4 were administered -30 days before and -30, -60, and -90 days following auto-HSCT. VZV-specific immune responses were measured at Day 1, -28 days post-vaccination and 3 and 4, and annually until the end of the study. VZV-specific antibody responses were measured by glycoprotein enzyme-linked immunosorbent assay (gpELISA) in all patients; cell-mediated immune responses were measured by VZV interferon-gamma enzyme-linked immunospot (IFN-γ ELISPOT) assay in a randomized subset of patients (n = 403).

**Results.** Geometric mean titers (GMT) were significantly higher and the ratio of the gpELISA and IFN-γ ELISPOT were significantly greater in the VZV group compared with the placebo group (Tables 1 and 2).

| Subgroup | Vaccine | Placebo |
|----------|---------|---------|
| Non-HSCT | 102     | 102     |
| HSCT     | 106     | 116     |

**Conclusion.** VZV elicited higher VZV-specific humoral and cell-mediated responses in adult auto-HSCT recipients when compared with placebo –28 days and ~1 year post-dose 4. These results indicate that VZV is immunogenic in these patients who are ineligible for live attenuated HZ vaccine, which is consistent with previously observed clinical efficacy.

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1819. Vaccine effectiveness against influenza-associated hospitalization among children aged <13 years using a hospital-based surveillance system in Minnesota, 2013–2016

Ashley Fowkkes, MPH1; Hannah Friedlander, MPH1; Andrea Steffens, MPH1; Kathryn Como-Sabetti, MPH1; Dave Borerud, MCSc1; Sarah Bistodeau, BS2; Anna Strain, PhD2; Bill M. Ferdinands, PhD MCSc3; Sandra S. Chaves, MD MCSc3; Carrie Reed, DSc, MPH4 and Ruth Lynfield, MD, FIDSA5; 1Influenza Division, Centers for Disease Control and Prevention, Atlanta, Georgia; 2Minnesota Department of Health, St. Paul, Minnesota; 3Minnesota Department of Health, Minneapolis, Minnesota; 4Public Health Laboratory, Minnesota Department of Health, St. Paul, Minnesota

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**Background.** Due to marked variability in circulating influenza viruses each year, annual evaluation of the vaccine's effectiveness against severe outcomes is essential. We used the Minnesota Department of Health's (MDH) Severe Acute Respiratory Illness (SARI) surveillance to evaluate vaccine effectiveness (VE) against influenza-associated hospitalization over three influenza seasons.

**Methods.** Residual respiratory specimens from patients admitted with SARI were sent to the MDH laboratory for influenza RT-PCR testing. Medical records were reviewed to collect patient data. Vaccination history was verified using the state immunization registry. We included patients aged ≥6 months to <13 years, after which immunization reporting is not required. Hospitalized from the earliest influenza detection after July through April each year. We defined vaccinated patients as those ≥1 dose of influenza vaccine in the current season. Children aged <9 years with no history of vaccination were considered vaccinated if ≥2 doses were given a month apart. Partially vaccinated children were excluded. We considered VE as 1 minus the adjusted odds ratio (±100%) of influenza vaccination among influenza cases vs. negative controls, controlling for age, race, days from onset to admission, comorbidities, and admission month.

**Results.** Among 2198 SARI patients, 735 (35%) were vaccinated for influenza, 180 (8.2%) were partially vaccinated, and 1255 (57%) were unvaccinated. Influenza was detected among 202 (9.2%) children, and significantly more frequently among children aged ≥5 years (17%) compared with younger children (7.4%). The adjusted VE in 2013–14 was 66% (95% Confidence Interval: 34, 85), but was non-significant during the 2014–15 and 2015–16 seasons (Figure). Estimated VE by influenza A subtypes varied substantially by year; VE against influenza B viruses was significant, but could not be stratified by year. VE was impacted when live attenuated influenza vaccine recipients were excluded.

**Conclusion.** We report moderately high influenza VE in 2013–14 and a point estimate higher than other published estimates from outpatient data in 2014–15. These results, underscore the importance of influenza vaccination to prevent severe outcomes such as hospitalization.

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