BACKGROUND

Increased meningococcal disease burden has been observed in adolescents worldwide. The investigational MenABCWY is a co-formulation of the MenACWY and 4CMenB vaccines. MenACWY is licensed for meningococcal meningitis and sepsis in high-risk groups and is also included in the meningococcal MenACWY-W (MenACWYW) vaccine licensed for all ages, which is not available in the USA. 4CMenB is a monovalent meningococcal serogroup B vaccine comprised of meningococcal serogroup B strain NZ98/254. The MenABCWY co-formulation includes all four meningococcal serogroups with high serologic cross-reactivity and is intended to provide lifelong protection against disease.

OBJECTIVES

• To assess the immune responses against serogroups A, B, C, W, and Y after a booster dose of the investigational MenABCWY vaccine in healthy adolescents who previously received 2 primary doses of MenACWY.

• To assess the immune responses against serogroups A, B, C, W, and Y after a dose of the investigational MenABCWY vaccine in healthy adolescents who previously received 2 doses of 4CMenB or a single dose of MenACWY.

• To assess the persistence of bactericidal antibodies against serogroups A, B, C, W, Y and M14459 (fHBP) between 1 and 2 years of the primary vaccination.

• To evaluate the reactogenicity and safety of the study vaccines.

METHODS

Study design and participants

• Phase 2, multicenter, randomized, observer-blind extension study conducted in the USA and Poland between December 2013 and April 2015.

• Adolescents who had received all scheduled vaccinations and completed the study termination visit in the primary study were invited to participate in the extension study. Those with evidence of prior infection were excluded.

• The study included adolescents aged 11 to 16 years.

• Adolescents were randomized in a 1:1:1:1 ratio to receive fourth doses of MenACWY, MenABCWY, MenACWY +1/4 OMV, or 4CMenB, respectively. All doses were administered intramuscularly in the upper arm.

• Vaccines were administered as two doses separated by 2 to 4 weeks.

Vaccine composition

• The investigational MenACWY vaccine consists of recombinant proteins (rMenB) and outer membrane vesicles (OMV) reconstituted with lyophilized MenACWY vaccine.

• rMenB consists of outer membrane vesicles from serogroup B strain NZ98/254.

• OMV contains outer membrane vesicles from serogroups A, C, W, and Y oligosaccharides conjugated to diphtheria CRM.

• The investigational MenABCWY vaccine formulation consists of rMenB and OMV.

Immunogenicity

• Antibodies against serogroups A, C, W, and Y were measured by high-throughput serum bactericidal assay with human complement (HT-hSBA) and reported as GMT.

• AEs leading to withdrawal and SAEs (throughout study)

Reactogenicity and safety

• All analyses are descriptive in nature due to the low number of subjects in each group.

RESULTS

Study participants and demographics

• From 416 subjects eligible for the primary vaccination study, 194 were enrolled in this extension study.

• The average age of the subjects was 16.4 ± 0.8 years. The majority of enrolled subjects were white, non-Hispanic or Latino.

• Immunogenic responses to meningococcal serogroups A, C, W, and Y

• Before MenABCWY vaccination, 38%, 30%, and 45% of MenACWY, MenABCWY, and MenACWY/OMV vaccinees, respectively, had HA3a titers ≥40 against serogroups A, C, and Y, respectively.

• One month after MenACWY vaccination, 16%, 100%, and 84% of MenACWY, MenABCWY, and MenACWY/OMV vaccinees, respectively, had seroprotection against serogroups A, C, W, and Y.

• MenACWY GMTs increased robustly at one month after the MenABCWY dose, and remained above baseline up to 12 months later across all vaccine groups (Figure 2B).

CONCLUSIONS

• Overall, the immune responses against all vaccine serogroups were good 1 month after MenABCWY booster vaccination in subjects who previously received the same vaccine formulation in the parent study.

• In adolescents previously vaccinated with 4CMenB or PlasmoCB/FHBP vaccine, a dose of MenABCWY two years later elicited robust immune responses to serogroups A, C, W, and Y, while response to serogroup B were lower in subjects in the PlasmoCB/MenACWY group.

• The immune responses in adolescents who received either MenABCWY (two doses) or MenACWY (single dose) in the parent trial waned in the 24 months since primary vaccination, but the antibody levels were similar between 24-36 months post-primary vaccination.

• The booster dose of MenACWY was well tolerated and raised no safety concerns.

• All analyses were descriptive in nature due to the low number of subjects in each group.

REFERENCES

2. Block SL et al. Vaccine. 2015;33:2520-10

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