Parallel Session 1: Combating COVID-19

T1b - To Compare the Reactogenicity and Immunogenicity of the Recommended COVID-19 Vaccines in Young Adolescents in Hong Kong

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Introduction and Project Objectives: Adolescents remain at risk of severe COVID-19 and atypical presentations such as multisystem inflammatory syndrome in children (MIS-C). Safety and immunogenicity of mRNA and inactivated COVID-19 vaccination need to be understood, including in healthy adolescents and those with severe immune compromise, which may alter the safety profile and immune response of the vaccines.

Methods: Healthy adolescents are recruited for vaccination with 2 doses of CoronaVac or BNT162b2, with antibody and T cell response assessment for 3 years, and compared against their parents. Reactogenicity is solicited for 7 days and severe adverse events are monitored for 3 years. Patients with primary (monogenic) and secondary immune compromise are also recruited and compared against healthy adolescents.

Results: Both CoronaVac and BNT162b2 are associated with favourable reactogenicity profile. No severe adverse events were recorded in adolescent participants with good past health or allergic history to PEG-containing drugs and first dose of BNT162b2 during the data observation period. Anti-Spike-RBD and surrogate neutralizing antibody responses and T cell responses are non-inferior in healthy adolescents compared with adults for either vaccines. Both vaccines induced antibody response and helper and cytotoxic T cell response in healthy adolescents. Patients with severe immune compromise have attenuated responses to vaccination.

Conclusion and Discussion: Both vaccines appear safe and immunogenic in healthy adolescents. Three doses of vaccine may be beneficial in those receiving CoronaVac and those with immune compromise. Vaccination is safe in those with PEG-containing drug allergies or hypersensitivity reactions to first dose of BNT162b2.

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