Serious Cardiovascular Effects found in 29.24% of Adolescents After COVID-19 Vaccination

Cardiovascular Effects of the BNT162b2 mRNA COVID-19 Vaccine in Adolescents

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Abstract

This study focuses on cardiovascular effects, particularly myocarditis and pericarditis events, after BNT162b2 mRNA COVID-19 vaccine injection in Thai adolescents. This prospective cohort study enrolled students from two schools aged 13–18 years who received the second dose of the BNT162b2 mRNA COVID-19 vaccine. Data including demographics, symptoms, vital signs, ECG, echocardiography and cardiac enzymes were collected at baseline, Day 3, Day 7, and Day 14 (optional) using case record forms.We enrolled 314 participants; of these, 13 participants were lost to follow up, leaving 301 participants for analysis. The most common cardiovascular effects were tachycardia (7.64%), shortness of breath (6.64%), palpitation (4.32%), chest pain (4.32%), and hypertension (3.99%). Seven participants (2.33%) exhibited at least one elevated cardiac biomarker or positive lab assessments. Cardiovascular effects were found in 29.24% of patients, ranging from tachycardia, palpitation, and myopericarditis. Myopericarditis was confirmed in one patient after vaccination. Two patients had suspected pericarditis and four patients had suspected subclinical myocarditis. Conclusion: Cardiovascular effects in adolescents after BNT162b2 mRNA COVID-19 vaccination included tachycardia, palpitation, and myocarditis. The clinical presentation of myopericarditis after vaccination was usually mild, with all cases fully recovering within 14 days. Hence, adolescents receiving mRNA vaccines should be monitored for side effects. Clinical Trial Registration: NCT05288231