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## Heart Failure and Cardiomyopathies

### VACCINE ASSOCIATED HEART FAILURE

Poster Contributions

For exact presentation time, refer to the online ACC.22 Program Planner at <https://www.abstractsonline.com/pp8/#!/10461>

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Session Title: Heart Failure and Cardiomyopathies Flatboard Poster Selections: Population Science

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**Background:** The role of vaccines in preventing diseases is well-established. However, the evolving techniques and types of vaccine necessitate the search for its safety more than ever. While previous case reports described an association between Takotsubo (stress) cardiomyopathy and COVID-19 vaccine, a comprehensive study to investigate the role of vaccination with cardiomyopathy and heart failure is lacking. The aim of this study is to study if there is a link between the current vaccines and cardiomyopathy/heart failure.

**Methods:** We utilized vaccine adverse event reporting system (VAERS) to search for cardiomyopathy, cardiac failure or ventricular dysfunction. Disproportionality signal analysis was conducted by measuring reporting odds ratio (ROR) with 95% confidence interval (CI).

**Results:** VAERS reported over 1,300,000 adverse events between 1990-2021. Heart failure was reported over 2000 times in association with multiple vaccines. 56% of vaccine-related heart failure reported in males; 88% were serious; 19% mortality rate. The majority of reported heart failure was related to COVID-19 vaccines with ROR of 3.0518 (CI: 2.7590 to 3.3756, P<0.0001). On the other hand, heart failure was minimally described to be associated with other vaccines (influenza, zoster, tetanus, human papillomavirus...etc).

**Conclusion:** Over the last decades, vaccines rarely reported to be associated with heart failure. However, the introduction of COVID-19 vaccines showed significant association with the incidence of heart failure and cardiomyopathy. Further studies are needed to investigate the molecular mechanisms of vaccine-related cardiomyopathy/heart failure. Additionally, our results showed that physician may need to stratify the patient's risk of heart failure before giving COVID-19 vaccine.