

Immunization stress-related response (ISRR) following Pfizer-BioNtech mRNA COVID-19 vaccination among healthcare workers: A single-centre, retrospective, observational study

Teoh Yee Jie¹, Hoo Shi Min¹, Hor Chee Peng^{2,3}, Md Azmi Nur Azida¹, Lim Foo Jen¹, Khoo Jing Han¹, Ahmad Nur Hannan¹, Loo Huichyn¹, Keh Li Ting¹, Razalan Sofinaz Al-Hadar³, Abdul Mutalib Norhasimawati⁴

¹Department of Pharmacy, Hospital Kepala Batas, Penang, ²Department of Medicine, Hospital Kepala Batas, Penang, Malaysia, ³Clinical Research Centre, Hospital Seberang Jaya, Penang, ⁴Director Office, Hospital Kepala Batas, Penang

ABSTRACT

Introduction: Immunization Stress-Related Reaction (ISRR) describes a range of symptoms and signs that arise around immunization related to “anxiety”. ISRR can occur immediately before, during or after immunization. ISRR has implications during COVID-19 vaccination campaigns resulting in refusal and delayed uptake. We aimed to evaluate the prevalence of ISRR among healthcare workers who received the Pfizer-BioNtech mRNA COVID-19 vaccine. **Methods:** We conducted this retrospective observational study among all healthcare workers who received two doses of vaccines in 2021 in Kepala Batas Hospital. Relevant clinical history and vital signs (pre-vaccination and 15 minutes after vaccination) data were extracted from the COVID-19 vaccine database. **Results:** Among 851 healthcare workers, 63.9% were females with a mean age of 39.6±9.81 years, with 16.1% self-reported personal history of atopy and 10.5% hypertension. Among ISRR identified, 3.9% developed transient tachycardia, 2.1% had raised blood pressure, 0.2% had transient weakness/numbness and 0.5% with nausea and vomiting. During the first dose of vaccination, a higher heart rate was observed pre-vaccination compared to 15 minutes post-vaccination (89.7±12.56 vs 86.2±12.75bpm, p<0.001). Higher heart rate (89.7±12.56 vs 87.8±12.35bpm, p<0.001) and systolic blood pressure (135.5±16.20 vs 130.9±16.80mmHg, p<0.001) were observed during pre-vaccination for dose 1 comparing to dose 2, reflecting anxiety encountered by vaccinees. **Conclusion:** ISRR was evident but remained low for the COVID-19 mRNA vaccine based on objective measurements from close monitoring of recipients’ vital signs.