ORIGINAL RESEARCH PAPER
Volume - 11 | Issue - 08 | August - 2022 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

RARE PRESENTATION OF TRANSIENT COMPLETE HEART BLOCK IN AN OTHERWISE HEALTHY YOUNG GIRL FOLLOWING COVAXIN ADMINISTRATION: AN EVENT BY CHANCE OR POSSIBLE ASSOCIATION?: A CASE REPORT

Pediatrics

Dr Sudipta Bandyopadhyay MBBS, MD(Pediatrcs), DNB(Pediatrics), DrNB(2nd year trainee), Academic registrar, Dept of Pediatric Cardiology, Apollo Children's Hospital, Chennai, Tamilnadu

ABSTRACT

Arrhythmia during COVID19 illness is a well known fact. Electrophysiological side effects of COVID19 vaccine remain largely unknown. It is important to report nature of cardiovascular side effects of the vaccine. **Case presentation:** An 16years old girl presented with complains of dizziness, palpitation and shortness of breath following her second shot of COVAXIN(Bharath Biotech). ECG on arrival showed complete AV dissociation, Sustain Ventricular tachycardia, patient unerwnt temporary pacemaking, following which she gradually improved to sinus rhythm **Clinical discussion:** Vaccine associated AV blocks are likely to be reversible. **Conclusion:** COVID-19 vaccine may have added side effects in subjects without known heart disease. Humoral response towards the vaccine might interfere with the conduction system of the heart and may be to normal myocardium also.

KEYWORDS

Covaxin, Heart block, endomyocardial biopsy,temporary pacemaker

INTRODUCTION:

Cardiac involvement following SARS-CoV-2 infection is common among children. Pediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2 (PIMS-TS) is an well established phenomenon. Various manifestation including pericardial effusion, myocarditis, pericarditis, valvular regurgitation arrhythmia had been reported.[1-3]

Cardiac involvement following mRNA vaccine is also common.[4] One case reported for COVID-19 BBIBP-CorV. [5]

However, arrhythmia following Covaxin administration(BBV152) is not reported till now.

Here, we reported a case of heart block requiring TPI(temporary pacemaker insertion) in a young girl following Covaxin administration. We are following all accepted ethical gudilines.

CASE REPORT

A 16 years old girl presented in the emergency room with acute onset giddiness, palpitation, breathlessness for last 2 days. She had received covaxin 2nd dose 3 days ago. She had no history of fever within past three months. Examination revealed that she had heart rate 38/min,irregular, feeble pulse, poor peripheral perfusion. Ecg showed varying morphology including complete heart block, sustained VT. Echocardiography showed showed structurally normal heart with mild ventricular dysfunction.

Saturation was normal. She was taken for emergency Temporary pacemaker implantation. Her blood reports were unremarkable except high Troponin T(980). Her Covid antibody was positive. Vascuitis test was negative. She was treated with Antiplatelet, oral steroids. TPI was removed after 48 hours. She had developed DVT at sheath site which was treated with Inj Enoxaparin. Her rhythm became sinus after 4 days and discharged from hospital successfully.

DISCUSSION:

Unsolicited adverse effect following covaxin administration including itching,abdominal pain, cold, cough, diarrhea, eye pain, leg pain, eye redness, sneezing, stomach upset, throat pain etc noted without any sequelle. However AV block was not reported in phase2/3 trial.

Basic mechanism for heart block following inactivated vaccine is same as maternal SLE induced complete heart block in newborn. In Lupus, maternal antibody -immune complex induce fibrosis of conduction pathway in newborn. Similar mechanism can occur in this case also.[6]

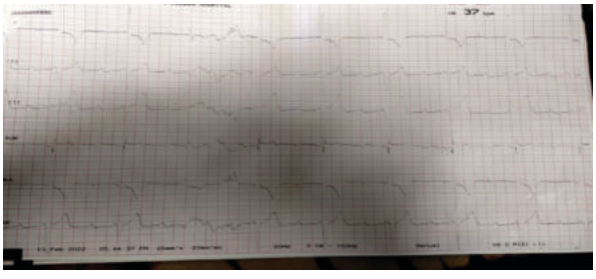
However, our patient was presented with onset of symptoms after 3 days of vaccination. The time interval(within 7 days of inoculation) between vaccination and heart block suggests for possible association. Additionally, transient nature of the heart block also suggests towards acute rather than chronic insult.
Role of antenatal steroids in congenital heart block in maternal SLE is well documented. [7] However, role of steroids in vaccine induced heart block need further research. Endomyocardial biopsy (EMB) is useful in primary AV block due to unknown etiology.[8] EMB can be considered in patient with AV block following COVAXIN administration. However, its role needs further study.[9]

Limitation:

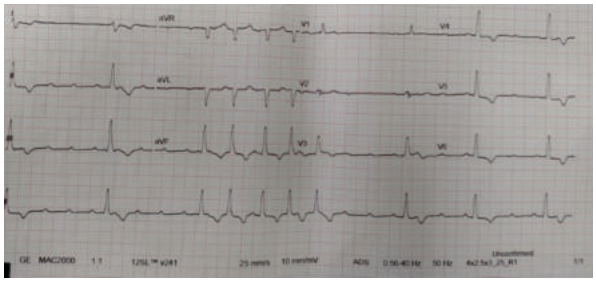
Cardiac MRI and EMB were not done in our case which may help in delineating the etiology as transient myocarditis following covid infection may also result same.

CONCLUSION:

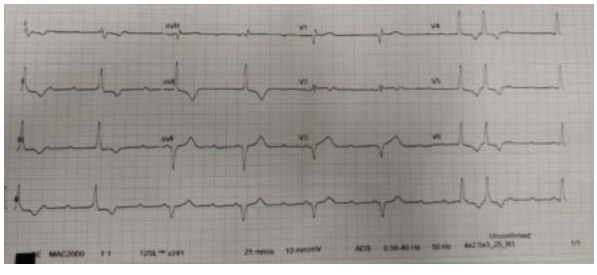
With extensive use of vaccination among pediatric population, cardiac rhythm disturbance should be kept in mind. Early recognition and appropriate treatment is necessary.



Day 1: initial presentation, complete AV dissociation

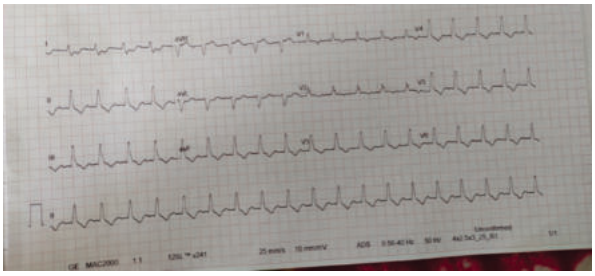


Day1 : sustain VT

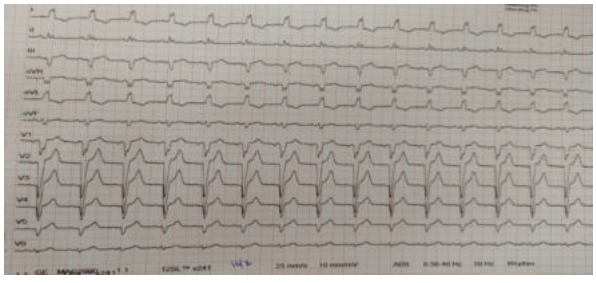


Day1:complete AV dissociation

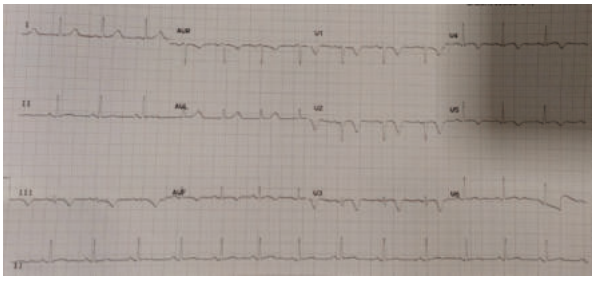
Day1 : post temporary pacing.



Day2:nodal rhythm



Day4:sinus rhythm, incomplete LBBB.



Day 9: sinus Rhythm, no heart block

REFERENCES:

1. Dionne A, Mah DY, Son MBF, Lee PY, Henderson L, Baker AL, et al. Atrioventricular block in children with multisystem inflammatory syndrome. Pediatrics 2020;146. [Epub 2020 Aug 27].
2. Domico M, McCanta AC, Hunt JL, Ashouri N, Nugent D, Kelly RB. High-grade heart block requiring transvenous pacing associated with multisystem inflammatory syndrome in children during the COVID-19 pandemic. Heart Rhythm Case Rep 2020;6:811-4.
3. Mehta R, Ghosh S, Nandy J, Chattopadhyay A. Atypical presentation of Complete Heart block in children with Pediatric Inflammatory Multisystem Syndrome: A case series of 2 patients. Ann Pediar Card 2021;14;408-11.
4. vaccine AUsrrbafC, O. University/AstraZeneca, COVID-19 Vaccine AstraZeneca Analysis Print, 2021.
5. Shams P, Ali J, Saadia S, Khan AH, Sultan FAT, Tai J. COVID-19 BBIBP-CorV vaccine and transient heart block - A phenomenon by chance or a possible correlation - A case report. Ann Med Surg (Lond). 2021 Nov;71:102956. doi: 10.1016/j.amsu.2021.102956. Epub 2021 Oct 15. PMID: 34667594; PMCID: PMC8518134.
6. A. Ambrosi, M. Wahren-Herlenius, Congenital heart block: evidence for a pathogenic role of maternal autoantibodies, Arthritis Res. Ther. 14 (2) (2012) 208.
7. A. Michael, A.A. Radwan, A.K. Ali, A.Y. Abd-Elkariem, S.A. Shazly, Use of antenatal fluorinated corticosteroids in management of congenital heart block: systematic review and meta-analysis, Eur. J. Obstet. Gynecol. Reprod. Biol. X 4 (2019) 100072.
8. L.T. Cooper, K.L. Baughman, A.M. Feldman, A. Frustaci, M. Jessup, U. Kuhl, et al., The role of endomyocardial biopsy in the management of cardiovascular disease: a scientific statement from the American heart association, the American College of cardiology, and the European Society of Cardiology. Endorsed by the heart failure Society of America and the heart failure association of the European Society of Cardiology, J. Am. Coll. Cardiol. 50 (19) (2007) 1914–1931.
9. P. Wenzel, S. Kopp, S. Gobel, ¨ T. Jansen, M. Geyer, F. Hahn, et al., Evidence of SARS-CoV-2 mRNA in endomyocardial biopsies of patients with clinically suspected myocarditis tested negative for COVID-19 in nasopharyngeal swab, Cardiovasc. Res. 116 (10) (2020) 1661–1663.