COVID-19 Booster Vaccination in Pregnancy

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INTRODUCTION & OBJECTIVE

The administration of a third (booster) dose of the BNT162b2 vaccine has proved effective in lowering rates of confirmed infection, severe illness and COVID-19 related death. To date there are no reports regarding the efficacy or safety of the third dose of the vaccine among pregnant women.

The Objective was To determine the adverse effects and SARS-CoV-2 IgG serum levels in pregnant women vaccinated by third (booster) dose of the BNT162b2 vaccine.

METHODS

A prospective cohort study in a tertiary referral center of pregnant women, who were vaccinated by a third (booster) dose of the BNT162b2 vaccine, between August and November 2021. All women had received two doses of BNT162b2 at least 5 months earlier. A study group of 64 pregnant women was matched 1:1 by age to a control group of 64 non-pregnant women who received a booster dose of the BNT162b2 vaccine during the same time period. Blood samples were collected and tested for SARS-COV-2 IgG antibodies before and 30 days after the administration of the third BNT162b2 dose.

RESULTS

Rates of several adverse events including local rash/ pain/ swelling (75% vs. 96.9%, p<0.001), weakness (37.5% vs. 65.6%, p=0.001), myalgia (21.9% vs. 50%, p=0.001), axillary lymphadenopathy (6.3% vs. 28.1%, p=0.001) and chest pain (0% vs. 4.7%, p=0.042) were significantly less common among pregnant women compared with non-pregnant women.

MATERNAL ADVERSE EVENTS

Adverse Event	Pregnant (N=64)	Non-pregnant (N=64)	P value
Rash / Local pain / Local swelling	48 (75%)	62 (96.9%)	<0.001
Diffuse rash	0 (0%)	1 (1.6%)	0.315
Fever	5 (7.8%)	10 (15.6%)	0.169
Weakness	24 (37.5%)	42 (65.6%)	0.001
Myalgia	14 (21.9%)	32 (50%)	0.001
Axillary lymphadenopathy	4 (6.3%)	18 (28.1%)	0.001
Remote lymphadenopathy	4 (6.3%)	3 (4.7%)	0.697
Paresthesia	4 (6.3%)	4 (6.3%)	1
Headache	3 (4.7%)	2 (3.1%)	0.648
Chest pain	0 (0%)	3 (4.7%)	0.042
Nausea	0 (0%)	5 (7.8%)	0.08

Data are given as n (%). N/A, not applicable

RESULTS

Blood serology for SARS-CoV-2- specific antibodies did not differ significantly before the third dose of the vaccination between the pregnant and non-pregnant groups (104.05 vs. 101.72, respectively, p=0.845).
However, SARS-CoV-2 IgG serum levels 30 days after the third dose were significantly lower among pregnant women compared to non-pregnant women (2092.61 vs. 2792.85, respectively, p=0.014).

SUMMARY AND CONCLUSIONS

The adverse-effect profile among pregnant women who were vaccinated with the third (booster) dose BNT162b2 vaccine in pregnancy do not indicate any safety concerns. The third (booster) dose is effective in generating a humoral immune response in pregnant women.