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YELLOW FEVER PRIMARY VACCINATION IS SAFE AND EFFECTIVE IN RHEUMATIC AUTOIMMUNE DISEASE

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BACKGROUND

Alive vaccines should be used with caution in autoimmune diseases(AID). This study aims to evaluate prospectively adverse events and efficacy of the Yellow Fever vaccine in patients with AID vaccinated in the 2017 Brazilian Campaign during outbreak.

MATERIALS AND METHODS

Controlled prospective study, including 192 individuals, 47 with Rheumatoid Arthritis(RA), 36 primary Sjögren's Syndrome(SS), 48 Ankylosing Spondylitis(AS), 8 Systemic Sclerosis(SSc), 24 Systemic Lupus Erythematosous(SLE), and 29 Healthy Controls(HC). All individuals received 17DD(Biomanguinhos-FIOCRUZ) YF vaccine, for the first time during the 2017 Brazilian Campaign, aged > 18 years, had no or low disease activity, low immunossupression. Exclusion Criteria: previous vaccination for yellow fever or PRNT>1:50 at baseline, primary or secondary immunodeficiency, under treatment with cyclophosphamide, chlorambucil, mycophenolate mofetil, calcineurin inhibitors, azathioprine> 2mg/kg/day, prednisone≥20mg/day, methotrexate>20mg/week or any immunobiological drug. Demographic data, classification criteria, disease duration, disease activity (DAS

28,SLEDAI,BASDAI,ESSDAI), medication using, were obtained. Viremia(CRP) and plaque reduction neutralization test(PRNT) were measured before(D0) and D3,D4,D5 D6,D7,D14,D28 after vaccine. Adverse events(AE) were registered through patient report diary and medical interview at D7,D14 and D28. Proper statistical analysis was performed. All tests were two-way, considering a significant p-value<0.05. Odds Ratio(OD) was expressed in 95% confidence interval. The PRNT was expressed in GeoMean title.

RESULTS

Mean age was 52 for AID and 56 for HC. No serious adverse event was reported in AID subgroups and HC. However, mild local AE were reported more frequently in AID as compared to HC (34.2% and 3.4%, respectively,p=0.000). The OD for AE was 14.53(1.9-109.7, p=0.000) for AID subgroups: RA=14.5(1.8-116.2, p=0.0016), AS=9.3(1.1-76.2, p=0.0248), SS=25.1(3.1-204.5, p<0.0001), SLE=9.3(1.0-84.1, p=0.0377), and SSc=56.0 (4.1-769.0, p=0.0014). PRNT levels expressed in reverse of serum dilution were high enough to confer immunity in both groups, but were lower in AID=181 (144-228,p=0.04) as well in AS=112(73-170,p<0.001), and in SLE=143(61-332, p=0.01) (Figure 1) as compared to HC=440 (291-665). The seropositivity rates were lower in AID after 28 days(78% vs. 96%, p=0.04) as well as in AS(73%, p=0.02) and SLE(73%, p=0.03) as compared to HC(Figure 1). Viremia peak was slightly late and low in AID(D6=5.8 x 103) compared to HC(D5= 8.3 x 103). Seropositivity was statistically lower at D14 in AID as compared HC(21% vs. 75%, p=0.04) and remained lower at D28 in AS and SLE subgroups(Figure 2).

CONCLUSION

YF vaccine was effective and safe in AID with low disease activity and under low immunossupression. When compared to HC group AID showed more risk for mild AE and lower immunogenicity, especially in SLE and AS.