NCT number: NCT02936180

Study title: Improving Influenza Immunization Responses in Rheumatoid Arthritis: A Strategy To Enhance Protection Against A Preventable Cause Of Death In An At Risk Population?

Date: 20 November 2019

Statistical Analysis

This study was powered to compare the effect of the HDTIV and SDQIV by backgroundtreatment group (stratified analyses), estimating a loss to followup of 10%. Under these assumptions, 92 rheumatoid arthritis patients per strata (46 per vaccine group) were required to assess the primary outcome with a significance level of 5% and 80% power to detect a 30% increase in sero conversion rate for any one common viral strain in the HDTIV group compared with the standard-dose vaccine. This did not include adjustment for multiple testing. Differences of this magnitude have been reported for some strains in immunogenicity studies of HDTIV in older individuals.[28]

We did a modified intentiontotreat analysis of all out comes with all randomly assigned participants for whom serostatus was available. The analysis included individuals who did not complete all specified followup visits. We did not do imputations at day 28 as only five patients (<2%) of 279 had missing information for serostatus.

We performed logistic regression and report crude odds ratios (ORs) with 95% CIs to compare the imm unogenicity of HDTIV versus the SDQIV for each inactivated influenza vaccine strain. We also calculated ORs (95% CIs) adjusted for age, comorbidities known to reduce immune responses to inactivated influenza vaccines in the general population,[9] and rheumatoid arth ritis disease duration (which predicts the risk of comorbidities).

In a posthoc analysis we performed logistic regress ion to assess the effect of methotrexate (measured by OR [95% CI]) on responses to HDTIV versus SDQIV. We compared patients on methotrexate (alone or combined with other conventional synthetic DMARDs) versus those on single or combinations of nonmethotrexate conventional synthetic DMARDs, and patients on methotrexate (alone or in combination with other conventional synthetic DMARDs) versus those on biological DMARDs (except rituximab), alone or combined with nonmethotrexate conventional synthetic DMARDs.

A second posthoc analysis using the same method was done to assess the immunogenicity of HDTIV in patients on conventional synthetic DMARDs or targeted synthetic DMARDs versus those on biological DMARDs (excluding rituximab).

Statistical analyses were done with STATA, version 14.2. No data monitoring committee was involved. This trial is registered with ClinicalTrials.gov, number NCT02936180.

Role of the funding source

The funder of the study and Sanofi Pasteur (which provided the vaccines) played no role in study design, data collection, data analysis, data interpretation, or writ ing of the report. The corresponding author had full access to all the data in the study and with BW had final responsibility for the decision to submit for publication.