

# UC Irvine

## UC Irvine Previously Published Works

### Title

Hydroxychloroquine Use Is Associated with a Lower Risk of Major Adverse Cardiovascular Events in Medicare Recipients with Rheumatoid Arthritis

### Permalink

<https://escholarship.org/uc/item/8dj6h1mz>

### Authors

Iyer, Priyanka

Gao, Yubo

Girotra, Saket

et al.

### Publication Date

2019

### Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

ABSTRACT NUMBER: 1891

# Hydroxychloroquine Use Is Associated with a Lower Risk of Major Adverse Cardiovascular Events in Medicare Recipients with Rheumatoid Arthritis

Priyanka Iyer <sup>1</sup>, Yubo Gao <sup>2</sup>, Saket Girotra <sup>2</sup>, Jeffrey Curtis <sup>3</sup>, Mary Vaughan-Sarrazin <sup>4</sup> and **Namrata Singh**<sup>4</sup>, <sup>1</sup>University of Iowa, Iowa City, IA, <sup>2</sup>University of Iowa Hospitals and Clinics, Iowa city, IA, <sup>3</sup>University of Alabama at Birmingham, Birmingham, AL, <sup>4</sup>University of Iowa, Iowa City

**Meeting:** 2019 ACR/ARP Annual Meeting

**Keywords:** Hydroxychloroquine, Medicare and cardiovascular disease, Rheumatoid arthritis (RA)

## SESSION INFORMATION

**Date:** Monday, November 11, 2019

**Session Type:** ACR Abstract Session

**Title:** 4M117: RA – Treatments III: Cardiovascular Disease & Readmissions (1890–1895)

**Session Time:** 4:30PM-6:00PM

**Background/Purpose:** Hydroxychloroquine (HCQ) has known immunomodulatory effects and mechanistic actions that may provide cardioprotective effects. To date, cardiovascular (CV) outcomes in elderly patients receiving HCQ in clinical practice have not been evaluated. This is important since the majority of patients with CV disease in the U.S. are adults  $\geq 65$  years. We hypothesized that the use of HCQ is protective for major adverse cardiovascular events (MACE) defined as acute admissions for stroke, myocardial infarction or heart failure.

**Methods:** We compared the risk of MACE in a retrospective cohort of Medicare beneficiaries aged  $\geq 65$  years with rheumatoid arthritis (RA) who initiated HCQ (exposed) and who did not initiate HCQ (non-exposed) between 2014 and 2016. RA was defined by the following ICD codes – 714.0, 714.2, M05.xx, M06.4 and M06.1. Data sources included Medicare Parts A, B, and D claims for a 5% random sample of beneficiaries. The index date for the exposed was defined by the date of the first HCQ fill. Each exposed user was matched to 2 non-users of HCQ using propensity score derived from patient baseline characteristics including demographics, comorbid conditions like prior CV disease, and other medication use (cardioprotective agents like ACE inhibitors, antiplatelets, statins and beta blockers, NSAIDs, opioids, steroids, methotrexate, and tumor necrosis factor alpha inhibitors [TNFi]) (Table 1). Patient follow-up started at the index date and continued until the first MACE, end of HCQ use or the end of the observation period (December 31, 2016). We compared incident MACE using Kaplan-Meier analysis on matched patients. The primary outcome was the occurrence of MACE, and the secondary outcome was the composite of MACE and all-cause mortality. Cox proportional hazards model was used to compare the hazards of MACE events between HCQ users to non-users.

**Results:** We found 1602 eligible RA patients with incident HCQ use and matched them to 3204 RA patients who did not use HCQ over the study period. The mean age of HCQ user cohort was 74.37 years and of the non-users was 74.73. 75.41% of the HCQ users were females compared to 72.53% in

the non-users. The mean follow-up time was 1.7 years in non-users and 1 year in HCQ users. During the observation period, 329 MACE events occurred, 54 in HCQ exposed (3.51 per 100 patient-years) and 275 in the non-exposed group (incidence rate of 5.38 per 100 patient-years. Multivariate Cox regression model showed a hazard ratio (HR) of 0.47 (95% CI: 0.35-0.63,  $p < 0.0001$ ) for MACE for HCQ users versus non-users. Compared to people aged 85+ years, those aged 75 to < 85 (HR 0.73, 95% CI: 0.51 – 1.04), or those aged 65 to < 75 (HR 0.59, 95% CI: 0.42 – 0.84) years had a lower hazard of MACE. Similarly, the HR for composite outcome of MACE and all-cause mortality was 0.40 (95% CI: 0.32-0.51,  $p < 0.0001$ ) for users compared to non-users.

**Conclusion:** Our study suggests that incident HCQ use is associated with a 53% lower risk of MACE events compared to non-users in an elderly population of patients with RA. Based on our study, future larger trials can be designed looking at the efficacy of a well-tolerated and relatively inexpensive drug on CV outcomes in the general population.

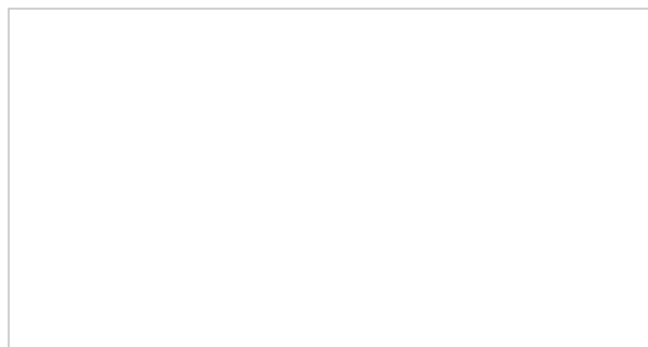


Table 1

Table 1. Demographics and Baseline Characteristics of HCQ users v/s non users

---

**Disclosure:** P. Iyer, None; Y. Gao, None; S. Girotra, None; J. Curtis, AbbVie, 2, 5, Abbvie, 2, 5, AbbVie, Amgen, Bristol-Myers Squibb, Corrona, Lilly, Janssen, Myriad, Pfizer, Regeneron, Roche, and UCB, 2, 5, Amgen, 2, 5, Amgen Inc., 2, 5, BMS, 2, 5, Bristol-Myers Squibb, 2, 5, Corrona, 2, 5, Crescendo, 2, 5, Eli Lilly, 2, 5, Eli Lilly and Company, 2, 5, Genentech, 2, 5, Janseen, 5, Janssen, 2, 5, Janssen Research & Development, LLC, 2, Lilly, 2, 5, Myriad, 2, 5, Patient Centered Outcomes Research Insitute (PCORI), 2, Pfizer, 2, 5, Radius Health, Inc., 9, Regeneron, 2, 5, Roche, 2, 3, 5, Roche/Genentech, 5, UCB, 2, 5; M. Vaughan-Sarrazin, None; N. Singh, None.

**To cite this abstract in AMA style:**

Iyer P, Gao Y, Girotra S, Curtis J, Vaughan-Sarrazin M, Singh N. Hydroxychloroquine Use Is Associated with a Lower Risk of Major Adverse Cardiovascular Events in Medicare Recipients with Rheumatoid Arthritis [abstract]. *Arthritis Rheumatol.* 2019; 71 (suppl 10).  
<https://acrabstracts.org/abstract/hydroxychloroquine-use-is-associated-with-a-lower-risk-of-major-adverse-cardiovascular-events-in-medicare-recipients-with-rheumatoid-arthritis/>.  
Accessed March 6, 2024.

---

**ACR Meeting Abstracts** - <https://acrabstracts.org/abstract/hydroxychloroquine-use-is-associated-with-a-lower-risk-of-major-adverse-cardiovascular-events-in-medicare-recipients-with-rheumatoid->

arthritis/