Does Anti-Vaccine Equal Anti-Antibody?
Differing Rates of Veteran Acceptance of Monoclonal Antibody Therapies for COVID-19 by Prior Vaccination Status

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ABSTRACT

Background: We assessed correlation between prior acceptance of COVID-19 vaccination and acceptance of monoclonal antibody (MAb) treatment for mild-to-moderate COVID-19.

Methods: Adult outpatients evaluated for treatment with MAb between August 31st, 2021 and April 23, 2022 in a large tertiary care VA healthcare system were included. MAb therapies administered over the period included casirivimab-imdevimab, sotrovimab, and bebtelovimab. All patients were screened by a small central clinician team with experience discussing COVID therapies under Emergency Use Authorization (EUA). Baseline characteristics, rationale for not offering MAb, and rates of vaccination and acceptance of therapy were recorded. In addition, rates of acceptance for the initial 4 months were compared to rates during the second 4 months of the program, using Chi-square or Fisher's exact test.

Results: 203 patients (mean age 68, 91% male) with early COVID-19 were screened for MAb. 68% were vaccinated. 158 (78%) of those screened were offered MAb. The most common reason MAb was not offered was duration of illness longer than specified by EUA (65%). 112 (71%) patients offered MAb accepted, and 94 (84%) received MAb. Of 106 vaccinated patients offered MAb, 81 (76%) accepted. In contrast, of 52 unvaccinated patients offered MAb, only 31 (60%) accepted (Chi-square p = 0.046). However, when analyzed over time, unvaccinated patients were significantly more likely to accept MAb during the second 4 months of the program (7/7 patients, 100%) than during the first 4 months of the program (24/45 patients, 53%, Fisher's exact p = 0.033). This disparity was not seen in vaccinated patients, who accepted MAb at a rate of 73% during the first half of the program, and 88% during the second half (Chi-square p = 0.19).

Conclusion: Vaccinated patients were significantly more likely to accept MAb therapy for COVID-19 than unvaccinated patients, suggesting that willingness to accept COVID-19 vaccination predicts willingness to accept other COVID-19 therapeutics. However, disparity in acceptance rates in our population is significantly attenuating over time, suggesting a "late-adopter," phenomenon that has implications for continued efforts to encourage therapeutics and vaccines for COVID-19.

INTRODUCTION

- COVID-19 vaccine uptake in the US has been slower than anticipated.
- As of September 2021, 67% of eligible U.S. candidates ages 12 and up were fully vaccinated.
- Monoclonal antibody treatment for mild-moderate COVID-19 can prevent progression to hospitalization or severe disease
- On September 18th, 2021, the New York Times reported on a perceived disproportionate acceptance of monoclonal antibody therapies for COVID-19 in individuals who had previously declined COVID-19 vaccination.
- We assessed actual correlation between prior acceptance of COVID-19 vaccination and acceptance of monoclonal antibody (MAb) treatment for mild-moderate COVID-19.

The New York Times
They Shunned Covid Vaccines but Embraced Antibody Treatment
https://www.nytimes.com/2021/09/18/health/covid-antibody-regeneron.html

HYPOTHESIS

We hypothesized that acceptance of vaccination for COVID-19 would actually be a predictor of acceptance of monoclonal antibody therapy for COVID-19 in our patient population.

METHODS

- **DESIGN:** Retrospective review of all patients assessed for monoclonal antibody therapy (MAb) for COVID-19 from September 2021 thru April 2022. Monoclonal antibody therapies offered to patients during this period included casirivimab/imdevimab, sotrovimab, and bebtelovimab.
- **SETTING:** Large midwestern tertiary care VA healthcare system.
- **PRIMARY OBJECTIVE:** Evaluate correlation between prior acceptance of COVID-19 vaccination and acceptance of MAb infusion for therapy of COVID-19.
- **SECONDARY OBJECTIVE(S):** Assess changes in rates of acceptance of monoclonal antibody therapy over time in vaccinated and unvaccinated subjects.
- **INCLUSION CRITERIA:** Veterans >18 years of age, diagnosed with COVID-19, assessed for monoclonal antibody therapy by clinical and EUA criteria in our healthcare system.
- **DEFINITIONS:** Period 1 = 1st 4 months of MAb program (Sept 2021-Dec 2021); Period 2 = 2nd 4 months of MAb program (Jan 2022-April 2022).
- **ANALYSIS:** Chi-square test or Fisher's exact test were used to compare rates of acceptance of monoclonal antibody treatment between vaccinated and unvaccinated subjects overall, as well as rates of acceptance within the vaccinated and unvaccinated subject groups between the initial 4 months of the program (Period 1) and the second 4 months of the program (Period 2).

RESULTS

| Number of subjects overall evaluated for MAb	203
Average age	67 years
Gender	16 (10%) female, 142 (90%) male
Vaccinated overall	138/203 (68%)
MAb offered overall *	158/203 (78%)
MAb accepted overall	112/158 (71%)
MAb refused overall	46/158 (29%)
MAb received overall	94/112 (84%)
Vaccinated subjects offered MAb	106/158 (67%)
Accepted overall	81/106 (76%)
Accepted Period 1	59/81 (73%)
Accepted Period 2	22/25 (88%)
Unvaccinated subjects offered MAb	52/158 (32%)
Accepted overall	31/52 (60%)
Accepted Period 1	24/45 (53%)
Accepted Period 2	7/7 (100%)

* Principal reason MAb not offered was discovery that symptoms had been present for > 10 days. 31/45 patients (65%).

RESULTS

Vaccinated Subjects Were More Likely Than Unvaccinated Subjects to Accept MAb for COVID-19

*p=0.04 for difference in MAb acceptance rates
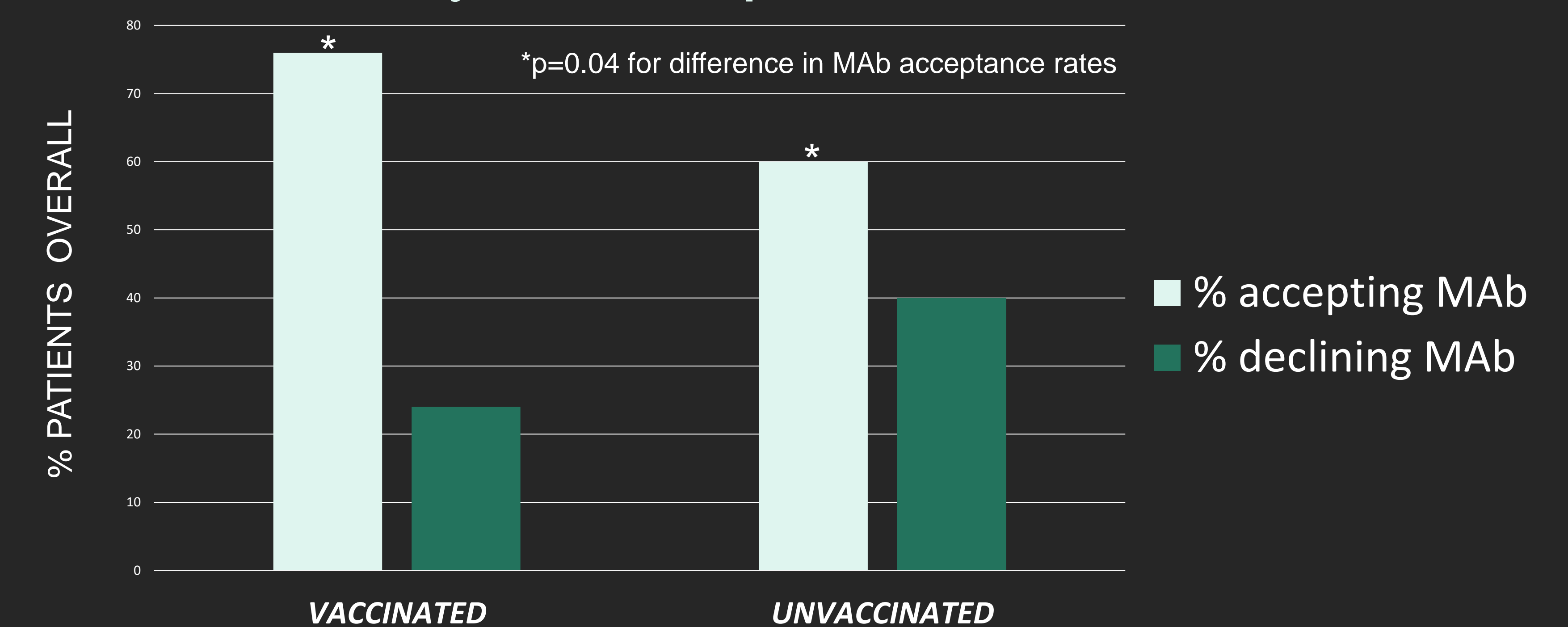
Unvaccinated Subjects Were More Likely to Accept MAb for COVID-19 During the 2nd 4 Months of the Program Than the 1st 4 Months

*p=0.03 for difference in MAb acceptance rates
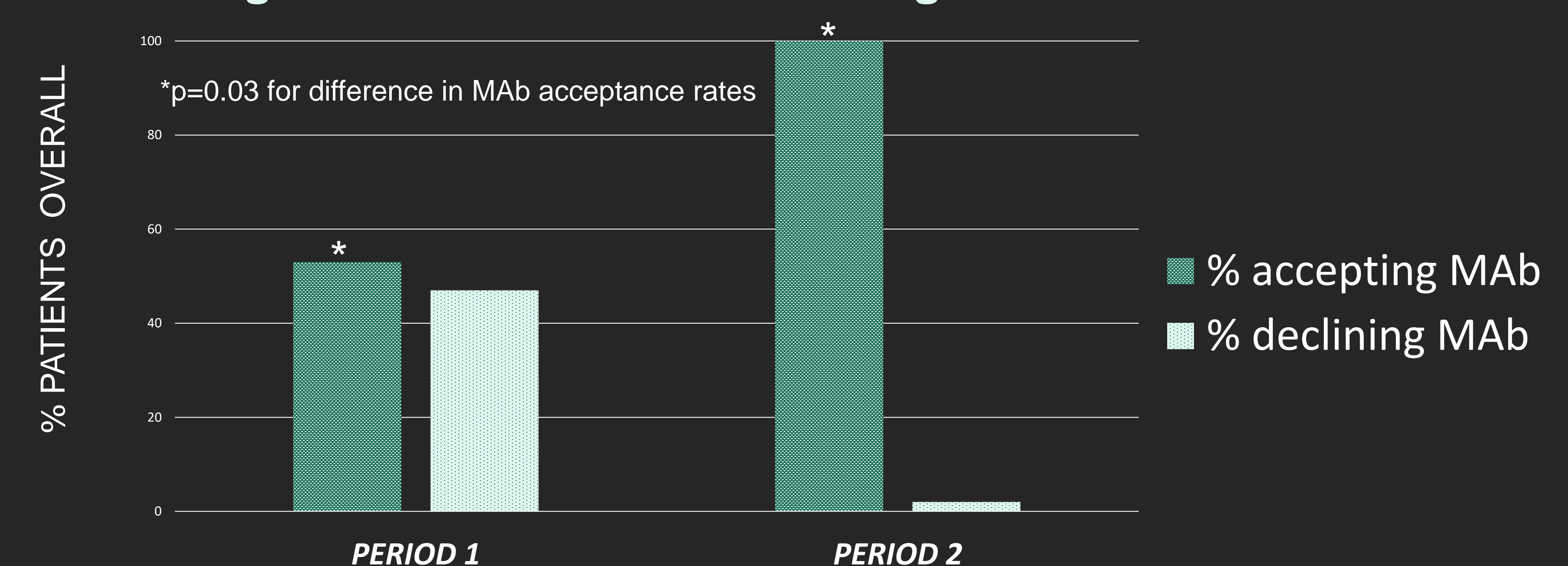
No statistically significant difference was seen in rates of MAb acceptance between Period 1 and Period 2 for vaccinated subjects.

CONCLUSIONS

- Contrary to hypotheses advanced in the lay press, in our patient population, prior willingness to accept COVID-19 vaccination predicted increased willingness to accept monoclonal antibody therapy for COVID-19
- This disparity in acceptance of monoclonal antibody therapy between vaccinated and unvaccinated patients attenuated significantly over the initial 8 months of the program, with increased rates of acceptance of antibody therapy over time
- The latter phenomenon may suggest a "late-adopter," phenotype that could benefit from continued efforts to encourage therapeutics and vaccines for COVID-19