

# LOWER MORTALITY WITH ADJUVANT CORTICOSTEROID THERAPY IN NON-HIV INFECTED PATIENTS WITH *PNEUMOCYSTIS JIROVECI* PNEUMONIA: A SINGLE US COHORT STUDY AND PROPOSED NOVEL MECHANISM OF CORTICOSTEROIDS

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MAJOR ARTICLE

## INTRODUCTION

- Pneumocystis jirovecii* pneumonia (PJP) remains a source of mortality among immunocompromised hosts, including HIV negative patients
- Clinical features and benefits of corticosteroids as an adjuvant treatment are unclear in this population
- Aim: To characterize clinical features and identify predictors associated with mortality in a cohort of PJP cases.

## METHODS

- Retrospective cohort study
- Setting: academic tertiary care center
- Timeline: 1995 to 2019
- Population: individuals with laboratory-confirmed (positive culture or antigen test) PJP disease
- Data source: Epic chart review
- Adjusted multivariable models

## RESULTS

- Common underlying conditions in HIV negative patients were hematologic malignancies (28.6%), autoimmune disorders (25.9%), and organ transplants (10.7%).
- Mortality was significantly associated with HIV negative status (OR 11.0, 95% CI: 1.5-81.3,  $p < 0.018$ ) and absence of corticosteroids for adjuvant treatment (OR 13.8, 95% CI: 1.2-159.2,  $p < 0.036$ ).

## RESULTS

TABLE 1: Clinical features of *Pneumocystis jirovecii* pneumonia patient cases with HIV and non-HIV status.

	HIV (n=43)	Non-HIV (n=28)	p-value
Mean age (±SD, years)	49.12 ± 10.97	62.07 ± 13.66	<0.001
Male sex (%)	38 (88.37)	15 (53.57)	0.001
white (%)	31 (72.09)	23 (82.14)	0.853
Non-white Hispanic (%)	11.5 (25.58)	4 (14.29)	0.009
Mean Hemoglobin (±SD, mg/dL)	12.98 ± 2.25	10.9 ± 2.24	0.001
Mean, Platelets (±SD, mg/dL)	271.36 ± 127.86	141.28 ± 85.13	<0.001
Corticosteroids (%)	37 (86.05)	20 (71.43)	0.13
ICU Admission (%)	10 (23.26)	22 (78.57)	<0.001
Mortality (%)	7 (16.28)	20 (71.43)	<0.001

% of PJP Case Mortality by HIV Status and Use of Corticosteroid Adjuvant Therapy

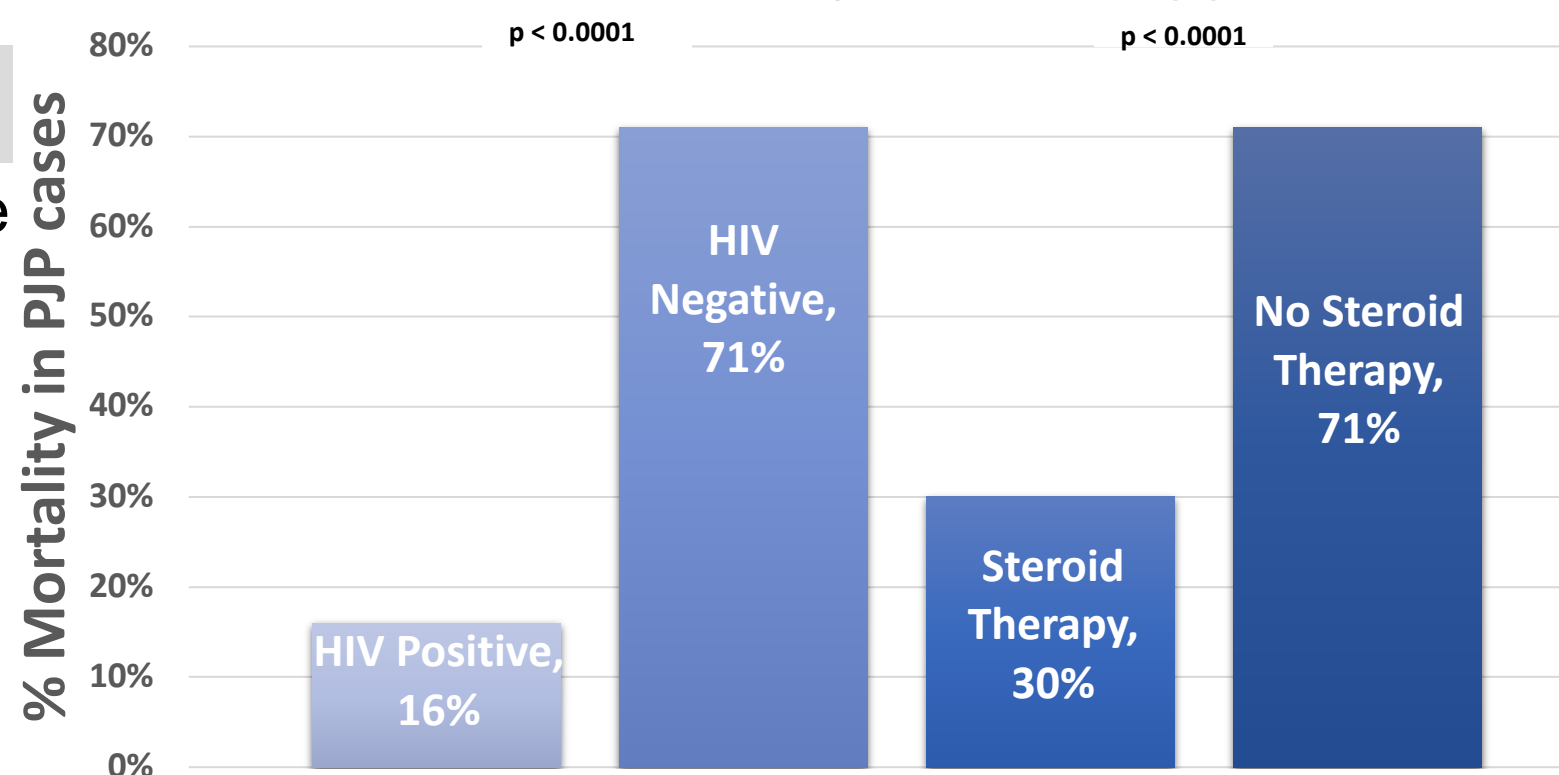


Figure 1. Proportion of Mortality in PJP cases by HIV Status and Corticosteroids

Compared to individuals with HIV, non-HIV PJP patients and absence of corticosteroid as adjuvant therapy increased rates of mechanical ventilation, ICU stay and mortality.

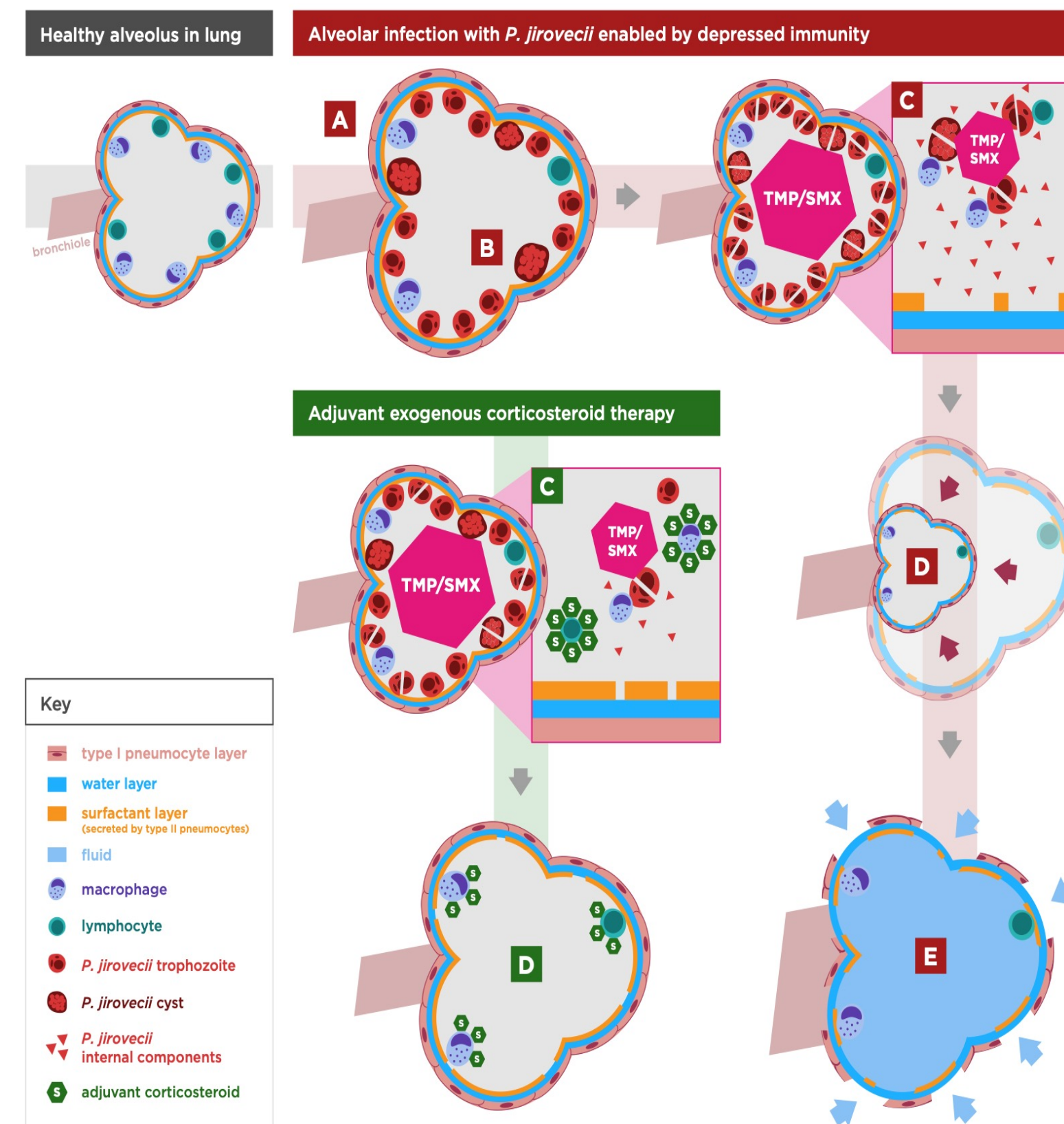


Figure 2. Proposed novel corticosteroid mechanism in PJP infections

## Conclusions

- Difference in mortality in PJP is attributed to the severity of presentation, comorbidities, and multiorgan injury
- Further studies are needed on prevention, early diagnosis, and management of PJP among HIV negative patients