

# Higher glycosylated hemoglobin (A1c) levels are associated with increased mortality from *Cryptococcus* infection

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## BACKGROUND

*Cryptococcus* is an opportunistic fungus and the most common cause of fungal meningitis.

Diabetes mellitus is a well-established risk factor for the development of bacterial infections, however, its role in the occurrence of Cryptococcosis is unknown.

**The aim of the study was to determine whether diabetes and A1c levels were independent risk factors for infection and mortality in *Cryptococcus* infection.**

## METHODS

A retrospective hospital-based case-control study matched by age and gender (96 cases and 125 controls) was performed in patients tested for *Cryptococcus* infection at University of Colorado Hospital from 2001-2019 (n=221).

Data was extracted through RedCap. A multivariable logistic regression model was used to identify predictors of infection and mortality.

**Adjusted for gender, age and case/control; for every 1-point increase in A1c levels, the odds of mortality increased by 40%**

Figure 1.

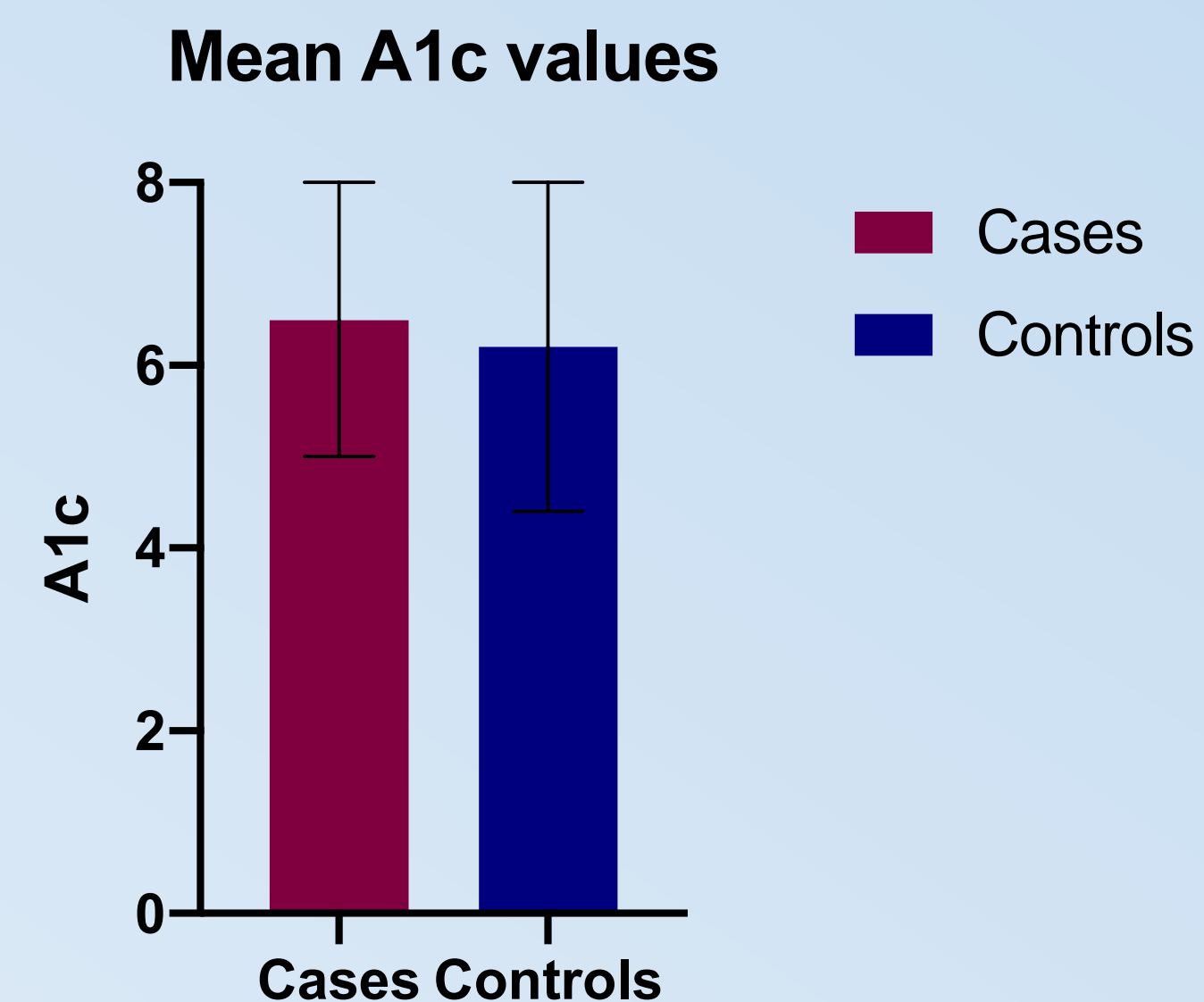
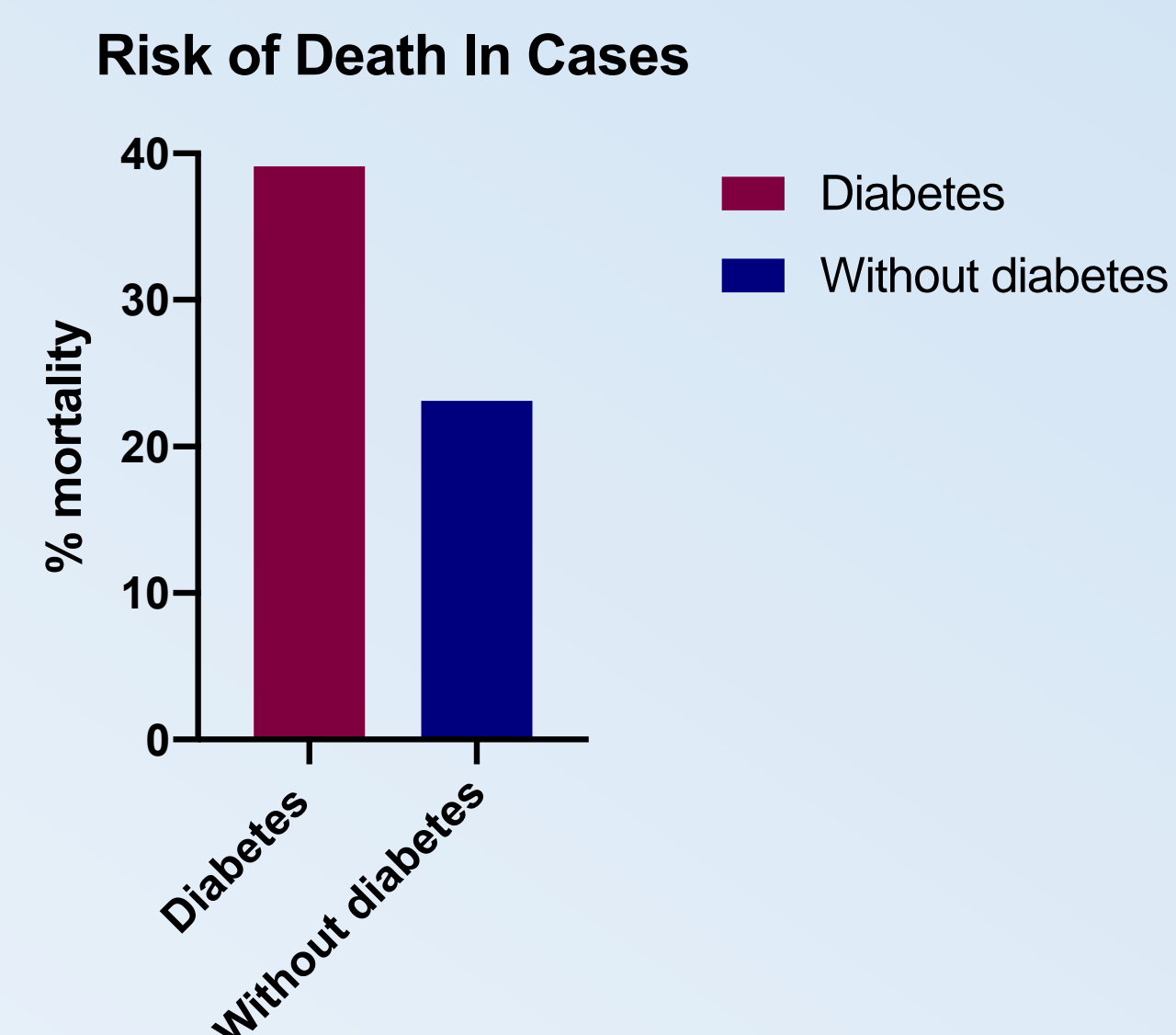


Figure 2.



## RESULTS

- Meningitis made up almost half the cases and pulmonary infections about a third
- Diabetes was the only known risk factor in 6 cases (6.3%) and accompanied additional risk factor in 18 cases (18.8%)
- Other risk factors included HIV, steroid use, malignancy, solid organ transplant recipients, and cirrhosis.
- **A1c values did not differ significantly from cases and controls (figure 1).**
- **Among cases, the risk of death was higher for patients with diabetes, although it was not significant (39.1% vs 23.1%,  $p=0.137$ ) (figure 2).**

## CONCLUSION

Diabetes mellitus alone is an uncommon risk factor for acquiring *Cryptococcus* infection.

However, uncontrolled diabetes in Cryptococcosis may worsen outcomes from infection, including increased mortality.

Glucose control interventions may improve clinical outcomes in patients with cryptococcal infection.