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Epidemiology, diagnosis and treatment outcomes of tubercular uveitis in a setting of high HIV prevalence

Alli, Hassan Dawood

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ABSTRACT

Introduction

The diagnosis of tubercular uveitis (TBU) is difficult. The lack of a diagnostic gold standard has contributed to challenges in determining the burden of TBU, clinical predictors of TBU, and deciding when to initiate anti-tubercular treatment (ATT). Another challenge is the duration of ATT required for resolution to be achieved. We evaluated the prevalence of TBU in adults presenting with uveitis, and delineated clinical features associated with TBU. Furthermore, we evaluated the time to resolution of inflammation in TBU cases on standard ATT. We also performed a systematic review and meta-analysis of TBU to estimate the global prevalence and treatment outcomes of TBU.

Methods

The systematic review and meta-analysis of TBU studies included studies published in PubMed, Scopus and EMBASE, up to 30 June 2020.

We conducted a prospective cohort study of adult uveitis cases to determine the prevalence of TBU and the clinical features associated with such cases. The diagnosis of TBU was made using a composite reference which included: i. any clinical signs of uveitis; ii. exclusion of other causes of uveitis; and iii. positive QFT-G, and/or TST, and/or TB PCR of aqueous or vitreous samples. TBU cases were treated with standard ATT (and corticosteroids) for 9 months and followed up to 15 months post-diagnosis and post-treatment-onset.

Results

The meta-analysis estimated that prevalence of TBU in 65607 uveitis cases was 4.0% [95% CI, 3-5]; including 7.0% [95% CI, 5-11] in countries with a high burden of TB; 11.0% [95% CI, 8-15] in sub-Saharan Africa; and 3.0% [95% CI, 2-4] in countries with a low burden of TB. The clinical response rate to treatment in the studies included in the meta-analysis was 82.0% [95% CI, 75-89].

In the longitudinal study undertaken at a single facility in Johannesburg, South Africa, 49 (62%) of 79 cases presenting with uveitis were diagnosed with TBU; there were 41 presumed and 8 confirmed TBU cases. Forty-three (54%), thirty-nine (50%) and eight (10%) cases had a positive TST, QFT-G and TB PCR, respectively Among the uveitis cases, there was higher odds of diagnosing TBU in those with chronic uveitis (OR:4.1, P=0.008) and female sex (odds ratio [OR]:5.1, P=0.002), whereas TBU was less likely associated with HIV sero-positive status (OR: 0.2, P=0.001). Choroidal granulomas (P=0.176) and serpiginous-like choroiditis (P=0.292) were more common in the TBU group, albeit not significantly. Using the multilevel mixed effects model (OR=1.21; 95% CI, 1.03-1.41; P=0.017) and generalized estimating equations (OR=1.21; 95% CI, 1.05-1.39; P=0.008), resolution was achieved at 6 months post-treatment-onset.

Conclusion

The prevalence of TBU in cases presenting with uveitis in our setting was higher than observed elsewhere, including previous studies from sub-Saharan Africa. Tubercular uveitis was associated with chronic uveitis and female sex, and less likely with HIV sero-positive status. Resolution of inflammation in TBU cases was achieved at 6 months post-treatment-onset, suggesting a minimum of 6 months ATT.