Vitreous and Chorioretinal Lesions in Injection Drug Users Hospitalized with Bloodstream and Related Infections

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Purpose:
To characterize vitreous and chorioretinal (CR) lesions, identify causative organisms, and correlate symptoms with ophthalmic involvement in injection drug users hospitalized with bloodstream infection (BSI) and/or related metastatic foci of infection (MFI).

Methods:
A prospective study enrolling patients admitted with BSI or MFI related to injection drug use (IDU). Subjects received a dilated retinal exam within 72 hours of enrollment. Characteristics including gender, age, race, drug of choice (DOC), presence co-infection with hepatitis B (HBV), hepatitis C (HCV) or HIV, pathogen causing systemic infection, and history of infection related to IDU were recorded. Systemic infections were categorized into one of 4 groups: 1) infectious endocarditis (IE), 2) BSI alone, 3) BSI+MFI, 4) MFI alone. Ocular symptoms and exam findings were documented, and fundus photos were obtained to document findings.

Results:
91 unique patients with 96 separate hospitalizations for systemic infection were enrolled from 3/28/2018 to 3/30/2020. 15/96 (15.6%) subjects were found to have vitreous and/or chorioretinal involvement on examination. Most common ocular findings were intraretinal or white-centered hemorrhage (IRH) in 9/96, chorioretinal infiltrate in 7/96, endophthalmitis in 5/96, and cotton wool spots (CWS) in 3/96. Of the patients with ocular involvement, only 6/15 (40%) were symptomatic, and 5 of these were patients with endophthalmitis, the other had IRH and CWS. In subjects with ocular findings, infectious endocarditis was the most common systemic infection (11/15), and most common causative pathogens were methicillin resistant staph aureus (6/15) and methicillin sensitive staph aureus (3/15). There was no DOC more likely to result in ocular findings, and co-infection with HCV, HBV, or HIV was not associated with presence of ocular findings.

Conclusions:
Asymptomatic patients with infections related to IDU may have ophthalmic involvement, although in this study, identification of these patients did not change management. While endophthalmitis and chorioretinal infiltrates are clear manifestations of systemic infection, the presence of IRH and CWS may signal underlying systemic illness related to IDU and should prompt the clinician to obtain appropriate history. Further study is needed to better characterize the epidemiology of these infections and to identify risk factors for ocular involvement in this patient population.