Case report
Cerebral venous thrombosis in an HIV infected patient

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History of present illness

- Caucasian male, 31 yo
- Previously documented HIV infection (last CD4 count: 320 cell/μL)
- Time of HIV diagnosis and initiation of antiretroviral treatment: one year prior to current admission
- Medication at time of admission:
  - Lamivudine/Zidovudine (Combivir) 1 tb x 2/day
  - Lopinavir/Ritonavir (Kaletra) 2 tb x 2/day
Chief complaint

- bilateral occipital headache
- progressive onset during the course of a week
- neurological examination upon admission was unremarkable with no focal neurological signs
- modified Rankin score (mRS) was 1 (no significant disability despite symptoms; able to carry out all usual duties and activities)
  - mRS measures functional independence on a seven grade scale – a score of 0 means asymptomatic, a score of 5 severe disability and 6 death
Differential diagnosis

- HIV and other immunosuppressed patients with headache are at significant risk for intracranial disease, including:
  - toxoplasmosis,
  - stroke (arterial or venous),
  - brain abscess,
  - meningitis,
  - malignancy of the central nervous system

- The most important factor is the degree of immunosuppression in the host:
  - CD4 cell counts >500/μL, benign and malignant brain tumors and metastases predominate, as in immunocompetent hosts.
  - CD4 cell counts from 200 to 500/μL, HIV-associated cognitive and motor disorders are common
  - CNS mass lesions are most common in severely immunosuppressed patients with CD4 cell counts <200/μL
Work up

- routine blood tests: within normal range
- head MRI with venography: partial thrombosis of the superior sagittal sinus, without the appearance of parenchymal brain lesions
- screening panel for inherited thrombophilias: PAI-1 homozygous mutation, MTHFR C677T homozygous mutation and hyperhomocysteinemia
Treatment

- LMWH for 5 days

- acenocumarol titration: a challenge due to the fact the patient was constantly below the target range despite administration of high doses (up to 16 mg daily)
  - efficient oral anticoagulation in HIV patients is difficult, in spite of treatment adherence, probably due to interactions between antiretroviral medication and cytochrome P450 enzymes
  - a study performed by Andreson et al. on 73 HIV infected individuals with oral anticoagulant treatment, followed over 911 visits, found INR in therapeutic range in only 34.5% of visits.
  - the group also found that 50% more oral anticoagulant was required in patients treated with lopinavir/ritonavir versus efavirenz with NRTI
Drug interactions

- Lopinavir/ritonavir and acenocumarol: in vivo and in vitro data suggest that ritonavir is a modest inducer of CYP2C9. Lopinavir/ritonavir could potentially decrease acenocumarol concentrations. INR monitoring is advised.
Follow up and prognosis

- Disease progression: favourable outcome with complete remission of symptomatology
- MRI reevaluation: complete venous recanalization
- Cerebral venous thromboses have a better prognosis than arterial strokes – 80% of patients have a good outcome – with complete recovery or minor residual symptoms or signs; less than 5% of patients die either in the acute phase or within 30 days of symptom onset; poor outcome is usually associated with delay of diagnosis
- Long term complications: recurrence of thrombosis, either cerebral or at a different location; depression; vascular epilepsy; chronic headaches.
- Particular aspects of the case:
  - Rare form of stroke
  - HIV infection is rarely associated with cerebrovascular events
  - Association of mechanisms – inherited thrombophilia and HIV infection – leading to a hypercoagulable state
  - Oral anticoagulant resistance, probably related to antiretroviral treatment
THANK YOU!