Neurosyphilis in HIV-positive patients diagnosed with early syphilis

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Background:
Number of syphilis infections is growing rapidly in recent years [1] European guidelines (IUSTI) suggest that HIV infected patients may have increased risk of neurological involvement and recommend CSF examination in all patients with serum VDRL titers of 1/32 or more. [2] Recent study shows relationship between neurosyphilis and CSF HIV viral load [3], and other studies show association of elevated CSF VL with subsequent neurocognitive decline [4].

Aim of study:
1. To assess proportion of confirmed neurosyphilis in CSF tests
2. To assess possible association of CSF parameters with CD4 count, serum VL and cART at time of syphilis diagnosis

Patients and method:
Study included all HIV-positive patients diagnosed with early syphilis who had lumbar puncture performed in years 2008-2012. Analysis included CSF parameters (serology, mononuclear cells, protein, glucose, chloride and lactate levels), CD4 count, serum VL and cART. Diagnosis of neurosyphilis was confirmed by CSF serology (positive FTA and/or VDRL) and increased number of mononuclear cells. Statistical analysis included Chi² tests with accepted significance level of p<0.05.

Results:
Lumbar puncture was performed in 73 patients, all men, with median age 32 [23-58] years. 65 (89.04%) acquired syphilis through homosexual contacts, and 8 (10.96%) through heterosexual contacts.

ICD-10 diagnoses included:
- A51.0 = Primary genital syphilis (2.74%)
- A51.3a = Secondary syphilis of skin and mucous membranes – early (12.33%)
- A51.3b = Secondary syphilis of skin and mucous membranes – recurrent (84.93%)

In study period number of patients diagnosed with early syphilis was increasing, as well as number of LPs performed.

- Neurosyphilis was confirmed in 67 (91.78%) of 73 patients who had lumbar puncture performed.
- The statistically significant association has been found between pleocytosis (but not other parameters) and serum VL>1000 c/ml (p=0.0451), as well as cART treatment (p=0.0328). No statistically significant association has been found between CD4 level and any of CSF parameters.

Discussion:
Increased pleocytosis in patients with high serum VL could possibly result from CSF VL as was observed in other studies [5,8]. Likewise, observed association of pleocytosis with cART could result from lower serum VL in treated patients. Due to the fact that the considerable number of patients is objecting to having the lumbar puncture performed in the absence of neurological symptoms, CSF examination was possible only in approximately 50% of patients who required it according to guidelines.

For this reason patients were treated with medicines having a quite good penetration to CSF, 77% were receiving crystalline penicillin alone or in combination (with doxycycline or benzathine penicillin), 10% doxycycline, 7% ceftriaxone, and 5% other drugs. All applied treatments were effective as confirmed by fourfold decrease in VDRL/FTA titers within one year.

Conclusions:
- Very high proportion of confirmed neurosyphilis, also in patients with relatively low serum VDRL titers may suggest that CSF should be examined in all HIV+ patients diagnosed with syphilis regardless of VDRL titer.
- Otherwise, it may be advisable to use treatments with good CNS penetration when excluding neurosyphilis by CSF examination is impossible.

References:

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