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**Poster Session III**

**Diagnosis of mycobacterial infections: from genetics to MALDI-TOF**

**The microbiological diagnosis of tuberculosis meningitis: results of Haydarpasa-1 study**

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**Objectives:** We aimed to provide data in the diagnosis of tuberculous meningitis (TBM) in this largest case series ever reported in the literature.

**Methods:** Haydarpasa-1 study involved microbiologically confirmed patients for TBM in Albania, Croatia, Denmark, Egypt, France, Hungary, Iraq, Italy, Macedonia, Romania, Serbia, Slovenia, Syria, and Turkey between 2000-2012. A positive culture, PCR or Ehrlich-Ziehl-Neelsen staining (EZNs) from the cerebrospinal fluid (CSF) was mandatory for inclusion of meningitis patients.

**Findings:** 506 TBM cases were included. The sensitivities of the tests were as follows: Automated culture systems (ACS) 81.8%, Lowenstein Jensen (L-J) 72.7%, interferon gamma release assay (IGRA) 53.1%, adenosine deaminase (ADA) 29.9%, EZNs 27.3% (128/469). CSF-ACS was superior to CSF L-J culture and CSF-PCR ( $p < 0.05$ ). Accordingly, CSF L-J culture was superior to CSF-PCR test ( $p < 0.05$ ). Combination of L-J and ACS cultures was superior to using these tests alone ( $p < 0.05$ ). There was poor agreement between EZNs staining and L-J culture ( $\kappa, -0.189$ ); ACS culture and L-J culture ( $\kappa - 0.172$ ) ( $p < 0.05$  for both). Fair agreement was detected for IGRA and L-J culture ( $\kappa, -0.37$ ), CSF-ADA and CSF-PCR ( $\kappa, -0.299$ ) ( $p < 0.05$  for both).

**Interpretation:** Diagnostic accuracy of TBM is increased when both ACS and L-J are used together. EZNs, IGRA, ADA, and PCR only contributed slightly to TBM diagnosis. However, due to the delays in the diagnosis with any of the cultures, combined use of non-culture tests may contribute early diagnosis. Hence, diagnostic approach to TBM should be individualized according to technical capacities of medical institutions with poor resources in particular.