

## S03-02 - IMMUNE-TRYPTOPHAN PATHWAY INTERACTION: POSSIBLE PATHOPHYSIOLOGICAL ROLE IN MAJOR DEPRESSIVE DISORDER

A.-M. Myint<sup>1</sup>, M. Schwarz<sup>2</sup>

<sup>1</sup>Ludwig-Maximilians University, <sup>2</sup>LMU Munich, Munich, Germany

**Background:** The involvement of immune mechanism in psychiatric disorders was proposed in macrophage theories of depression and schizophrenia. Later, the involvement of the inflammatory related changes beyond the cytokines including the interaction between inflammatory response system and neurotransmitters was considered in pathophysiology of neuropsychiatric disorders. The neurodegeneration hypothesis of depression stressed the importance of imbalance between the pro- and anti-inflammatory cytokines that leads to another imbalance in neuroprotective kynurenic acid arm and neurodegenerative 3-hydroxykynurenine and quinolinic acid arm of the tryptophan catabolic pathway.

**Method:** A series of studies on human plasma and CSF changes and their associations to clinical symptoms and response to treatment and certain SNPs polymorphisms were carried out. Some studies were also done in cell culture system and post mortem morphology.

**Results:** It was observed that the neuroprotective, kynurenic acid was significantly lower and one of the neurodegenerative metabolites 3-hydroxykynurenine was significantly higher in the plasma of drug naïve depressed patients. The plasma kynurenic acid concentration and neuroprotective ratio gave clear discrimination between the patients and controls with reasonable sensitivity and the specificity. The CSF findings showed similar direction. The findings were also supported by the findings from SNPs polymorphism and post-mortem studies.

**Conclusion:** The major depressive disorder is associated with imbalanced immune-metabolic-neurochemical systems.