

Analysis of the impact of neutrophils on glial cells in the pathogenesis of multiple sclerosis and stroke.

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Background

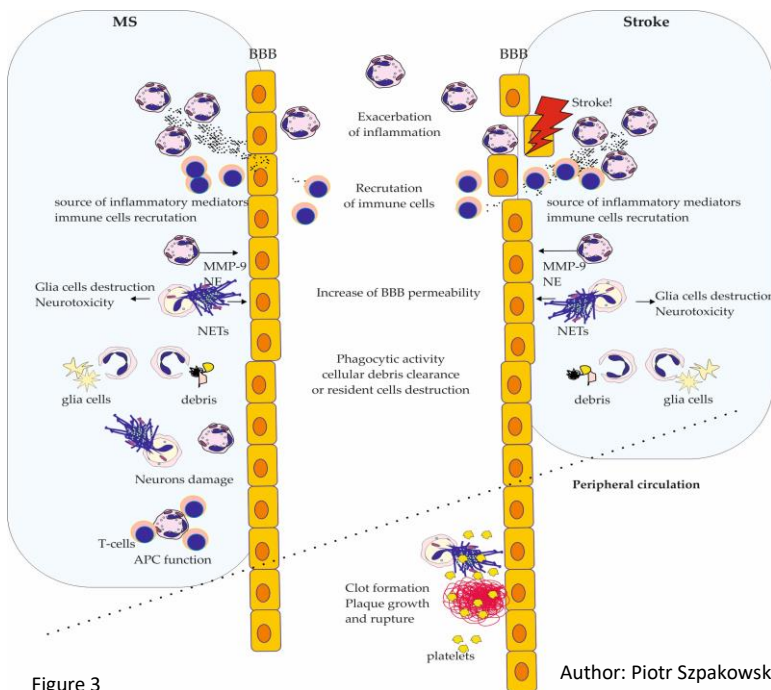


Figure 3
The similarities and differences in neutrophils function in pathogenesis of multiple sclerosis and stroke. MS – multiple sclerosis, BBB – blood-brain barrier, MMP-9 – matrix metalloproteinase 9, NE – neutrophil elastase, NETs – neutrophil extracellular traps, APC – antigen presenting cells.

Aim of the study

Analysis of the interactions between different types of neutrophils isolated from patients with CNS diseases and selected glial cells.
Identification of mechanisms used by neutrophils for regulation of the activity of other cells will allow us to deepen our knowledge about pathomechanisms of the most common CNS diseases. This may translate into increased effectiveness of the future treatment.

Hypotheses

The interaction between neutrophils and glial cells (astrocytes) influences the pathogenesis of multiple sclerosis and ischemic stroke and the tightness of the blood-brain barrier.

Materials

Participants of the study:

1. Patients with MS before DMT
2. Patients with MS during DMT therapy
3. Patients with ischemic stroke in acute phase of disease
4. Patients without diagnosed neurology disease as control group

Sample of peripheral blood (45ml) will be drawn from each participant after obtaining written informed consent.

Methods

Assessment of neutrophils phenotype with flow cytometry including:

- N1
- N2
- rTEM
- Aging neutrophils

Analysis of the secretory activity of neutrophils with ELISA including:

- IL-10
- IL-1beta
- TNF alfa

Assessment of functional changes of astrocytes after contact with neutrophils with flow cytometry

Statistical analysis

What have we done?

We obtained agreement from Bioethical Committee.
We published review article in scientific journal.
We are preparation of methodology of our study.