Stroke

The role of phagocytes in brain repair after cerebrovascular crisis

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Shortly after the onset of intracerebral hemorrhage (ICH), brain tissue macrophages (microglia) are activated and assume their healing or damaging phenotype depending of the environmental cues. This early event is followed by infiltration of masses of polymorphonuclear neutrophils (PMNs) followed by monocytes/macrophages, a process that can often last for days or weeks. PMNs and macrophages, similar to microglia can be modified by various signaling events to assume either injurious or beneficial (anti-inflammatory, phagocytic, anti-oxidative and trophic) phenotype, a process that could be instrumental in establishing the efficacy of repair of ICH-affected brain. Over the years, we have learned that the healing (assisting in repair) phenotype of these phagocytic cells can be achieved by targeting specific cellular processes regulation function of these cells. We showed that some of these approaches demonstrate robust efficacy in animals' models of ICH and some of them are currently evaluated in clinical trials in patients with ICH.