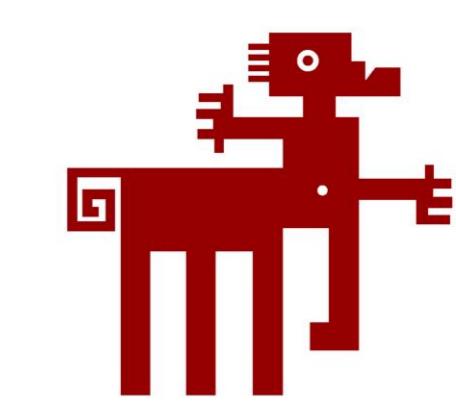


POSTOPERATIVE COGNITIVE DYSFUNCTION: WHAT CAN WE DO TO IMPROVE ITS OUTCOME?



INTRODUCTION

- Postoperative cognitive dysfunction (POCD) is a clinical syndrome characterized by alterations in memory, concentration, attention, and social integration after the use of anesthesia and surgery that persists after three months.
- This condition is very common in geriatric patients, being the advanced age the most important risk factor of POCD.

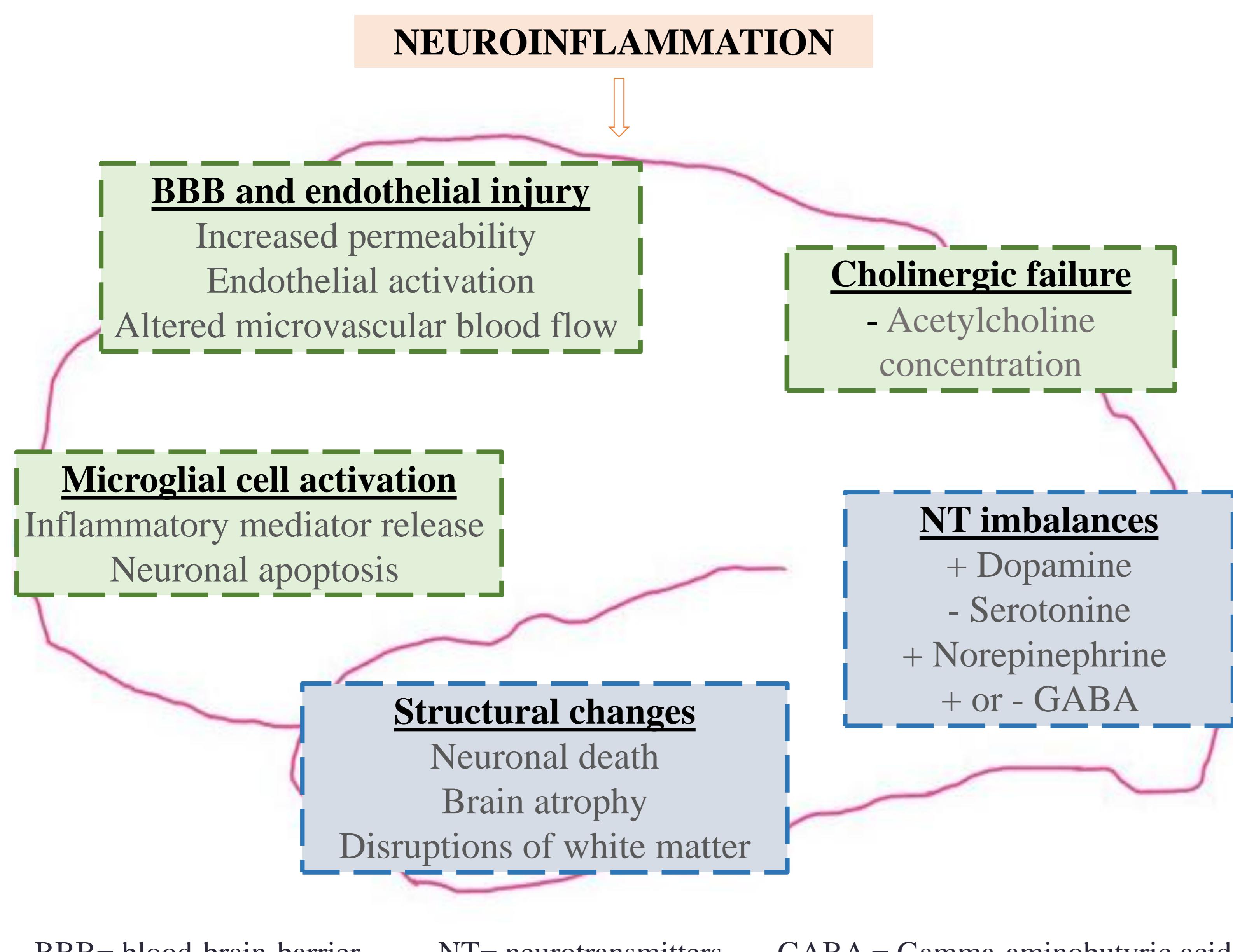
OBJECTIVES

- To review all the important literature published about POCD.
- To summarize the important information about this condition, including its predisposing factors and medical options to prevent its development or to treat it once established.

POSTOPERATIVE COGNITIVE DISORDERS



ETIOLOGY OF POCD



BBB = blood-brain-barrier

NT = neurotransmitters

GABA = Gamma-aminobutyric acid

PREOPERATIVE EVALUATION

- Preoperative assessment (risk factors, previous surgeries, prescribed medication...)
- Neuropsychological examination
- Early diagnosis
- Melatonin
- Probiotics and prebiotics
- Antioxidant diet

INTRAOPERATIVE MANAGEMENT

- Less surgical insult and duration
- Monitoring → Homeostasis management
- More lipid soluble anesthetics
- Acetylcholinesterase inhibitors
- Propofol
- Dexmedetomidine
- Lidocaine
- Pain management

POSTOPERATIVE INTERVENTIONS

- Pain and anxiety management
- Early identification of delirium
- Good environmental space
- Normal sleep-wake cycles
- Visits by owners and family
- Early discharge
- Nutrition

RISK FACTORS

PATIENT

- Advanced age
- Previous cognitive dysfunction
- Preexisting cerebral, cardiac, or vascular diseases
- Low educational level

SURGERY

- Major/minor surgery
- Extensive surgical procedure
- Complications

ANESTHESIA

- Long acting anesthetics
- Anticholinergic drugs
- Disturbance of homeostasis
- Perioperative pain
- Anesthesiologic complications
- Other postoperative cognitive alterations after surgery

CONCLUSIONS

- Hypothesized mechanisms of POCD include BBB and endothelial injury, cholinergic inhibition and neuroinflammation with microglial activation which lead to neurotransmitter imbalance and structural changes.
- The main risk factor for POCD is the age of the patients and their cognitive status prior to surgery, although surgical and anesthetic factors need to be considered.
- Prevention is essential as there is no effective POCD treatment and it worsens the quality of life being one of the principal causes of euthanasia in geriatric animals.
- More studies are needed to improve knowledge on mechanisms and pathways, identification, management, prevention and treatment of POCD.