

Preconditions

1. Severe (acute or chronic) liver disease
2. Portosystemic collateral circulation

Pathogenic factors

1. **Endogenous neurotoxins** ↑
 - ammonia
 - mercaptans, methionine derivatives
 - short-chain or medium-chain fatty acids
 - phenols, phenol derivatives
2. **Amino acid imbalance**
 - aromatic amino acids ↑
 - phenylalanine, tyrosine, methionine, tryptophan
 - branched-chain amino acids ↓
 - leucine, isoleucine, valine
3. **Disturbances of neurotransmitters**
 - false neurotransmitters ↑
 - octopamine, phenylethanolamine, etc.
 - excitatory neurotransmitters ↓
 - dopamine, noradrenaline
 - inhibitory neurotransmitters ↑
 - serotonin, GABA
4. **Changes in postsynaptic receptors**
 - benzodiazepine receptor activity ↑
 - picrotoxin
5. **Alterations in the blood-brain barrier**
 - change in permeability
 - compromised substrate transport