REVIEW

脊椎脊髄病治療の現状と展望
―脊髄損傷を中心に―

Spinal cord regeneration

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SUMMARY
Unlike the axons in the peripheral nervous system (PNS) where axons can regrow after injury, axons in the central nervous system (CNS) fail to regenerate after injury. This is because the injury does not result in coordinated upregulation of regeneration associated genes (RAGs) to increase the intrinsic growth capacity of the injured neurons and they continue to respond to inhibitory cues. To overcome these impediments, studies have focused on promoting intrinsic growth of the neurons, blockage of inhibitory cues and restoration of growth-supportive environment and secretion of neurotrophic growth factors of the glial cells. However, these factors alone are insufficient to allow regrowth over anatomical complete spinal cord injury and all these three factors must be combined to enable growth in the CNS. Here, we would like to introduce current strategies and clinical trials for the treatment of spinal cord injury in Japan.

はじめに

米国において脊髄損傷は年間100万人あたり54人が発症し，世界保健機関(World Health Organization：WHO)は世界中で250,000～500,000の脊損が発生していると予測している。

脊損の原因としては，交通事故，転落，転倒の順に多く，発症年齢は20歳と60歳の二峰性を示し，損傷高位は頚髄 60%，胸腰髄 40%と報告されている。

末梢神経と異なり，中枢神経は神経損傷後の軸索再生は極めて困難である。その理由として末梢神経では神経損傷後，神経細胞がactivating transcription factor 3(ATF3)，small proline rich protein 1A(SPRR1A)，heat shock protein family B member 1(HSPB1)，signal transducer and activating transducer 3(STAT3)，early growth response 1(EGR1)