Multiple uses of fibrin sealant for nervous system treatment following injury and disease.

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Abstract:

Lesions to the nervous system often produce hemorrhage and tissue loss that are difficult, if not impossible, to repair. Therefore, scar formation, inflammation and cavitation take place, expanding the lesion epicenter. This significantly worsens the patient conditions and impairment, increasing neuronal loss and glial reaction, which in turn further decreases the chances of a positive outcome. The possibility of using hemostatic substances that also function as a scaffold, such as the fibrin sealant, reduces surgical time and improve postoperative recovery. To date, several studies have demonstrated that human blood derived fibrin sealant produces positive effects in different interventions, becoming an efficient alternative to suturing. To provide an alternative to homologous fibrin sealants, the Center for the Study of Venoms and Venomous Animals (CEVAP, Brazil) has proposed a new bioproduct composed of certified animal components, including a thrombin-like enzyme obtained from snake venom and bubaline fibrinogen. Thus, the present review brings up to date literature assessment on the use of fibrin sealant for nervous system repair and positions the new heterologous bioproduct from CEVAP as an alternative to the commercial counterparts. In this way, clinical and pre-clinical data are discussed in different topics, ranging from central nervous system to peripheral nervous system applications, specifying positive results as well as future enhancements that are necessary for improving the use of fibrin sealant therapy.