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Opinion Article

Lidocaine and Scutellarin: A Novel Anti-Glioma Medication Combination

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DESCRIPTION

One of the most prevalent primary intracranial tumours, gliomas is created by a particular subset of brain cells (astrocytes, oligodendrocytes, ependymal cells, etc). The space-occupying effect and the functionality of the affected brain regions are the key determinants of the symptoms and signs brought on by glioma. Gliomas can cause headaches, nausea, and vomiting, epilepsy, blurred vision, and other symptoms due to their space-occupying effects. Additionally, the affected patients may potentially have additional symptoms as a result of its impact on the functionality of nearby brain regions. For instance, gliomas can impair a person's ability to express. How malignant a glioma is affects how quickly symptoms develop. In the majority of cases, the precise cause is unknown. However, some well-known hereditary disorders, such type I neurofibromatosis and tuberculous sclerosis, can predispose someone to glioma. More importantly, glioma is now incurable. Chemotherapy, radiation, and/or surgery are all examples of palliative care. Radiation therapy is frequently insensitive, and the operation is traumatic. Therefore, there is a pressing need to research novel and potent anti-glioma medications.

Scutellarin (4′,5,6-trihydroxyflavone-7-glucuronide) is the main component of flavonoids that were extracted from *Erigeron breviscapus*. These flavonoids have a wide range of pharmacological actions and have been used to treat cerebral and cardiac ischemia illnesses. Among these, scutellarin has recently drawn more attention due to its anti-tumor action on the majority of cancers. By encouraging caspase-6 activation in a P53 dependent manner, Scutellarin sensitised RSV- and 5-FU-triggered apoptosis in colorectal cancer. Scutellarin inhibited the proliferation of hepatocellular carcinoma cells and induced apoptosis by downregulating STAT3, BCL-XL, and Mcl-1 through the STAT3 signalling pathway. By inhibiting matrix metalloproteinases-2 and 9 (MMP-2 and MMP-9) and V6 integrin, scutellarin reduced the proliferation and migration of tumour cells in human tongue squamous cell carcinoma. The function of Scutellarin in gliomas needs to be further clarified.

A frequent local anaesthetic and antiarrhythmic medication is lidocaine. Recent research has revealed that lidocaine has an anti-tumor impact. First, *via* activating the apoptosis protein pathway, lidocaine inhibited the growth of colon cancer cells and produced cell-cycle arrest and apoptosis in them. HepG2 cell growth was also slowed down by lidocaine in a dose- and time-dependent manner. Lidocaine may also be a potential therapy option for hepatocellular carcinoma and breast cancer because it inhibited the growth of tumours and improved the sensitivity to cisplatin. At its clinically relevant doses, lidocaine and ropivacaine mechanically exerted demethylating effects on breast cancer cells.

Additionally, clinical investigations showed that patients undergoing pancreatectomy were more likely to survive overall after intraoperative intravenous Lidocaine infusion. Lidocaine is thus a potentially effective anticancer agent. Nevertheless, nothing is known about how Lidocaine affects gliomas. The Chinese herbal remedy Erigeron breviscapus's extractant scutellarin has an anti-tumor impact on a variety of tumour types. Previous research has demonstrated that Scutellarin, at low doses, can cause cell cycle arrest during the G0/G1 transition by suppressing the production of cyclin D1 and CDK4, and that at large doses, it can induce apoptosis by encouraging the activation of caspases. Combining scutellarin and lidocaine reduced glioma cell motility, proliferation, and apoptosis, which were partly attributed to the inhibition of EGFR expression.

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