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**Temporal and spatial changes in glial cells during chronic hypobaric hypoxia: Role in neurodegeneration.**

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**Authors' contributions:**

Dheer A. conceived, performed all the experiments, analyzed data and wrote the manuscript. Jain V. designed the study, assisted in data analysis and writing of the manuscript. Kushwah N. and Kumar R. assisted in performing hypobaric hypoxia exposures and sample collection. Prasad D. helped in revision of study. Singh SB helped conceive, analyze and interpret data and assisted in writing the manuscript. All authors have read and approved the final manuscript.

**Abstract**

Ascend to high altitude results in a drastic change in the environmental conditions an individual is exposed to. As the altitude increases there is a decrease in partial pressure of oxygen leading to a unique condition known as hypobaric hypoxia (HH). Brain is highly vulnerable to hypoxia and it has been well established that hypobaric hypoxia leads to neurodegeneration in different brain regions. However, the response of glial cells during hypobaric hypoxia needs to be explored yet. The present study was aimed to understand the role of glial cells viz. astrocytes, microglia and oligodendrocytes in HH induced neuronal death. The study aims to understand the effect of HH exposure on glial physiology in a time-dependent (0, 1, 3, 7 and 14 days of HH exposure) and region dependent (CA1, CA3 and DG regions of hippocampus) manner. We examined the morphological changes and activation of

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