Abstract

INTRODUCTION: A subpopulation of neoplastic cells with characteristics of stem cells has been described on human multiform glioblastomas. These cells play a pivotal role in tumour angiogenesis and malignancy being involved in infiltration of adjacent normal parenchyma. The named glial stem cells could be responsible for recurrences after surgery. This is due to their survival capacity after quimio/radiotherapy treatments.

DEVELOPMENT: In this work we review the role of glial stem cells in relationship with angiogenesis process. We also review some findings related to the appearance of these cells during angiogenesis in a rat endogenous experimental model of gliomas. These cells were characterized by antibodies against the antigens CD133, nestin and the vascular endothelial growth factor (VEGF). Nestin+ cells were found in every stage of tumour development, whereas CD133+ cells were only present since intermediates stages corresponding with VEGF overexpression. This moment is known as start of angiogenesis or 'angiogenic switch'. We also found that some nestin+ cells co-expressed CD133 antigen. Glial stem cells are distributed in the experimental glioma model as well as in human multiform glioblastomas, shaping niches into perivascular or intra-tumoral hypoxic areas.

CONCLUSION: Many evidences corroborate the hypothesis that glial stem cells have a close relationship with angiogenic switch, intratumor hypoxia and neoplastic microvascular network.


Publication Types, MeSH Terms, Substances

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