Dokumenttyp: journal article

Autor(en) des Beitrags:
Rieken, Stefan; Rieber, Juliane;
Brons, Stephan; Habermehl, Daniel;
Rief, Harald; Orschiedt, Lena; Lindel, Katja; Weber, Klaus J; Debus, Jürgen;
Combs, Stephanie E

Titel des Beitrags: Radiation-induced motility alterations in medulloblastoma cells.

Abstract:
Photon irradiation has been repeatedly suspected of increasing tumor cell motility and promoting locoregional recurrence of disease. This study was set up to analyse possible mechanisms underlying the potentially radiation-altered motility in medulloblastoma cells. Medulloblastoma cell lines D425 and Med8A were analyzed in migration and adhesion experiments with and without photon and carbon ion irradiation. Expression of integrins was determined by quantitative FACS analysis. Matrix metalloproteinase concentrations within cell culture supernatants were investigated by enzyme-linked immunosorbent assay (ELISA). Statistical analysis was performed using Student's t-test. Both photon and carbon ion irradiation significantly reduced chemotactic medulloblastoma cell transmigration through 8-?m pore size membranes, while simultaneously increasing adherence to fibronectin- and collagen I- and IV-coated surfaces. Correspondingly, both photon and carbon ion irradiation downregulated soluble MMP9 concentrations, while upregulating cell surface expression of proadhesive extracellular matrix protein-binding integrin ?5. The observed phenotype of radiation-altered motility is more pronounced following carbon ion than photon irradiation. Both photon and (even more so) carbon ion irradiation are effective in inhibiting
medulloblastoma cell migration through downregulation of matrix metalloproteinase 9 and upregulation of proadhesive cell surface integrin ?5, which lead to increased cell adherence to extracellular matrix proteins.

Zeitschriftentitel / Abkürzung:
J Radiat Res

Jahr:
2015

Band:
56

Heft / Issue:
3

Seiten:
430-6

Sprache:
eng

Pubmed:

Print-ISSN:
0449-3060

TUM Einrichtung:
Klinik und Poliklinik für RadioOnkologie und Strahlentherapie

Occurences:
· Einrichtungen > Fakultäten > Fakultät für Medizin > Kliniken und Institute > Klinik und Poliklinik für RadioOnkologie und Strahlentherapie > 2015

entries: