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Immunomodulation - hope for patient with Glioblastoma Multiforme

Jakub Litak[1], Joanna Litak[2], Wojciech Czyżewski[3], Paulina Miziak[4]

[1]Department of Neurosurgery and Pediatric Neurosurgery SPSK-4 in Lublin

[2]St. John`s Cancer Center in Lublin

[3]Chair and Department of Anatomy , Medical University of Lublin

[4]Chair and Department of Biochemistry and Molecular Biology , Medical University of Lublin

Immunomodulacja - nadzieja dla pacjentów chorych na glejaka wielopostaciowego

[1]Klinika Neurochirurgii i Neurochirurgii Dziecięcej SPSK-4 w Lublinie

[2]Centrum Onkologii Ziemi Lubelskiej im. Św Jana z Dukli

[3]Katedra i Zakład Anatomii Prawidłowej Człowieka

[4]Katedra i Zakład Biochemii i Biologii Molekularnej Uniwersytetu Medycznego w Lublinie

Abstract

Glioblastoma multiforme is the most common and highly aggressive brain tumor, causing high number of death worldwide. Current therapies are not sufficient for patients. The surgical removal followed by radio- and chemotherapy became golden standard. Overall survival is still disappointing. New approach to GBM therapy is required . Immunotherapy seems to be a proper direction.

Abstrakt

Glejak wielopostaciowy jest najczęstszym złośliwym guzem pierwotnym ośrodkowego układu nerwowego. Obecna terapia glejaka wielopostaciowego nie jest wystarczająco efektywna. Opeacja usunięcia guza uzupełniona o radio i chemioterapię stała się złotym standardem leczenia pacjentów z glejakiem wielopostaciowym mimo to czas całkowitego przeżycia pozostaje krótki. Leczenie glejaka wielopostaciowego wymaga nowego podejścia.

Leczenie immunomodulujące wydaje się odpowiednim kierunkiem.

Introduction

A 56-year-old female patient claiming for morning headache worsening with activity for last month. Changes in ssensation, vision and smell disorders. Problems with fresh memory and personality changes were claimed by family. Patient reported problems with concentration and hearing phenomenon. CT and MRI were performed revealing tumor mass in a pole of right temporal lobe[FIG.1]. Surgical resection was performed. Temporal craniotomy allow to total tumor removal. Tumor was removed with adequate margin of brain tissue maximizing neoplasm infiltrated tissue removal. Histopathological result was Glioblastoma Multiforme. Additional Radiation and chemotherapy were performed . Patient maintain good condition Karnofsky scale 100.

Control MRI after 3 and 9 months were performed visualizing post resection area without any enhancement after contrast injection, there was no suggestion of tumor recurrence after 9 months. After 12 month some peripheral enhancement appear nearby the area of previous surgery, another infiltration zone was discovered in opposite hemisphere in parietal lobe. Patient was disqualified from surgery. Karnofsky scale result decreased to 50 Patient died 3 month later.

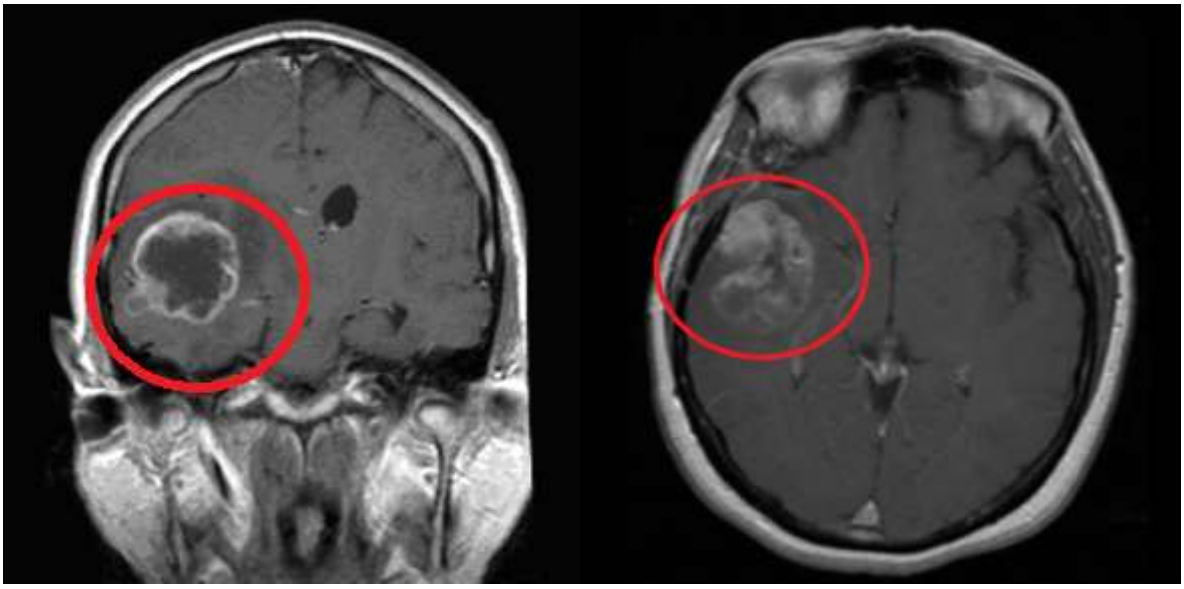

FIG.1 MRI - Peripheral enhancement after contrast injection in right temporal lobe tumor mass.

Discussion

Glioblastoma multiforme common and very aggressive primary brain tumor with OS(overall survival) 10-12 month. Surgical resection followed with radiotherapy has been a key importance to treatment of glioblastoma multiforme. Radiation techniques minimizing radiation dose to nearby brain tissue has improved final outcomes. Introducing Temozolomide to therapy used in conjunction with radiotherapy promote toxicity in a glioblastoma cell environment. Despite new approaches and technical development average OS did not changed significantly. Very high mitotic index of glioblastoma cell make GBM expandable neoplasm. Similarly to other malignancies GBM is able to modify host immune defenses barriers using variety of mechanism. Immunological approach to the therapy of GBM give hope to find proper way inhibiting aggressive infiltration. Immunomodulating agents promotes more aggressive immune response of host immune system . Binding with specific receptors inhibit expansion of GBM cells .GBM become more visible for antigen presenting cells and all of immune response cascades are more effective. Most of immunomodulating agents are in a clinical trials phase trying to compare their effectiveness with a standard therapeutics. Ongoing initial trials will provide preliminary data on the role of immunotherapy for GBM patients. Subsequent clinical development steps will likely require rationally designed combinatorial regimens.

REFERENCES:

[1].Stupp R, Mason WP, van den Bent MJ, Weller M, Fisher B, Taphoorn MJ, Belanger K, Brandes AA, Marosi C, Bogdahn U, Curschmann J, Janzer RC, Ludwin SK, Gorlia T, Allgeier A, Lacombe D, Cairncross JG, Eisenhauer E, Mirimanoff RO (2005) Radiotherapy plus concomitant and adjuvant temozolomide for glioblastoma. N Engl J Med 352(10):987–996.

[2]Stupp R, Hegi ME, Mason WP, van den Bent MJ, Taphoorn MJ, Janzer RC, Ludwin SK, Allgeier A, Fisher B, Belanger K, Hau P, Brandes AA, Gijtenbeek J, Marosi C, Vecht CJ, Mokhtari K, Wesseling P, Villa S, Eisenhauer E, Gorlia T, Weller M, Lacombe D, Cairncross JG, Mirimanoff RO (2009) Effects of radiotherapy with concomitant and adjuvant temozolomide versus radiotherapy alone on survival in glioblastoma in a randomised phase III study: 5-year analysis of the EORTC-NCIC trial. Lancet Oncol 10(5):459–466.

[3]Brahmer JR, Tykodi SS, Chow LQ, Hwu WJ, Topalian SL, Hwu P, Drake CG, Camacho LH, Kauh J, Odunsi K, Pitot HC, Hamid O, Bhatia S, Martins R, Eaton K, Chen S, Salay TM, Alaparthy S, Grosso JF, Korman AJ, Parker SM, Agrawal S, Goldberg SM, Pardoll DM, Gupta A, Wigginton JM (2012) Safety and activity of anti-PD-L1 antibody in patients with advanced cancer. N Engl J Med 366(26):2455–2465.

[4]Okada H, Kalinski P, Ueda R, Hoji A, Kohanbash G, Donegan TE, Mintz AH, Engh JA, Bartlett DL, Brown CK, Zeh H, Holtzman MP, Reinhart TA, Whiteside TL, Butterfield LH, Hamilton RL, Potter DM, Pollack IF, Salazar AM, Lieberman FS (2011) Induction of CD8+ T-cell responses against novel glioma-associated antigen peptides and clinical activity by vaccinations with {alpha}-type 1 polarized dendritic cells and polyinosinic-polycytidylic acid stabilized by lysine and carboxymethylcellulose in patients with recurrent malignant glioma. J Clin Oncol 29(3):330–336.