Title

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Journal

Journal of Clinical Oncology, 41(16_suppl)

ISSN

0732-183X

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Publication Date

2023-06-01

DOI

10.1200/jco.2023.41.16_suppl.2047

2047 **Poster Session**

Final results of phase 2 trial of personal dendritic cell (DC) vaccines loaded with autologous tumor antigens (ATA) in newly diagnosed glioblastoma (GBM).

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Background: Standard GBM therapy is associated with early progression and poor overall survival (OS). DC-ATA AV-GBM-1, a personal vaccine consisting of autologous DC pulsed with ATA, was investigated in a multicenter trial in patients with newly diagnosed GBM. **Methods:** Key eligibility criteria for surgical collection of tumor were clinical suspicion of new primary GBM & age 18-70 years. ATA lysate was prepared from irradiated tumor cells that were self-renewing in serum-free media. Autologous monocytes (MC) were collected by leukapheresis. Prior to initiating concurrent radiation therapy (RT) and temozolomide (TMZ), patients were enrolled with intent-to-treat (ITT) with DC-ATA after RT/TMZ. Eligibility included confirmation of primary GBM, availability of ATA & MC, KPS $>$ 70 and plans for RT/TMZ. DC-ATA was manufactured during RT/TMZ. MC were differentiated into DC by culturing with IL-4 & GM-CSF, then DC were incubated with ATA. DC-ATA was suspended in 500 mg GM-CSF just prior to s.c. injections at weeks 1, 2, 3, 8, 12,16, 20, & 24 (8 doses). Patients were not excluded based on apparent disease progression or PFS. Standard adjuvant TMZ regimens were started after the 3 weekly injections. Primary endpoint was $>$ 75% OS 14.6 months from ITT enrollment. Secondary endpoints included median OS & progression-free survival (PFS). **Results:** Cell line and MC collection were successful for 97% of patients. Median age of the 60 ITT enrollees was 59 years. 3 patients withdrew before starting DC-ATA; 57 received 392 injections; 68% received all 8. Most common AE attributed to DC-ATA were local injection site reactions (16%) & flu-like symptoms (10%), but 33% experienced seizures. After 3 years of follow up, OS at 14.6 mos is 52.7% (95% CI 39.8,65.8), median OS 16.0 mos (95% CI 12.9,21.7) & median PFS 10.4 mos (95% CI 8.6,11.6). OS rates at 1, 2, & 3 years are 70.1%, 32.4%, & 23.2%. Longer OS was associated with 8 DC-ATA doses ($p < 0.0001$), on $<$ 2 mg/day dexamethasone (dex) at start of DC-ATA ($p = 0.005$), $>$ 6 cycles of adjuvant TMZ ($p = 0.0054$), & KPS 90 or 100 ($p = 0.010$) at enrollment. Independent variables per multivariate Cox regression analysis were 8 DC-ATA doses, dex dose, *IDH* mutated, TMZ $>$ 6 cycles, & *MGMT* promoter methylated. Concurrent TMZ regimens included TMZ alone (n = 28), TMZ + anti-VEGF(n = 14), & TMZ + tumor treating fields (TTF) (n = 10); 8 received no concurrent TMZ. OS was longer in patients treated with concurrent TMZ alone compared to no TMZ ($p = 0.0003$), TMZ + anti-VEGF ($p = 0.045$) or TMZ + TTF ($p = 0.045$). The only common features among 7 patients progression-free at 3 years are 8 DC-ATA injections, age $<$ 60, & $<$ 2 mg dex. **Conclusions:** DC-ATA was reliably produced and injections well-tolerated in combination with various TMZ-based regimens, but the primary OS objective was not achieved. PFS was encouraging, but did not translate into improved OS, perhaps because DC-ATA was limited to 8 injections. Clinical trial information: NCT03400917. Research Sponsor: AIVITA Biomedical, Inc.