A first-in-human study of MT026, an off-the-shelf IL13Ra2-specific allogeneic universal CAR-T cells, in patients with recurrent high-grade glioma: an interim analysis

BACKGROUND

- T cell immunotherapy is becoming a powerful therapeutic strategy for hematological and solid malignancies
- Use of autologous T cell immunotherapy for treatment of high-grade glioma, a CNS tumor with rapid progression and poor prognosis, is limited
- Off-the-shelf allogeneic universal CAR-T cells has unique advantages and clinical potential for those tumors which tissues are hard to collect and progress rapidly

PK

- ChiCTR2000028801 is a first-in-human study of MT026, an off-the-shelf IL13Ra2–specific allogeneic universal CAR-T cells (IL13Ra2 UCAR-T cells). In this single-center, open-label, IIT study, safety, PK and preliminary efficacy of MT026 administered via intra-lumbar and intra-tumoral injections were evaluated.

STUDY DESIGN

Dosage and administration

- 2.5×10^7 cells, intra-lumbar or intra-tumoral injection, every four weeks

Primary objectives

- Safety

Secondary Objectives

- efficacy (ORR, DCR, OS, PFS)
- PK

Patient population

- 18-70 years
- Life expectancy ≥ 3 months
- KPS ≥ 40
- Histologically- or cytologically-confirmed recurrent or refractory high-grade glioma
- Had been treated with SoC
- IL13-Rα2 IHC positive score >50%

RESULTS (interim)

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Patient Characteristics

- As of July, 2022, 6 eligible patients received MT026

Exposure-response

- Response seems correlated with Cmax of CAR copies after 1st injection

AEs Occurring in ≥ 3 Subjects

- The only grade 3 AE is hypoxia occurring in 1 subject
- Blood IL-6 concentration is low after administration

Efficacy (As of July, 2022)

- 1 CR, 4 PR, 1 SD

Exposure-response

- Response seems correlated with Cmax of CAR copies after 1st injection

Safety

- Fever and hypoxia were the most common symptoms
- Elevated CSF IL-6 were the most common abnormal laboratory test
- No severe CRS or ICANS
- Of those AEs occurring in ≥2 subjects, most were Grade 1 or 2 except for a grade 3 hypoxia occurring in 1 subject

Patient Population

- As of July, 2022, 6 eligible patients received MT026

Patient Characteristics

- Age range: 20-68 years
- KPS range: 40-80
- IL13-Rα2 IHC positive score range: >50%

Exposure-response

- Response seems correlated with Cmax of CAR copies after 1st injection

Safety

- Fever and hypoxia were the most common symptoms
- Elevated CSF IL-6 were the most common abnormal laboratory test
- No severe CRS or ICANS
- Of those AEs occurring in ≥2 subjects, most were Grade 1 or 2 except for a grade 3 hypoxia occurring in 1 subject

CONCLUSION

Intra-lumbar injection of IL13Ra2 UCAR-T cells is safe and well tolerated in human, and IL13Ra2 UCAR-T cells has potent anti-tumor activity for recurrent high-grade glioma.

Off-the-shelf allogeneic universal CAR-T therapy is a potential option for treatment of solid malignancies with rapid progression and difficultly collected tissues.