BREAKTHROUGH CAR-T THERAPY IN REFRACTORY B-CELL LYMPHOMA: MIOT INTERNATIONAL CHENNAI, INDIA CASE STUDY

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Introduction: CAR-T cell therapy has emerged as a novel treatment for relapsed refractory B-cell non-Hodgkin lymphoma (R/R B-NHL), offering a significant survival benefit in patients with limited options. This case highlights the journey of a 60-year-old male with primary chemotherapy-refractory diffuse large B-cell lymphoma (DLBCL), treated with anti-CD19 CAR-T cell therapy (NEXCAR19) at MIOT International, Chennai.

Case Presentation:

Patient Profile: A 60-year-old male with relapsed refractory B-NHL, diabetes, hypertension, and stable coronary artery disease.

Prior Treatment: The patient underwent seven cycles of R-CHOP chemotherapy followed by consolidation radiotherapy (36 Gy to Peripancreatic nodes). Despite these interventions, the end-of-treatment PET-CT (December 2024) confirmed progressive disease.

CAR-T Cell Therapy Approach:

- **Lymphocyte Apheresis:** Conducted on December 20, 2024, yielding 130 mL of Leukapheresis Starting Material (LSM), which was successfully processed for anti-CD19 CAR-T cell production.
- **Conditioning Regimen:** A Fludarabine + Cyclophosphamide-based regimen was administered from January 11–13, 2025.
- **CAR-T Infusion:** On January 16, 2025, 100 mL of NEXCAR19 CAR-T cells were infused without major complications.
- **Post-Infusion Monitoring:** The patient developed a low-grade fever but remained stable. No cytokine release syndrome (CRS) or immune effector cell-associated neurotoxicity syndrome (ICANS) was observed.

Outcomes and Follow-up:

- **Day +29 PET-CT (February 14, 2025):** Showed a significant decrease in metabolic activity of lymphadenopathy (Deauville Score 4).
- **Nivolumab Maintenance:** A low-dose Nivolumab (40 mg) regimen was initiated on February 15, 2025, to reduce relapse risk.
- **Consolidation Radiotherapy:** IMRT-based radiation (36 Gy) to residual abdominal nodes was administered from February 18 to March 14, 2025 to sensitise CAR T cells.

Conclusion: This case underscores the feasibility and efficacy of CAR-T cell therapy in R/R B-NHL, demonstrating a promising metabolic response post-infusion in spite of primary chemo-refractory disease. The integration of maintenance Nivolumab and consolidation radiotherapy may further enhance durability of remission by sensitising CAR T cells. Future follow-ups will assess long-term outcomes and relapse rates.

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Pre-CAR-T PET-CT R/R B CELL NHL Post-CAR-T PET-CT