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FIRST COMPLETED STUDY WITH TYPE 1 REGULATORY (TR1) LYMPHOCYTES IN CROHN'S DISEASE

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INTRODUCTION: This is the first study assessing tolerability and efficacy of *Ovasave*, a human Tr1 lymphocyte immunomodulating cell therapy for patients with chronic active Crohn's Disease (CACD). Tr1 are IL-10 producing cells shown to inhibit inflammatory colitis in mice.
AIMS & METHODS: CATS1 is an open label, 12-week multicenter, single injection, amended for re-injection, ascending dose, phase I/II study in 20 patients with CACD, active inflammation and no concomitant use of immunossupressors or anti-TNF. *Ovasave* was produced from patient PBMC exposed to ovalbumin with cloning and expansion with feeder cells and formulated for infusion. Patients were distributed in 4 dose groups (10^6 cells: 8 pts; 10^7: 3 pts; 10^8: 3 pts; 10^9: 6pts). Five patients received a second injection. Safety was assessed with clinical and laboratory parameters and efficacy with CDAI (response: decrease ≥100; remission:<150), IBDQ (response: increase ≥16; remission:>170) and CRP.
RESULTS: Mean patient age was 34.5 and disease duration 12.9 years. Disease was extensive with a baseline CDAI of 363.7±80.5 (n=20) and IBDQ of 116.2±18.4 (n=18); 19/20 had previous failure to immunossupressors and anti-TNF and 11 previous surgery.
1st and 2nd injections of *Ovasave* were well tolerated with 66 adverse events (17 possibly and 3 definitely related) and 14 serious adverse events (3 possibly related), all recovered.
Response was observed in 40% (8/20) patients at weeks 5 and 8. In the best dose group (10^6 cells), response was 75% (6/8) at both time points; remission was 38% (3/8) and 25% (2/8) and the mean CDAI reduction 143.4±105 (p=0.0062) and 114.3±77.9 (p=0.0043) at weeks 5 and 8 respectively. The difference in CDAI reduction for the 10^6 dose group vs all other groups was 101.79±37.71 (p=0.0147) and 93.05±38.11 (p=0.0266) at weeks 5 and 8. A CDAI response was seen in the 3 patients that received a re-injection with 10^6 cells.
IBDQ response at week 5 and 8 was 56% (10/18) and 44% (8/18). In the best dose, response was 86% (6/7) and 57% (4/7) and remission 29% (2/7) and 43% (3/7) at weeks 5 and 8 respectively.
C reactive protein dropped to normal values in 58% (5/8) of the patients in the 10^6 dose. All were responders.
CONCLUSION: Tr1 lymphocyte cell therapy is well tolerated and shows a positive dose related efficacy in severe refractory CACD patients and a possible therapeutic opportunity in this unmet medical need. These preliminary positive results support a phase II confirmatory study.
I confirm having declared any potential Conflict of Interest for ALL authors listed on this abstract: Yes
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