ISI-01 Liver functions after bone marrow mononuclear stem cells infusion (SCI) in infants with Extra Hepatic Biliary Atresia

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Purpose: To demonstrate improvement in liver function in Biliary Atresia with the use of stem cells.

Methods: From July 2005-March 2008, of 30 cases of suspected biliary atresia, two cases each of severe Neonatal Cholestasis and neonatal Choledochal Cyst were diagnosed after operative Cholangiogram and excluded. Remaining 26 were divided in two groups. Group A, received autologous SCI through hepatic Artery and/or Portal vein at the time of Kasai's operation. In Group B, only Kasai surgery was performed. Clinical evaluation, Liver function tests and HIDA scintigraphy were done at Po day 7, 6 mo and 12 mo and findings were compared in both groups.

Results: Mean age was 136 (74-275) days in Group A and 99.7 (56-172) days in Group B. Mean pre-operative Serum bilirubin: ALT; AST;ALK was 11.9 mg%; 253.5 IU; 245.3 IU; 1077.4 IU in Group A and 13.8 mg%; 336.7 IU; 244.3 IU; 1342.2 IU in Group B. Mean stem cell count injected was 44.4 (20-76.8) million cells. The mean Serum bilirubin; ALT; AST;ALK after surgery on day 7 was 6.35 mg%;157.3; 144.9; 356.4 IU in Group A and 12.03 mg%; 327.9; 247.2; 1113 IU in Group B. The change in values of Serum bilirubin; ALT; AST;ALK was 47.1 ↓; 37.9 ↓; 40.9 ↓; 66.9 ↓ in Group A v/s 12.8 ↓; 26 ↓; 12 ↑; 17.1 ↓ in Group B. The mean Serum Bilirubin at 6 months follow up was 1.92 mg/dl in Group A (N-5) versus 6.28 mg/dl (N-5) in Group B. HIDA scans done at < 3 months: > 3 months follow up showed prompt excretion in 80% (4/5); 85.7% (6/7) in Group A v/s 20% (1/5); 50% (1/2) in Group B. The mean age in months at death, survival, follow up was 13.7 months in Group A v/s 7.78 months in Group B. The survival at 6 and 12 months follow up was 45.5%; 27.3% in Group A v/s 33.3%; 6.7% in Group B.

Conclusion: Significant improvement in biochemical and nuclear imaging was noted with SCI in Biliary Atresia, probably due to the anti-inflammatory action of stem cells.