

Supplementary Information

Supplementary Table. Major clinical trial of stem cells for stroke therapy.

Cell type	Dose (cell number)	Route	Transplant timing after stroke	Treated patient number (Control)	Experimental design (NCT number)	Follow-up time	Functional outcome measure	Major outcome
Acute ischemic stroke								
Allogeneic multipotent adult progenitor cell	0.4×10 ⁹ ; 1.2×10 ⁹	IV	1-2 days	65 (61)	Randomized double-blind phase II trial (NCT01436487)	12 month	mRS, NIHSS, BI	Safe; but no significant improvement of neurological function[1]
Autologous BM-MNC	7-10×10 ⁶ /kg	IV	1-3 days	10	Open-label prospective trial	6 month	mRS, NIHSS, BI	Safe[2]
Autologous BM-MNC	1.6×10 ⁸	IA	5-9 days	10 (10)	Assessor-blind phase I/II trial	6 month	mRS, NIHSS, BI	Safe[3]
Autologous BM-MNC	2×10 ⁶ /kg; 5×10 ⁶ /kg	IA	1-7 days	38(38)	Randomized assessor-blind phase II trial (NCT02178657)	2 years	mRS, NIHSS	Safe; but no significant improvement in neurological function[4]

Autologous BMSC and EPC	3×10 ⁸	IV	1 month	12 (6)	Randomized assessor-blind phase I/IIa trial (NCT01468064)	4 years	mRS, NIHSS, BI	Safe, but no significant improvement of neurological function[5]
Sub-acute ischemic stroke								
Autologous BM-MNC	2.8×10 ⁸	IV	18 days	60(60)	Randomized assessor-blind phase II trial (NCT0150177)	12 months	mRS, NIHSS, BI	Safe, but no significant improvement of neurological function[6]
Autologous BM-MNC	1×10 ⁶	IA	2-4weeks	21(18)	Open-label randomized assessor-blind trial	12 months	mRS, NIHSS, BI	Safe, but no significant improvement of neurological function[7]
Autologous BM-MNC	5×10 ⁸	IA	1-2 weeks	10 (10)	Open-label prospective randomized assessor-blind trial	6 months	mRS, NIHSS, BI	Safe, improvement of neurological function[8]
Autologous BM-MNC (ALD-401)	3×10 ⁶	IA	2-3weeks	29 (17)	Randomized assessor-blinded phase II trial (NCT01273337)	12 months	mRS, NIHSS, BI	Safe, but no significant improvement of neurological function[9]
Autologous BM-MSC	2×10 ⁶ /kg	IV	1-2 months	9 (8)	Randomized assessor-blinded phase II trial (NCT01461720)	12 months	mRS, NIHSS, BI	Safe; but no significant improvement of neurological function[10]
Autologous	1×10 ⁸ ;	IV	1-2	16(15)	Open-label	2 years	mRS,	Improvement of motor

us BM-MS	3×10 ⁸		months		randomized phase II trial (NCT 00875654)		NIHSS, BI	function[11]
Autologo us MS	1×10 ⁸	IV	2 months	16(36)	Open-label randomized, assessor-blind trial	5 years	mRS, Survival rate	Safe, improvement of neurological function, less mortality for 5 years[12]
Chronic ischemic stroke								
NSC (CTX0E0 3)	2×10 ⁶ ; 5×10 ⁶ ; 10×10 ⁶ ; 20×10 ⁶	IC	6-60 months	12	Open-label phase I trial (NCT01151124)	2 years	NIHSS, BI, Ashworth	Safe, improvement of neurological function[13]
NSC (CTX0E0 3)	20×10 ⁶	IC	2-12 months	21	Open-label prospective phase II trial NCT02117635	12 months	ARAT	Safe, improvement of upper limb function[14]
Allogenei c BM-MS (SB623 cell)	2.5×10 ⁶ ; 5.0×10 ⁶ ; 10×10 ⁶	IC	6-60 months	18	Open-label phase I/IIa trial (NCT01287936)	2 years	ESS, NIHSS, FM	Safe, improvement of neurological function[15]
Allogenei c BM-MS (SB623 cell)	2.5×10 ⁶ ; 5.0×10 ⁶	IC	6-90 months	104(52)	Randomized double-blind phase II trial (NCT02448641)	12 months	FMMS, mRS, ARAT	No significant improvement in neurological function
Allogenei	0.5×10 ⁶ /kg;	IV	7	36	Randomized phase	12 months	NIHSS,	Safe, improvement of

c BM-MSc (hypoxia treated)	1×10 ⁶ /kg; 1.5×10 ⁶ /kg		months-2 5 years		I/II trial (NCT01297413)		BI	neurological function[16]
Hemorrhagic stroke								
Autologo us BM-MNC	0.25-2.3×10 ₇	IC	5-7day	60(40)	Assessor-blind phase I trial	6 months	NIHSS, BI	Safe, improvement of neurological function[17]
Autologo us BM-MNC / BM-MSc	MNC:0.17- 1.5×10 ⁶ ; MSc:1.7-3. 2×10 ⁴	IC (MNC); IT (MSc)	3-28 day	100(96)	Assessor-blind phase I trial	12 months	NIHSS, RS, BI	Safe, short-term improvement of neurological function[18]

BM-MNC: Bone marrow mononuclear cell; MSc: Mesenchymal stem cell; BM-MSc: Bone marrow mesenchymal stem cell; BMSc: Bone marrow stem cell; EPC: Endothelial progenitor cell; NSC: Neural stem cell; IV: intravenous; IA: intraarterial; IC: intracerebral; IT: intracerebroventricular; mRS: modified Rankin Scale, NIHSS: National Institute of Health Stroke Scale; BI: Barthel Index; ESS: European Stroke Scale; ARAT: Action Research Arm Test; FM: Fugl-Meyer Assessment; FMMS: Fugl-Meyer Motor Total Score; RS: Rankin scale. Note: The staging of strokes in Supplementary Table is based on the actual staging descriptions of recruited stroke patients in various clinical trials.

Reference

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