

author	Covidence #	Study	Title	Authors	Abstract	Intervention	Allogenic/autologous	Treatment / follow up time	Number of patients/groups	Patients/wound type	Results	Adverse events	Conclusion	DOI
Banu	#6358	Renner 2009	Transplantation of chronic wounds with epidermal sheets derived from autologous skin	Renner, R.; Harth, W.; Simon, J. C.	nts with (n = 18	Transplantation of tissue-engineered autologous epidermal sheets derived from outer root sheath (ORS) cells of patients' hair	autologous	12 weeks	23 patients, including 18 with therapeutic improvement and 5 without improvement, were retrospectively analyzed. effect of a single transplantation in a	patients whose ulcers had not thrombosis	Responder patients (n = 18) showed a total wound reduction of 23%, while a subgroup of patients with ulcer area < 25 cm ² (n = 12) exhibited a remarkable improvement of 64%. Complete wound	none	Significant wound closure rate if wound area less than 5 cm ²	10.1111/j.1742-481X.2009.00609.x
Banu	#152	Raposo 2016	Adipose-derived Stem Cells Added to Platelet-Rich Plasma for Chronic Skin Ulcer Therapy	Raposo, E.; Bertozzi, N.; Bonomini, S.; Bernuzzi, G.; Formentini, A.; Grignaffini, E.; Pio	al or experimen	Adipose-derived stem cells (ASCs) combined with platelet-rich plasma (PRP)	autologous	18 months	Control Group: 24 patients with 31 chronic skin ulcers received standard wound care. Experimental Group: 16 patients with 21 chronic skin ulcers received standard wound	Chronic skin ulcers	Wound closure rates were significantly different between groups (P = 0.0257), with faster recovery (0.2287 cm x day) in the group receiving fibrin gel with ADSCs showed a greater reduction in wound	none	No difference in wound closure rate, however significant faster wound closure	PMID: 27071140.
Banu	#296	Mrozikiewicz-Rakowska 2023	Allogenic Adipose-Derived Stem Cells in Diabetic Foot Ulcer Treatment: Clinical Effectiveness, Safety, and the time to	Mrozikiewicz-Rakowska, B.; Szabolowska-Gadomska, I.; Cysewski, D.; Rudziński, S.; Płoski, R.; Gasperowicz, P.;	and the time to	Allogenic adipose-derived stem cells (ADSCs)	allogenic	7 weeks	Participants were divided into two equal groups, with one group receiving fibrin gel with ADSCs, and the other receiving fibrin gel alone. 46 participants with diabetic foot ulcers, with 23 individuals in each	Chronic diabetic foot ulcers	The group receiving fibrin gel with ADSCs showed a greater reduction in wound size at all time points, significantly on days 21 and 49.	none	The time to 50% reduction	10.3390/jms24021472
Banu	#1977	Zhou 2022	Efficacy of Human Adipose Derived Mesenchymal Stem Cells in Promoting Skin	Zhou, L.; Wang, H.; Yao, S.; Li, L.; Kuang, X.	10 cm(2) of wo	Human adipose derived mesenchymal stem cells	not clear	10 days	146 (human adipose derived mesenchymal stem cells for each 10 cm ² of wound 150 (control group, saline). acute wounds (burns or crush wounds).	acute wounds (burns or crush wounds).	The rate of wound healing significantly increased (P=0.008). granulation tissue coverage rate and thickness of granulation tissue in experimental	none	HAMSCs treatment cou	10.1155/2022/6590025
Banu	#1982	Alinda 2023	The efficacy of topical adipose mesenchymal stem cell-conditioned medium versus	Alinda, M. D.; Christopher, P. M.; Listiawan, M. V.; Endaryanto, A.; Saroto, H.; Dastan, E. A.;	wo groups to reesc	mesenchymal stem cell conditioned m	allogenic (amniotic membrane)	8 weeks	Parallel designs in 22 subjects in each of the three treatment groups. The subjects were leprosy patients with chronic plantar ulcer of leprosy of >6 weeks, an ulcer depth of <0.5 cm, and a maximum intensity of 0 cm ² who did	Chronic plantar ulcer of leprosy	Wound closure was achieved in 17 of 20 lesions (9 lesions in the study group, 8 lesions in the control group).	none	a better outcomes in gi	10.25259/rjcd.1784.2021
Banu	#3508	Uzun 2021	Intralesional allogenic adipose-derived stem cells application in chronic diabetic foot	Uzun, E.; Güney, A.; Gönen, Z. B.; Özkul, Y.; Kafadar I. H.; Güney, M.; Mutlu, M.	ip duration was	Intralesional injection of allogenic adipose-derived mesenchymal stem cells	allogenic	43.4 +/- 8.7 months	N = 20; chronic diabetic foot ulcers (12 male, 8 female).	Chronic diabetic foot ulcers	Wound closure was achieved in 17 of 20 lesions (9 lesions in the study group, 8 lesions in the control group).	none	Intralesional allogenic adipose-derived mesenchymal stem	10.1016/j.fas.2020.08.002
Banu	#3696	Tarallo 2018	Liposuction Aspirate Fluid Adipose-Derived Stem Cell Injection and Secondary Healing in Fingert Injury: A	Tarallo, M.; Fino, P.; Ribuffo, D.; Casella, D.; Toscani, M.; Spalvieri, C.; Lattanzi, W.; Di Taranto, G.	ation and analy:	Liposuction Aspirate Fluid Adipose-Derived Stem Cell Injection	autologous	6th and 12th months	40 consecutive patients with a fingertip injury were dichotomized into two groups: Group A (conservative approach) and B (treatment group). Group E (filtration of the liposupate in a closed device (MyStemEv separation of LAF, which was then injected at injured site)	Digital ulcers in fingertip injuries	Treatment group achieved shorter time to complete wound closure (p<0.05), treatment arm greater aesthetics and disability outcome and lower pain	none	The average number of days	10.1097/rys.0000000000004506
Banu	#3748	Cai 2023	Long-term follow-up and exploration of the mechanism of stromal vascular fraction gel in chronic wounds	Cai, Y.; Zhang, F.; Feng, J.; Wu, B.; Li, H.; Xiao, S.; Lu, F.; Wei, Z.; Deng, C.	RESULTS: All	Autologous stromal vascular fraction gel (SVF-gel) transplantation	autologous	2-6 years	20 patients with chronic wounds treated with autologous SVF-gel transplantation from March 2016 to September 2019.	Chronic skin ulcers	All patients achieved 100% wound closure, with an average time of 28.3 ± 9.7 days. The follow-up period ranged from 2 to 6 years, and no wound recurrence was observed. In vitro, SVF	none	All patients had 100% w	10.1186/s13287-023-03389-2
Banu	#4760	Zollino 2019	A phase II randomized clinical trial for the treatment of recalcitrant chronic leg	Zollino, I.; Campioni, D.; Sibilla, M. G.; Tessari, M.; Malagò, A. M.; Zamboni, P.	rious immunop	Centrifuged adipose tissue (CAT), along with debridement, advanced dressings, and compression.	autologous	24 weeks	8 - experimental arm (receiving CAT treatment), 8-control arm (without CAT treatment)	Chronic venous leg ulcers	arm (17.5 ± 7.0 weeks) compared to	none	Healing time was observed in the experimental	10.1016/j.jcyt.2018.10.012
Banu	#4922	Moon 2019	Potential of Allogenic Adipose-Derived Stem Cell-Hydrogel Complex for Treating Diabetic	Moon, K. C.; Suh, H. S.; Kim, K. B.; Han, S. K.; Young, K. W.; Lee, J. W.; Kim, M. H.	ane film was ap	Allogenic adipose-derived stem cell (ASC) sheets. Allogenic ASC sheets or polyurethane film were applied weekly for up to 12	allogenic	12 weeks	Fifty-nine patients with diabetic foot ulcers were randomized, with 30 in the ASC treatment group and 29 in the control group.	for treating diabetic foot ulcers, comparing them to a control group treated with polyurethane	The treatment group showed a higher rate of complete wound closure, with 73% at week 8 and 82% at week 12, compared to 47% and 53% in the	none	Complete wound closure	10.2337/db18-0699
Banu	#6289	Stessuk 2020	A topical cell therapy approach for diabetic chronic ulcers: Effects of mesenchymal stromal cells associated with	Stessuk, T.; Ribeiro-Paes, J. T.; Colpas, P. T.; Martins Alves, P. C.; Rehder, J.; Bosardo, C. A. F.; Guillaumon, A. T.;		Biomembrane composed of autologous mesenchymal stromal cells (MSCs) and platelet-rich plasma (PRP)	autologous	90 days	Six diabetic patients with chronic wounds lasting more than 6 months were included in the study. Each patient underwent adipose tissue collection for MSC isolation and blood collection for PR preparation. The	for treating chronic wounds in diabetic patients.	granulation tissue formation began 7 days after the application of the biomembrane. Among the treated lesions, 5 out of 9 achieved total	none	There was granulation tissue formation starting from 7 days after topical	10.1111/jocd.13321
Banu	#6398	Carstens 2021	Treatment of chronic diabetic foot ulcers with adipose-derived stromal vascular fraction cell	Carstens, M. H.; Quintana, F. J.; Calderwood, S. T.; Sevilla, J. P.; Rios, A. B.; Rivera, C. M.; Calero, D.	er closure. Dog	Local injections of autologous adipose derived stromal vascular fraction (SVF) cells. The SVF cells,	autologous	12 months	63 patients with type 2 diabetes who had chronic DFUs and were considered candidates for amputation.	Chronic diabetic foot ulcers	Ulcer Closure: At 6 months, 51 subjects had 100% DFU closure, and 8 subjects had	none	t SVF can be safely use	10.1002/sectm.20-0497
Banu	#6404	Han 2010	The treatment of diabetic foot ulcers with uncultured, processed	Han, S. K.; Kim, H. R.; Kim, W. K.	lete healing and	Uncultured processed liposupate (PLA) cell autografts	autologous		26 - PLA cell treatment group), 26 - control group	Chronic diabetic foot ulcers	100% of PLA cell-treated group achieved complete healing, compared to 62% in the control group. PLA cell healing rate 34.55% ± 11.18% vs.	none	Uncultured PLA cell autografts demonstrated	10.1111/j.1524-475X.2010.00593.x
Banu	#6406	Deng 2018	Treatment of human chronic wounds with autologous extracellular matrix/stromal vascular fraction gel: A	Deng, C.; Wang, L.; Feng, J.; Lu, F.	he positive cont	Autologous extracellular matrix/stromal vascular fraction gel	autologous	2 weeks	10 (ECM/SVF gel) vs. 10 (NPWT)	Chronic skin ulcers - 9 venous stasis ulcers, 5 traumatic infections, 3 diabetic ulcers, 2 sarcoid ulcers, and 1 sarcoidosis	healing rate 34.55% ± 11.18% vs. 10.16% ± 2.67% ECM/SVF gel can exert a therapeutic effect on human chronic wounds, attributed to a favorable immunomodulatory effect,	none	ECM/SVF gel can exert	10.1097/md.00000000000011667
Banu	#7688	Khalil 2017	Autologous adipose-derived mesenchymal stem cells embedded in platelet-rich fibrin for skin tissue regeneration	Khalil, C.; Azar, A.; Salameh, R.; Ibrahim, A.; Del Papa, N.; Di Luca, G.; Sambataro, D.; Zaccara, E.; Magliore, W.; Gabrielli, A.; Fraticelli, P.; Moroncini, G.; Baretta, L.;	Maximum surfa	Conventional treatment with autologous adipose-derived mesenchymal stem cells (ADMSC) embedded in platelet-rich fibrin (PRF) along with sura	autologous	8 weeks	10 patients with open diabetic foot ulcers (DFU). Group A: PRF alone. Group B: ADMSC embedded in PRF.	Chronic diabetic foot ulcers	Healing index comparison between Group A and Group B. Promising results observed in Group B, indicating improved healing.	none	mesenchymal stem cell	doi: 10.4236/ojrm.2021.102002 (https://doi.org/10.4236/ojrm.2021.102002).
Banu	#8123	DelPapa 2014	Regional implantation of adipose tissue-derived cells induces a prompt healing of long-lasting isolog digital	Del Papa, N.; Di Luca, G.; Sambataro, D.; Zaccara, E.; Magliore, W.; Gabrielli, A.; Fraticelli, P.; Moroncini, G.; Baretta, L.;	centrifugation:	ADSC fractions, separated by centrifugation	autologous	6 months	Fifteen patients with SSc having a long-lasting DU in only one fingertip who were unresponsive to intensive systemic and local treatment were enrolled in the study. The grafting procedure consisted of the injection, at the basis of the	Chronic digital ulcers in the setting of CREST/systemic sclerosis	All ulcers healed. The mean time to healing of the cardinal ulcer was 4.23 weeks (range 2-7). The result was maintained during the following 6-month period, and no new DU	none	autologous ADSCs led healing to treatment resistant ulcers in	10.1002/art.38914
Banu	#9712	Nilforoushzhad 2020	Engineered skin graft with stromal vascular fraction cells encapsulated in fibrin-	Nilforoushzhadeh, M.A.; Sissak, M.M.; Amirkhani, M.A.; Seifalian, A.M.; Banafsheh	and biometric i	Prevascularized skin grafts containing dermal and epidermal layers, utilizing the adipose stromal	autologous		The intervention group consisted of five human subjects with diabetic wounds, receiving prevascularized hydrogel skin grafts. The control group comprised		hydrogel for biological compatibility and cell proliferation, migration, and vitality. The prevascularized hydrogel, when	none	Mesenchymal stem cell	10.1002/term.3003
Banu	#12336	Luo 2014	The effect of conditioned media of adipose-derived stem cells on wound healing	Luo, D.; Zhang, J.; Zhou, B.	stations and mR	Nineteen subjects were treated with Fx	autologous	3 weeks	ADSC-CM was topically applied onto FxCR-treated sites of one randomly selected arm for one hour, while FBS free DMEM medium was applied to FxCR-treated sites of the other arm. The dermatological changes: the index of erythema, melanin, TEWL, and elasticity were measured	Wound after fraxel laser	The mRNA expression of type III procollagen in ADSC-C	none	Application of allograft ADSC	10.1038/jid.2014.109
Katie	#412	Kmieciak 2021	Antlerogenic stem cells extract accelerate	Kmieciak, J.; Kulus, M. J.; Popiel, J.; Ciekiera, A.;	bsolute values (Sonicated Antlerogenic Stem Cells (ASC) extract	Autologous		20 dermatological patients with venous leg ulcers Divided into two groups: one treated with ASC	Chronic venous leg ulcers	Ki-67 expression and all tested wound healing parameters (including relative			10.1186/s12906-021-03336-9
Katie	#1802	Kim 2020	The effect of human umbilical cord blood-derived mesenchymal stem cell media	Kim, J.; Kim, B.; Kim, S.; Lee, Y. I.; Kim, J.; Lee, J. H.	without stem cel	human umbilical cord blood-derived mesenchymal stem cell media containing serum			23	Laser treatment				10.1111/jocd.13063
Katie	#1860	Tan 2023	Effectiveness of Secretome from Human	Tan, S. T.; Aisyah, P. B.; Firmansyah, Y.; Nathasia, L.; Lavery, L. A.; Fulmer, J.; Shebelka, K. A.; Regulski, M.; Vayser, D.; Fried, D.;	is the side effect	Topical application of 10% secretome of human umbilical cord			Forty-one patients with chronic ulcers, including diabetic ulcers and Hansen's	Chronic Wounds (Diabetic and Trophic	Patients with chronic ulcers showed significant improvement in ulcer length,		Topical application of 10% SM-	10.2147/jmdh.S408162
Katie	#1963	Lavery 2014	The efficacy and safety of Grafix® for the treatment of chronic	Lavery, L. A.; Fulmer, J.; Shebelka, K. A.; Regulski, M.; Vayser, D.; Fried, D.;	ontrols (P = 0.0	Grafix® a human viable wound matrix (hVWM)			The participants were individuals with diabetic foot ulcers, with 50 patients in the Grafix group and 47 patients in the standard wound	Chronic diabetic foot ulcers	Proportion of Patients with Complete Wound Closure by 12 Weeks. The proportion of patients achieving	Adverse Events: Fewer Grafix patients		10.1111/rwj.12329

			First-in-human clinical trial of allogeneic,	Johnson, J.; Law, S. Q. K.; Shojae, M.; Hall, A. S.; ...	Its angiogenic i	Ligand-based Exosome Affinity Purification (LEAP)	allogeneic		Treatment and control		x	x	x	10.1002/jev.2.12332
Katie	#2572	Johnson 2023	Improved wound healing of diabetic foot ulcers using human placenta-derived	Meamar, R.; Ghasemi-Mobarakeh, H.; Norouzi, M. R.; Siavash, M.; Hamblin, M. R.;	images and DA	Nanofibers containing human placenta derived mesenchymal stem cells (hPDMSCs) plus platelet-rich	autologous	12 weeks	Twenty-eight patients with DFUs were randomly assigned to three groups in a 12-week trial:	Chronic diabetic foot ulcers	Wound size reduction was 66% in group A, 71% in group B, and 36% in the control group C. Significant differences in wound			10.1016/j.intimp.2021.108282
Katie	#3253	Meamar 2021	Phase I/IIa Feasibility Trial of Autologous Quality- and Quantity-Cultured Peripherat	Tanaka, R.; Fujimura, S.; Kado, M.; Fukuta, T.; Arita, K.; Hirano-Ito, R.; Mita, T.; Watada, H.;	thesia. Wound I	QQ-cultured peripheral blood mononuclear cell (MNC-QQ) therapy	autologous	12 weeks	9 patients (10 cases)	Chronic skin ulcers	6/10 cases showed complete wound closure Average wound closure rate of 73.2% ± 40.1% at 12 weeks.	Cellulitis at an injection sitea (N=1), Restenosis (N	x	10.1093/stcltm/szab018
Katie	#4759	Tanaka 2022	Prospective study of cryopreserved placental tissue wound matrix in the management of chronic venous lee	Farivar, B. S.; Tournasvankhji, S.; Monahan, T. S.; Sharma, J.; Ucuzian, A. A.; Kundt, R.; Sarkar, R.; Lal, B. K. Zhang, C.; Huang, L.; Wang, X.; Zhou, X.;	ble patients wh	Human viable wound matrix (hVWM) composed of cryopreserved placental tissue		12 weeks	Twenty-one consecutive eligible male patients with Clinical, Etiology, Anatomy, and Pathophysiology clinical class C6 VLLUs. All patients had ulcers that failed to heal after a minimum of 12 weeks of standard	Chronic venous leg ulcers	Complete ulcer healing was achieved in 53% (16/30) of VLLs refractory to standard therapy after hVWM application. The mean reduction in wound surface area was 79% after a -the rate of recurrence of DFU after treatment.			10.1016/j.jvs.2018.09.016
Katie	#5072	Farivar 2019	Topical and intravenous administration of human umbilical cord mesenchymal stem cells	Zhang, X.; Li, L.; Wu, J.; Kou, M.; Cai, C.; Lian, O.	sly. Ulcer disc	Human umbilical cord mesenchymal stem cells (hUC-MSC). All patients received both topical and intravenous			14 patients with PAD and incurable DFU. These patients were not amenable to surgical revascularization, representing a challenging group with both DFU and PAD. or the treatment of Diabetic foot patients with critical limb ischaemia who were ineligible for surgical or interventional revascularisation. Total initially included patients: 30	both diabetic foot ulcer (DFU) and peripheral arterial disease (PAD).	-3-Year Amputation-Free Rate: Evaluating the rate of amputation-free	none		10.1186/s13287-022-03143-0
Katie	#6752	Zhang 2022	The effect of human umbilical cord Wharton's jelly stem cells cultured on amniotic membrane in	Hashemi, S.S.; Mohammadi, A.A.; Kabiri, H.	m cell dressed	Transplantation of bone marrow-derived cellular products, including Bone Marrow Mononuclear Cells (BMCs) and expanded bone marrow cells	autologous	45 weeks	Patients randomized: 24 (BMC or TRC groups) After MSC, the lesion and erosion began to shed, and mucosa ulcer gradually healed. Subsequently, the skin became dry with skin scabbing to fall off until clear skin appeared. Meanwhile, FSR (CRP, WBC, hematocrit or renal	Chronic diabetic foot ulcers with critical limb ischaemia	18 patients achieved wound healing after 45 weeks. Drop-outs: 4 out of 6 in the control group. Total applied cells were 3.8 times	Two deaths: One in the BMC group (after wound healing), one	Transplantation of both BMCs and TRCs was deemed safe and feasible. Improvements in	10.15171/ijb.2017.s1-334
Katie	#6899	Hashemi 2017	Umbilical cord mesenchymal stem cell transplantation in drug-induced Stevens-Johnson syndrome	Li, X.; Wang, D.; Lu, Z.; Chen, J.; Zhang, H.; Sun, L.	rd mesenchym	Intravenous application of umbilical cord MSCs	autologous	12 days	Platelet gel (PG) derived from umbilical cord blood (UCB). Patients received gel applications twice per week for	Steven Johnsons	No significant differences were detected in wound size among PG, PPP, and	three of the patients survived without complications.	none	10.1111/j.1468-3083.2012.04572.x
Katie	#9480	Li 2013	The efficacy of platelet gel derived from umbilical cord blood on diabetic foot ulcers: A	Hosseini, S.E.; Molavi, B.; Goodarzi, A.; Alizadeh, A.;	ct of each grou	Yousefzadeh, A.; Sodeifi Dehghani, M.; Azarpira, N.; Mohammadkarimi, V.; Mossayebi, H.; Esfandiari, F.			Platelet-noor plasma (PPP) group In a randomized clinical trial, 24 patients with second and third-stage pressure ulcers were enrolled. All required split thickness skin grafts and debridement.	Chronic diabetic foot ulcers	The amnion group showed a higher rate of complete healing (p<0.001) and faster healing time (20 days versus 54 days) compared to the control group. Healing percentage increased each week in all groups. Mean difference in ulcer size was highest in the hAMMSC- CM + vitamin E group, implying better recovery of wound healing. There were		The study concluded that there were no significant differences in the	10.1016/j.woundm.2020.100178
Katie	#12656	Hosseini 2020	Grafting with cryopreserved amniotic membrane versus	Prakooswa, C. R. S.; Natallya, F. R.; Harmindya, D.; Thohiroh, A.; Oktaviyanti, R. N.; Dostiani, Y. D.; Dabiani,	was compared b	Cryopreserved amniotic membrane			Topical human amniotic membrane-mesenchymal stem cell-conditioned medium (hAMMSC-CM) and a mixture of topical hAMMSC-CM also vitamin C and	chronic planter ulcers in leprosy patients	Patients treated with UCMSCs exhibited pronounced growth of granulation tissue, improved blood microcirculation, and a reduction in	none		10.1080/09546634.2018.1467541
Katie	#17065	Dehghani 2017	The efficacy of topical human amniotic membrane-mesenchymal stem cell-conditioned medium	Prakooswa, C. R. S.; Natallya, F. R.; Harmindya, D.; Thohiroh, A.; Oktaviyanti, R. N.; Dostiani, Y. D.; Dabiani,	cts of topical h	Locally Delivered Umbilical Cord Mesenchymal Stromal Cells Reduce Chronic Inflammation in 1 on			A randomized placebo-controlled pilot study included 108 patients with chronic wounds of different etiologies. The treatment group (n = 59) received a single local subcutaneous infusion of UCMSCs around the wound periphery. placebo. Subjects with chronic venous ulcers resistant to standard therapy.		At the 2-month follow-up, there were			10.1155/2020/5308609
Katie	#18612	Prakooswa 2018	Locally Delivered Umbilical Cord Mesenchymal Stromal Cells Reduce Chronic Inflammation in 1 on	Suzdalteva, Y.; Zhidkih, S.; Kiselev, S.L.; Stupin, V.	ss the efficacy a	Allogeneic ABCBS(+) mesenchymal stem cells (1x10 ⁶	allogenic	12 weeks	Full Analysis Set: 31 participants	treatment-refractory chronic venous ulcers	Median reduction of 76% (full analysis set)	Wound size reduction: At the 2-month follow-up, there were	Treatment well tolerated and safe. Marked reduction in	10.1016/j.xjidi.2021.100067
Rahim	#22055	Suzdalteva 2020	Allogeneic ABCBS(+) mesenchymal stem cells for treatment-	Kerstan, A.; Dieter, K.; Niebergall-Roth, E.; Dachtler, A. K.; Kraft, K.;	addition to star	Autologous mononuclear cells			three individuals with haematological malignancies receiving chemotherapy, was administered to three patients with haematological malignancies		All patients achieved complete wound healing within three months after autologous mononuclear cell	None		
Rahim	#286	Kerstan 2022	Autologous mononuclear cells from different sources are	Wan Jamaludin, W. F.; Mohamad Yusoff, F.; Ismail, N. A.; Mohd Idris,	yy, who receive	Allogeneic bone marrow mesenchymal	autologous		Patients with grade I and 2 DFUs were randomized into three groups: allo-hBM-MSCDs (n=12), allo-hBM-MSCs (n=6), and conventional treatment (PolyMem dressing) (n=10).	Chronic diabetic foot ulcers	2. Wound Closure: Patients treated with allo-hBM-MSCDs and allo-hBM-MSCs achieved	greater percentages of wound closure.	None	10.1016/j.jcyt.2022.04.002
Rahim	#535	WanJamaludin 2018	Role of mesenchymal stromal cells derivatives in diabetic foot ulcers: a controlled randomized	Arango-Rodriguez, M. L.; Solarte-David, V. A.; Becerra-Bayona, S. M.; Callegari, E.; Paez, M. D.;	a certified Goo	stromal cells derivatives (allo-hBM-MSCDs). Two	allogenic							
Rahim	#5463	Arango-Rodriguez 2022	Stem cell mobilization with plexifaor and healing of diabetic ischemic wounds: A phase IIa, randomized,	Bonora, B. M.; Cappellari, R.; Mazzucato, M.; Rigato, M.; Grasso, M.; Menegolo, M.; Bruttocao, A.; Avogaro, A.; Fadini,		Bone marrow-derived cells		6 months	13, 13	diabetic ischemic wounds	The trial was terminated after a preplanned interim analysis of 50% of the target population showed a significantly lower healing rate in the plexifaor vs the placebo group. In the			10.1002/sectm.20-0020
Rahim	#5796	Bonora 2020	Using amniotic membrane graft together with	Osman, A.; El Ansary, M.; Gabr, H.; Gad, A.; Al-Inany, H.; El-badawy, A.	m cells, which v	Amniotic membrane (AM) in combination with autologous mesenchymal stem	autologous		Group I (Control): Conventional wound dressings for 11 chronic leg ulcers. Group I: AM placed in contact with ulcers and held in place with secondary dressing.	Chronic skin ulcers	At the 2-month follow-up, Lower limb pain and ulcer healing significantly improved in groups II, III, and IV.			
Rahim	#7157	Osman 2015	autologous stem cells in	Grada, A.; Otero-Viñas, M.; Prieto-Castrillo, F.; Falanga, V.	rd conventiona	Topically-applied autologous bone marrow-derived mesenchymal stem cells (BM-MSCs)	autologous	24 weeks	3-arm study with 11 patients having verified venous ulcers. Group A (n=4) received control saline spray.	Chronic venous leg ulcers	Average healing rate at week-4: Group A: 0.0006 cm ² /wk Group B: 0.0522 cm ² /wk			
Rahim	#7779	Grada 2020	Novel topical allogeneic bone-marrow-derived mesenchymal stem cell treatment of hard-to-heal diabetic foot ulcers: a proof of	Asko Andersen, J.; Rasmussen, A.; Frimodt-Møller, M.; Engberg, S.; Stenselv, E.; Kirketerp-Møller, K.; O'Brien, T.; Rossine, P.	cation of invest	One-time application of a topically administered allogeneic cellular product containing CD362-enriched			Sixteen individuals were initially screened, and two were included in the study. The inclusion criteria involved individuals with diabetes, peripheral neuropathy, toe blood pressure > 39 mmHg, and non-infected foot ulcers with a duration of four to fifty-two	Chronic diabetic foot ulcers		Adverse Events: Seven adverse events were reported in the included	The study demonstrated a favorable safety profile for the topical mesenchymal	10.1186/s13287-022-02951-8
Rahim	#8169	AskoAndersen 2022	The use of autologous cultured bone marrow-derived mesenchymal stem cells to treat	Grada, A.; Otero-Viñas, M.; Lin, X.; Yufit, T.; Carson, P.; Falanga, V.	pletely closed.	Autologous bone marrow-derived mesenchymal stem cells (BM-MSCs) delivered topically using a fibrin sponge	autologous	52 weeks	A total of 11 patients were included in the study.	Chronic diabetic foot ulcers	Average healing rate at week-4: Group A (conventional therapy and control saline spray): 0.0006 cm ² /wk.	None		
Rahim	#9052	Grada 2017	Mesenchymal stromal cell therapy alone does not lead to complete restoration of skin	Maksimova, N.V.; Michenko, A.V.; Krasnikova, O.A.; Klabukov, I.D.; Gadaev, I.	In all patients,	Bone marrow-derived mesenchymal stromal cells (MSCs)			Three patients who were treated with bone marrow MSCs for DFUs three years prior to the study. Clinical outcomes were assessed, focusing on ulcer recurrence, neoplasm formation,	Chronic venous leg ulcers	No ulcer recurrence was detected in any of the three patients, which was lower than the expected 60% re-ulceration rate in diabetic patients over a 3-year			10.34172/bi.2021.22167
Rahim	#10395	Maksimova 2022	152. Stem cell therapy for pressure injury: a pilot study with autologous bone marrow derived stem	Grada, A.; Otero-Viñas, M.; Lin, X.; Yufit, T.; Carson, P.; Falanga, V.	pletely closed.	Autologous bone marrow-derived mesenchymal stem cells (BM-MSCs) delivered topically using a fibrin sponge	autologous	4 weeks	A total of 11 patients were included in the study.	Chronic venous leg ulcers	Average healing rate at week-4: Group A (conventional therapy and control saline spray): 0.0006 cm ² /wk.	None		
Rahim	#10422	Srivastava 2019	152. Stem cell therapy for pressure injury: a pilot study with autologous bone marrow derived stem	Maksimova, N.V.; Michenko, A.V.; Krasnikova, O.A.; Klabukov, I.D.; Gadaev, I.	In all patients,	Bone marrow-derived mesenchymal stromal cells (MSCs)			Three patients who were treated with bone marrow MSCs for DFUs three years prior to the study. Clinical outcomes were assessed, focusing on ulcer recurrence, neoplasm formation,	Chronic venous leg ulcers	No ulcer recurrence was detected in any of the three patients, which was lower than the expected 60% re-ulceration rate in diabetic patients over a 3-year			10.34172/bi.2021.22167
Rahim	#10422	Srivastava 2019	152. Stem cell therapy for pressure injury: a pilot study with autologous bone marrow derived stem	Grada, A.; Otero-Viñas, M.; Lin, X.; Yufit, T.; Carson, P.; Falanga, V.	pletely closed.	Autologous bone marrow-derived mesenchymal stem cells (BM-MSCs) delivered topically using a fibrin sponge	autologous	4 weeks	A total of 11 patients were included in the study.	Chronic venous leg ulcers	Average healing rate at week-4: Group A (conventional therapy and control saline spray): 0.0006 cm ² /wk.	None		
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