

Cisgender Cellular Tissue Products (CTP) Improve Wound Healing

CHRISTINA DEL PIN, MD^{1,2}; AMIT RAO, MD¹; MEAGHAN COLES, MS³¹; MANUEL BELTRAN DEL RIO PH.D.; ALISHA OROPALLO, MD^{1,2}

¹Northwell Health System, Department of Surgery, Comprehensive Wound Care Healing and Hyperbarics, Lake Success, NY 11042;

²Donald & Barbara Zucker School of Medicine at Hofstra/Northwell, Hempstead, NY 11550

Introduction

Healing varies amongst patients receiving CTP in wound closure rates. CTP gender has not been described in this era of female CTP (FCTP)¹ derived from cryopreserved placental membranes, and male CTP (MCTP)² bio-engineered from living human keratinocytes and foreskin fibroblasts ^{3,4}. Wound healing rates were examined to establish the role of CTP gender in outcome.

Methods

An IRB approved retrospective chart review of CTP cases (n=216) at Northwell Comprehensive Wound Center from 2016-2020 was conducted for chronic wounds. Variables included demographics, wound type and size, CTP type, partial closure (PC), partial closure at treatment end (PCE), 50% closure (50C) and complete closure (CC) rates at 1 and 3 months. Descriptive statistics, odds ratios and chi-square were used in analysis.

The group had more male arterial ulcers , and more female venous ulcers (VU) (chi square p=0.03). The VU were larger than other types on average (VU 42.4 cm2, arterial 17.09 cm2, other 9.26 cm2). Access to FCTP was limited for the entire cohort, which may be related to insurance approval. Overall, cases with a CTP of the same gender more often showed 50C, CC at 1 month (FFCTP, p= 0.03 and 0.0008 respectively), 50C at 3 months and CC (MMCTP p=0.001 and MMCTP, p<0.01 respectively), see Table 1. Cisgender CTP cases had PC or PCE for all (OR 2.2 and 2.9 respectively, p< 0.01). Whites fared worse in PCE at 3 months (OR 0.6, p< 0.05), compared to non-White cases. White diabetics were more likely to have better healing than non-diabetics (PC at 1 and 3 months, OR 1.8 and 2 respectively, p< 0.05). Overall, men did better than women in PC, PCE (OR 1.8 both, p< 0.05), and best CC in MMCTP at 3 month (26%). Poor compliance with follow-up was a barrier to long term analysis.

Results

Table 1. Closure Outcome of Gender CTP groups.*p<0.05

Outcome	Male FCTP	Female FCTP	Male MCTP	Female MCTP
1month				
case (n=191)	25	19	102	45
PC n (%)	10 (40)	10 (52.6)*	46 (45)*	17 (37.7)
CC n (%)	4 (16)	1 (0.05)	15(14.7)	6 (13.3)
3month				
case (n=133)	17	17	68	31
PC n(%)	7(41)	8(47)	54(79)*	16(51.6)
CC n(%)	1(0.05)	2(11.7)*	18(26.4)	4(12.9)

Conclusion

Cisgender CTP treated wounds showed improved healing rates. Men had better PC and CC healing rates up to three months after cisgender CTP use. Wound etiology, race, diabetic history and compliance contributed to closure rate outcome .

1.Grafix TM, Osiris Therapeutics, Inc.; 2. Apligraf TM, Organogenesis, Inc. 3. Sen, Chandan K. “Human Wounds and Its Burden: An Updated Compendium of Estimates.” Advances in Wound Care, vol. 8, no. 2, 13 Feb. 2019, pp. 39–48., <https://doi.org/10.1089/wound.2019.0946>. Accessed 26 Sept. 2021. 4 Nicholas, Mathew N., and Jensen Yeung. “Current Status and Future of Skin Substitutes for Chronic Wound Healing.” Journal of Cutaneous Medicine and Surgery, vol. 21, no. 1, 2016, pp. 23–30., <https://doi.org/10.1177/1203475416664037>