Demographic Study of Donor Site of Skin Grafting

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Abstract

Skin grafting frequently results in scarring at the donor site. A number of factors, including the patient's age and gender, have previously been connected to donor site scar satisfaction. Patient opinions regarding scarring at donor sites are not well documented. Physicians may be able to provide perioperative care that reduces the possible negative effects of donor site scarring if they have a thorough understanding of patient attitudes and the associated factors. Our study aims to identify factors associated with donor site scarring satisfaction and investigate patient perceptions of their scars using quantitative scar assessment tools.

Keywords: Demographic study; Donor site; Skin grafting.

INTRODUCTION

Scarring at the donor site is an unavoidable side effect of skin grafting. Although some patients may have a lower quality of life (QoL), some studies have shown that patients are generally satisfied with their PSS. Since its initial introduction in 1990, the Vancouver Scar Scale (VSS; *Table 1*) has undergone extensive description in the literature and validation.[1-3] A validated, quantitative scoring tool for assessing the pain and color of donor site scarring is the Patient and Observer Scar Assessment Scale (POSAS).[4] Similar to this, a patient's quality of life can be quantitatively assessed using Likert scales[6] and questionnaires like the European Quality of Life 5 Dimension (EQ-5D)[5].

Patients' attitudes regarding donor site scarring are thought to be influenced by a variety of factors, such as scar location, age, race, and time since surgery.

Targeted peri-operative interventions that may enhance donor site scar cosmesis, patient satisfaction, and quality of life are made easier by an understanding of the factors influencing patient donor site scar satisfaction. These include post-operative care and peri-operative conversations about managing patient donor site expectations.[7]

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Sadly, there isn't much information on how patients feel about orthopaedic PSS.

Using quantitative scar assessment scales, our study seeks to understand how patients feel about their donor site scarring and to determine the variables linked to donor site scar satisfaction.

METHODS

After receiving approval from the departmental ethical committee, this study was carried out in the tertiary care center's Department of Plastic Surgery. Total 58 scars were enrolled into the study randomly postskin grafting donor site scars were included. The scars were evaluated only twice during the study using the Vancouver scar scale scoring system, which included the following parameters and scores; vascularity (normal=0, pink=1, red=2, purple=3), pigmentation (normal=0, hypopigmentation=1, hyperpigmentation=2), pliability (normal=0, supple=1, yielding=2, rm=3, banding=4, contracture= 5), and height (normal=0, <2 mm=1, 2~5 mm=2, >5 mm=3) and clinical photography, once immediately after healing.

RESULTS

The mean age of patients was 43.6±16.4 (range, 22-59 years), respectively.

The mean age of study participants was 43.6±16.4 (range, 22-59 years). The mean age of males (36.8±4.1 years) was significantly lower (independent t-test, P=0.037) than females (47.1±14 years), respectively. *Table 1* and *Fig. 1* shows the age distribution of subjects.

Table 1: Age distribution

*Age Group (years)	N=58
20-30	22(37.9)
30.1-40	2(3.4)
40.1-50	6(10.3)
>50.1	28(48.1)

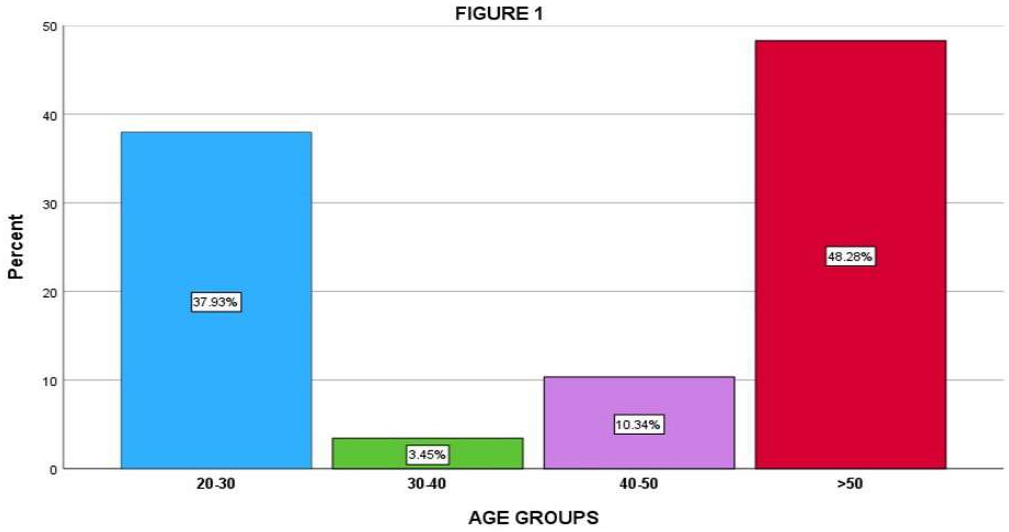

Fig. 1: Age distribution

Table 2: Gender Distribution

*Gender	N=58
Male	20(34.5)
Female	38(65.5)

There were 20(34.5%) males with a male female ratio of 0.52:1. *Table 2* and *Fig. 2* mentions the gender distribution

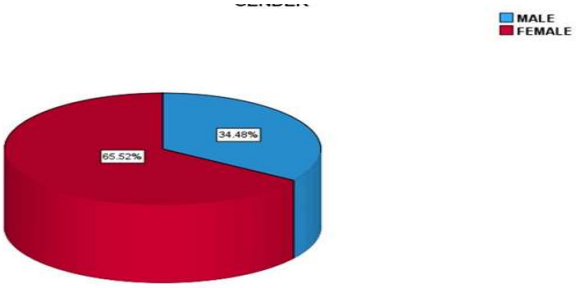

Fig. 2: Gender distribution

Table 3 mentions demographic data collected in format of *table 4.*

Table 3: Demographic data

Parameter	N=58
Age (years)	43.6±6.4
Socioeconomic status	38 (65.5)
Low	48 (82.8)
Middle	10 (17.2)
Site of scar	
Right	42 (72.4)
Left	16 (27.6)
Native area	
Tamil Nadu	54 (93.1)
Kerela	2 (3.4)
*Co-morbidities	0

Table 4: Format for data collection

Name
Age
Gender
Hospital no
Address
Contact number
Diagnosis
Co-morbidities

Table 5: VSS scoring on demographic data

Parameter	Total VSS	P value
Age Group		
20-30	6.5±1.7	0.136**
30.1-40	4.0±0.1	
40.1-50	6.6±1.6	
>50.1	6.1±1.3	
Gender		
Male	6±1.9	0.316*
Female	6.4±1.2	
Socioeconomic status		0.689*
Middle	6.1±1.7	
Low	6.3±1.5	
Site of scar		
Right	6.5±1.5	0.102*
Left	5.7±1.5	

DISCUSSION

The scar is defined as fibrous tissue that replaces the wound[8] During the process of healing the wound develops a bridge of collagen fibers with a thin epithelium, forming an immature scar[9]. The process of wound healing comprises three phases, the inflammation phase which lasts for a few days, the proliferation phase lasting for weeks, and the maturation phase takes several months or years. Hypertrophic scars begin to develop 6 to 8 weeks after wound healing, it grows for 3 to 6 months, and then regress after 6 months[10]. An immature scar is red, raised, rigid, and hypopigmented, During the process of maturation the scar becomes pliable, flatter, less vascular and color is normalized. The difference between the normal scar, immature scar lies in the difference in their extracellular matrix composition. A normal scar when mature consists of 80% type-I collagen with 10-15% type-III and a minimal amount of type-V collagen. This composition is altered in an abnormal scar with an increased ratio of type-III to type-I collagen and abnormal scar consists of around 33% type-III, 10% type-V, and around 60% type-I collagen. Apart from the composition of the collagen, the arrangement of fibrils and interfibrillar space also is different in an abnormal scar compared to the normal mature scar. The cellular function of fibroblasts and keratinocytes is also altered in an abnormal scar making them pro-fibrotic. The expression of cytokines is also altered in an abnormal scar. The balance between matrix metalloproteinase (MMPs) and tissue inhibitors of metalloproteinase (TIMPs) is altered and is moved towards the pro-fibrotic side. Transforming growth factor-β (TGF-β), connective tissue growth factor (CTGF), platelet-derived growth factor (PDGF), and insulin-like growth factor 1 (ILGF-1) are up-regulated, meanwhile interferon-α (IFN-α) and interferon-γ (IFN-γ) are down-regulated.[11]

In our study, the mean age of study participants was 43.6±16.4 (range, 22-59 years). The mean age of males (36.8±4.1 years) was significantly lower (independent t-test, P=0.037) than females (47.1±14 years), respectively. There were 20(34.5%) males with a male female ratio of 0.52:1.

VSS was better in young age group. Similarly VSS was better in females.

pigmentation was seen more in old age group & male gender.

Low socioeconomic status patients has increased vss score.

CONCLUSION

Donor site scars are an expected consequence of skin grafting. on using quantitative scar assessment scales demographic factors associated with donor site scarring satisfaction have been identified. Old age and male gender has increased vss score. pigmentation is more in male gender and old age people.

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