POLSKIE STOWARZYSZENIE DIABETYKÓW
ZARZĄD GŁÓWNY
ORGANIZACJA POŻYTKU PUBLICZNEGO
CZŁONEK INTERNATIONAL DIABETES FEDERATION

Warszawa, 2018/08/07

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Dear Sirs,

On behalf of the Polish Diabetes Association, we recommend **DIABETEGEN and DIABETEGEN FORTE - creams supporting wound healing**

Based on many years of cooperation with Genoscope and positive treatment results in the case of patients affiliated with our Association, we strongly recommend their use to a wide group of patients affected by skin problems, and in particular with the problem of non-healing diabetic wounds.

DIABETEGEN i DIABETEGEN FORTE cream

Product intended for:

diabetic foot, ulcers, acne, bedsores, strong moisturizing of dry and rough skin, reduction of skin keratosis and tendency to its cracking, alleviation itching, prevention of skin infections, relieves sensitive and prone to irritation, shows soothing, exhibits protective improves the overall appearance of the skin

Ingredients:

Bioactive colostrum, macadamia oil, panthenol, hyaluronic acid, elastin, nano silver, vitamin E.

DIABETEGEN FORTE also contains proteins of caviar and silk

Prizes and awards:

The Best Diabetological Product 2011, 2012, 2013, 2014, 2015, 2016; Diabetics Superprodukt 2014, 2015, 2016, 2017; The Best Cosmetic for Patients of Palliative Care 2015, 2016, 2017, 2018.

In addition, we would like to thank Genoscope on behalf of over 2.7 million people in Poland who have an incurable diabetes disease for promoting these valuable products. The fact of creating conditions for its availability for diabetics is a very important element enabling the effective treatment of chronic cases of diabetic foot.

The use of Genoscope products by people suffering from diabetic disease significantly reduces the number of amputations of the lower limbs, which each year in Poland are carried out in over 14.5 thousand.

Anna Sliwinska

Anna Sliwinska

President

Polish Diabetes Association

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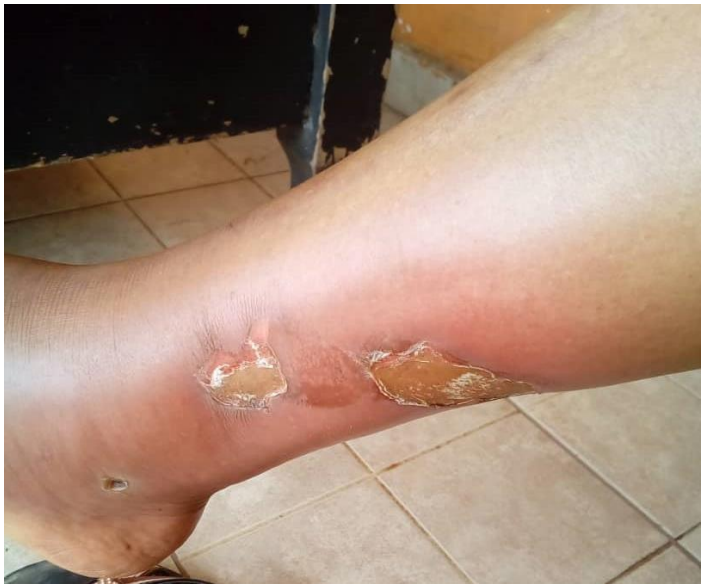
ENEX PHARMA

TRACKING SHEET: DIABETIC FOOT

Name: Mrs Coulibaly Epse Traoré Date of **birth:** 26 /01/1960 **Profession:** Trader **Contact:** 07 07416324
First names: Salimata Nationality: Ivorian **T2D treatment: ADO then** insulin Third **party contact:** 0101055884
Sex F File No.: DOKUI

Date	Foot grade	Day (J)	Blood sugar or HbA1c	Description Clinical	Description radiological	Antibiotic-therapy	Bandage	
							Dakin	Cream
16 09 2021	II	J1	3 ,10 g/l **9,2%**	Non-necrotic ulceration Of the right leg inflammatory and painful by burning		-Staphypen capsule -Fagyl 500mg -novalgin cp		
Lost to sight								
30 11 2021	II	J71	1.85g/l **10,4%**	Yellowish ulceration +inflammation of the leg	-	Fucidine cp Oflocet cp Dynapar cp	-	**X**
03 12 2021	II	J74		Slightly necrotic ulceration				
06 12 2021	II	J80	0.92g/l	Reddish clean ulceration regression of inflammation	-	DITTO	-	**X**
0712 2021	II	Day81	1.52g/l	Good clinical course Red wound ,bud	-	DITTO	-	**X**
13 12 2021	II	J87		Healing in progress				**X**
23 12 2021		J97		Cicatrization				**X**
31 12 2021		J105		Cicatrization				**X**
09 01 2022		J114		Cicatrization				**X**
14 01 2022		Day119	**0.93 g/l 8,2%**	Cicatrization				**X**

Day1



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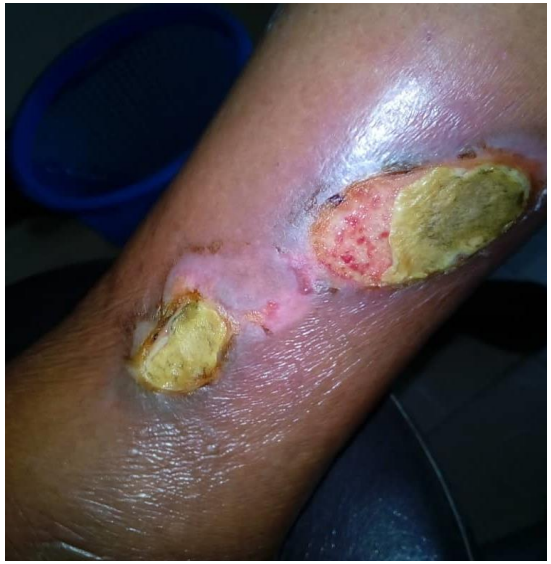

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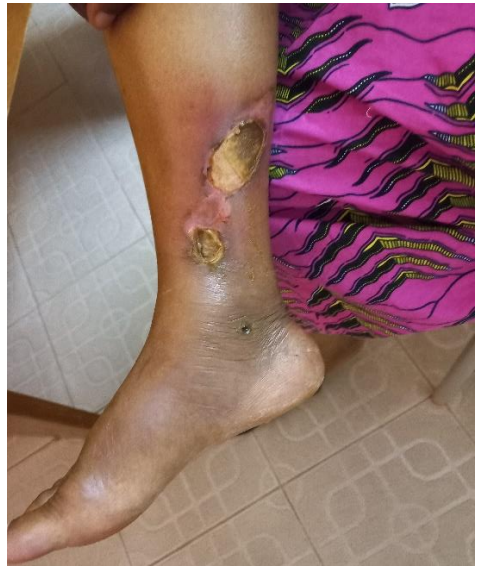

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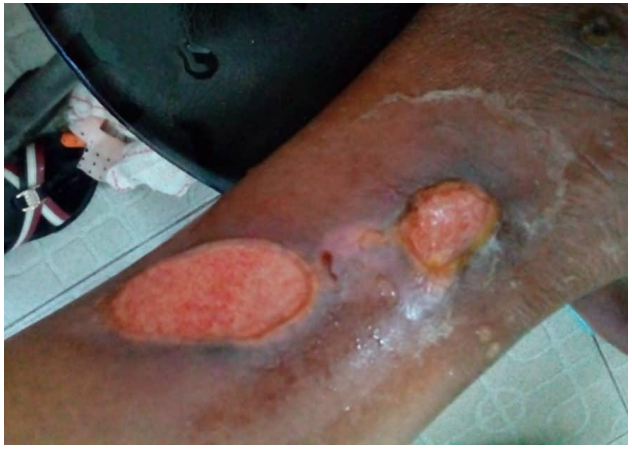

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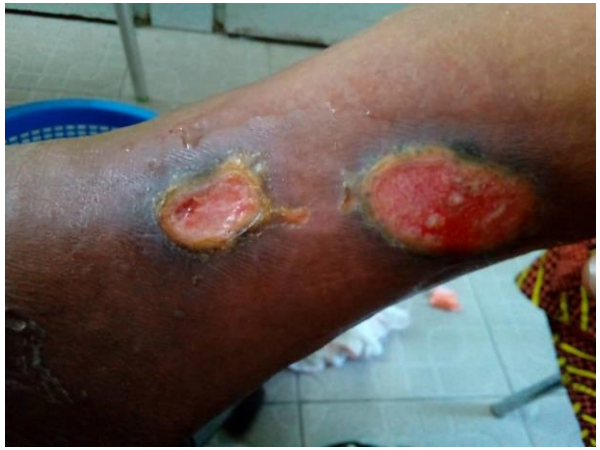

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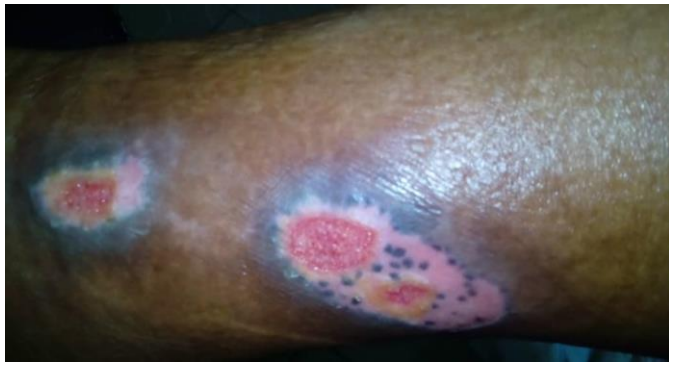

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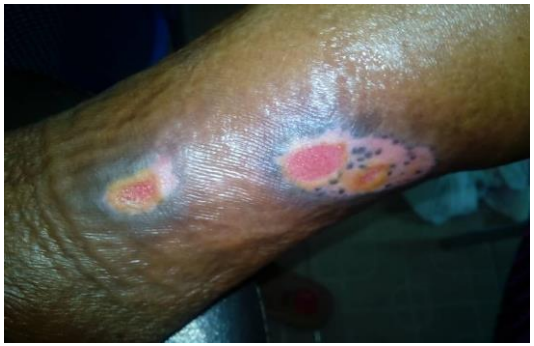

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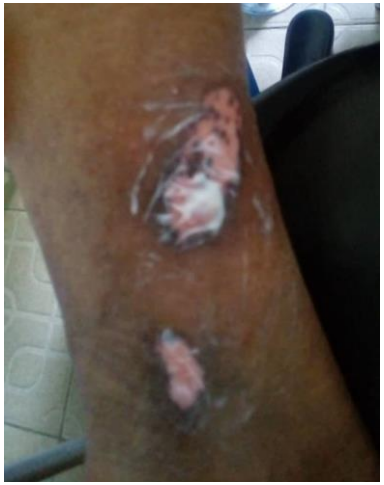

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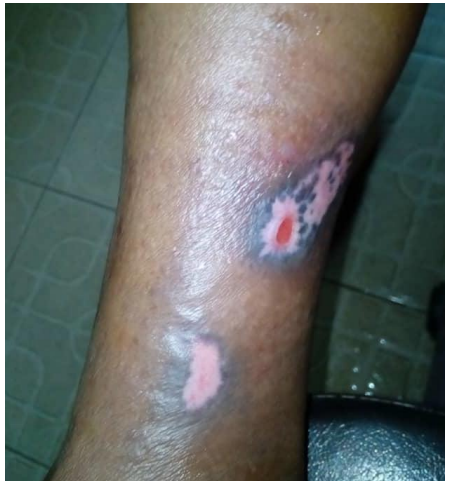

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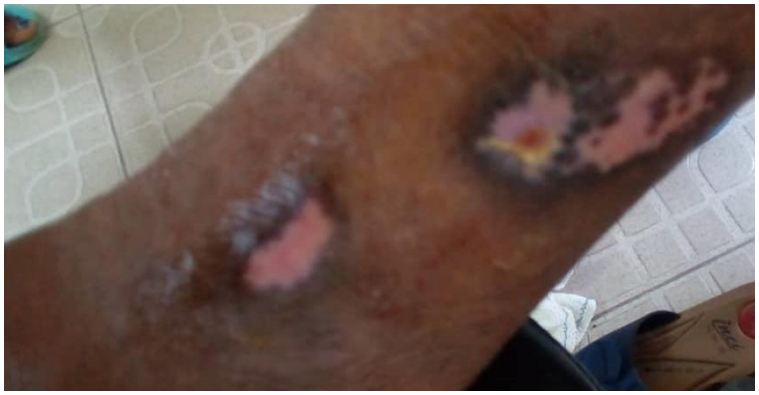


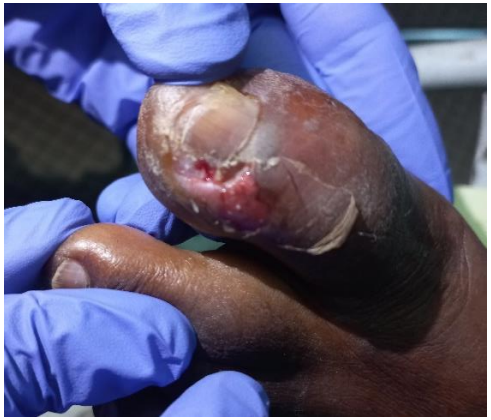
ENEX PHARMA

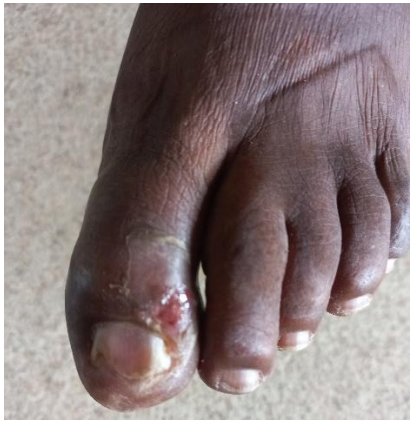
<u>TRACKING</u> SHEET: DIABETIC FOOT

Name: Mrs PEHE **Date of birth:** 1957 **Profession: Trader Contact:** 05 05 33 57 55
First names: Opportune **Nationality:** Ivorian Treatment **T2D:** insulin Third party **contact:** 05 45 40 06 45
Gender: F File No.: 53057

Date	Foot grade	Day (J)	Blood sugar or HbA1c	Description clinical	Description radiological	Antibiotic-therapy	Bandage	
							Dakin	Cream
09 12 2021	I	Day1	2.72 g/l	Non-necrotic ulceration of the left big toe from the outer edge to the fixed edge(preciousfoot) + intumescence	No osteitis	-Fucidine Cp -oflocet Cp	-	X
14 12 2021	I	J6	1.84g/l **6,7%**	Clean ulceration (red) + intumescence	-	DITTO	-	X
16 12 2021	I	J8	1.36g/l	Clean non-swollen healing	-	Staphypen capsule	-	X
24 12 2021	I	J16	1.52g/l	Clean healing	-	Staphypen capsule	-	X

Day 1 :





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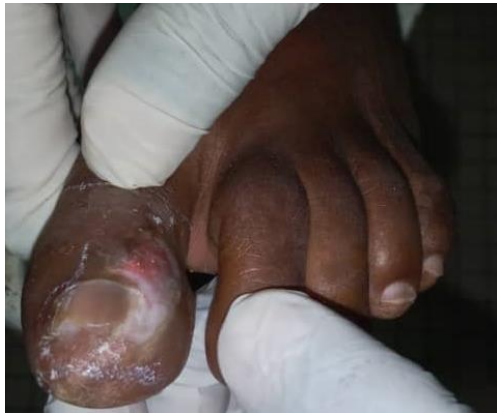
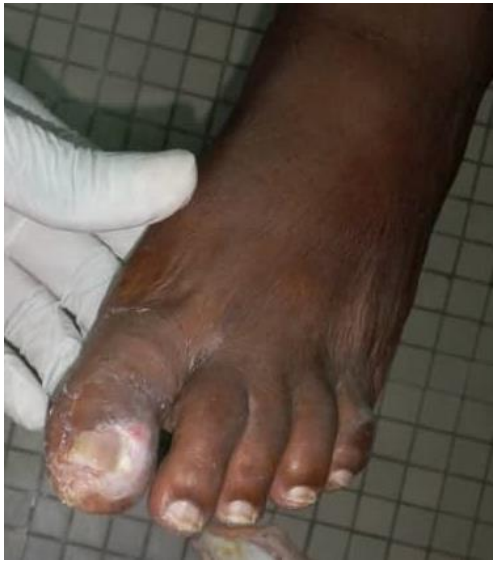
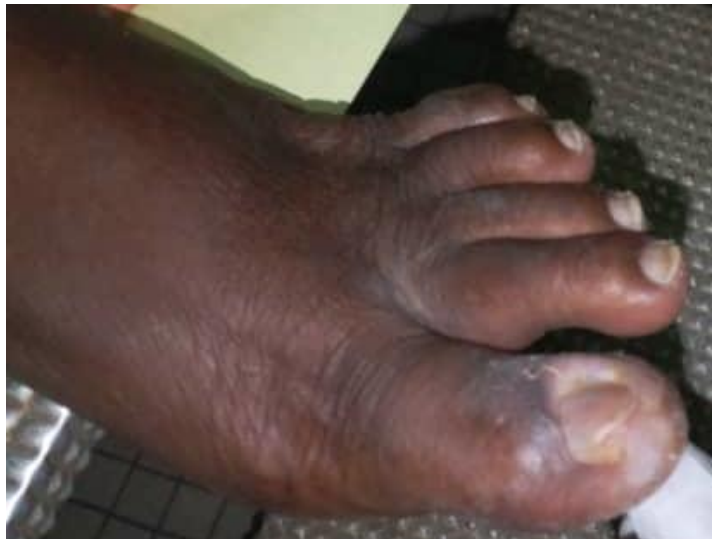


Jour8:



Day16:



Observational study conducted in the Oncology Department at the Magodent Hospital at A.E. Fieldorf "Nil" 40 in Warsaw

INTRODUCTION

The primary care issue in patients undergoing oncological therapies, in which drugs are administered intravenously, is to prevent venous complications and perform an early intervention at the time of their occurrence.

The most common form of administration of the cytotoxic drug is the intravenous route. This often leads to the occurrence of an adverse and dangerous phenomenon, which is vein irritation or drug extravasation.

Cytostatics are drugs with a strong irritant effect on the walls of blood vessels, where intravenous administration itself may cause hypersensitivity reactions in patients. The first symptom indicating this is redness in the place of injection.

Some patients may also suffer from phlebitis and irritation of blood vessels.

In addition to the risk resulting from the irritability of cytotoxic drugs, there are additional factors that increase the risk of venous complications in patients undergoing oncological therapies.

They include:

1. The age of the patient (e.g. deposition of atherosclerotic plaques in blood vessels)
2. Comorbidities (e.g. diabetes)
3. Multiple venipunctures.

STUDY DESCRIPTION

The severity of changes was measured on a five-point scale.

0^o – lack of skin lesions

1^0- slight discolouration

2^o- moderate skin discoloration changing into irritation - redness

3^o- irritation and pain in the affected area

4^o- irritation and swelling in the affected area

5^o- a not healing and open wound

Bearing in mind the age of patients and other comorbidities which they suffer from, one should carefully observe the venipuncture to identify lesions that indicate an adverse reaction to the drug.

Additionally, in patients diagnosed with diabetes, an important element is maintaining proper blood sugar levels. Diabetic skin is sensitive to irritation, damages, chemicals and infections. It is associated with a high risk of complications and hence the difficulty in healing skin lesions.

7 women and 13 men aged 51-86 participated in the study.

The observations were conducted from October 9, 2018 to January 7, 2019.

STUDY OBJECTIVE

Determination of the effectiveness of DIABETEGEN in patients undergoing oncological therapies, who have had local skin lesions after administration of cytotoxic drugs.

STUDY MATERIAL AND METHODS

The study covered 20 patients with skin lesions after the administration of 5 Fluorouracil. Each subsequent intravenous administration of chemotherapy results in lesions along the vein. On the site of the venipuncture it is possible to observe red or dark brown lesions. Additionally, they might be accompanied by a burning sensation or pain. Each subsequent administration of chemotherapy causes further irritation of veins which become dark and less visible. There are difficulties in ensuring access to the vein, which may shift the cycle of chemotherapy.

The patients used DIABETEGEN according to recommendations, that is, 3 times a day, applying it on the skin affected by lesions. Lesions appeared on hands and forearms. In the group of study participants, 4 patients suffered from diabetes.

All the patients applied DIABETEGEN on their own.

Check-ups were performed once per 2-3 weeks, depending on the chemotherapy cycle. Each patient had at least 2 check-ups, which were noted down in the observation cards.

In the group of study participants there were no patients with lesions at the 1, 4 and 5 stage.

RESULTS

The stage of lesions before using DIABETEGEN	**The number of patients with lesions at a given stage**
stage 3	9 (45%)
stage 2	11 (55%)

Table 1. The ratio of the number of patients to the stage of their lesions.

The stage of skin regression after using DIABETEGEN	**Ilość osób**
Lack of improvement	6 (30%)
Lesion regression by 1-2 stages	14 (**70%)**

Table 2. The ratio of the number of patients to the stage of lesion regression.

9 patients (45%) suffered from lesions in stage 3, whereas 11 (55%) – in stage 2. 6 patients (30%) did not experience any improvement after using Diabetegen. After regular application of the preparation, it was possible to observe regression of lesions by 1-2 stages in 14 patients (70%), including one person with complete healing of the lesion.

Skin lesions were observed on patients' hands and forearms. They appeared on the site of the insertion of the intravenous cannula. 11 patients (55%) had skin lesions on their hands, whereas 9 patients (45%) – on their forearms. Among these, 4 patients with lesions on their forearms did not observe any positive effects of Diabetegen. 5 patients with lesions on their hands and 5 patients with lesions on their forearms observed the regression of lesions by 1 stage. 4 patients with lesions on their hands experienced complete healing.

There were 4 patients with diabetes type 2 (20%). Lesions on the forearm, stage 3 – 1 patient, stage 2- 3 patients. No improvement observed in 1 patient.

FINDINGS

Patients undergoing oncological therapies require increased supervision of nursing staff, close observation and rapid as well as effective action.

Patients undergoing chemotherapies, who suffered from post-transfusion lesions observed on the injection site, underwent an intensive treatment with DIABETEGEN.

The regression of lesions which appeared after the administration of 5 Fluorouracyl was observed in 70% of patients.

Lesion progression was not observed in any of the patients using DIABETEGEN.

On the basis of the study results, DIABETEGEN received **the best evaluation compared with other products healing wounds available on the Polish market.**

The study was conducted by:

Health Care Manager

Agnieszka Staniak

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Original Research Article

Role of Bovine Colostrum in Healing of Chronic Non-Healing Ulcers – A Clinical Study

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Abstract
This study was conducted to compare the efficacy of colostrum powder as an add on dressing with that of conventional dressing in the healing of chronic non-healing ulcer. Sixty patients with non-healing ulcer were treated with conventional dressing (povidone iodine, hydrogen peroxide) (Group 1) and another 60 patients were treated with add-on Bovine Colostrum (Group 2) for a period of 3 weeks. The healing of ulcer in both groups was determined by using Resvech Ulcer Healing Score (which utilizes 9 ulcer parameters) at weekly intervals for 3 weeks. There was highly significant increase in wound healing in the Bovine Colostrum treated group in comparision to the conventionally treated group, starting from first week upto third week. Bovine colostrum has significant wound healing property.
Keywords: *Resvech Score, Conventional dressing, Diabetic Ulcer.*

Introduction

Non healing ulcer have a significant impact on the health and quality of life of patients and their families, causing pain, loss of function and mobility, depression, distress and anxiety, embarrassment and social isolation, financial burden, prolonged hospital stays and chronic morbidity or even death[1]. Chronic non-healing ulcers could be due to systemic conditions such as diabetes mellitus, tuberculosis, leprosy, venous ulcers, pressure sores, atherosclerosis, and traumatic vasculitis[2]. Complications of chronic ulcer include infection such as cellulitis and infective venous eczema, gangrene, haemorrhage and lower-extremity amputations. Chronic ulcer lead to disability and disability worsens ulcer outcomes resulting in a vicious cycle[3].

The art of suitable and appropriate management of non-healing ulcer remainsa major hurdle in medical science. Inspite of recent advances in aseptic techniques, antimicrobial chemotherapy and ulcer management, several types of ulcer have proved recalcitrant. Conventionally dressing techniques using povidone iodine, hydrogen peroxide, normal saline, debridement of dead and devitalized necrotic slough and tissues, control of

infections by antibiotics, rest, skin care have remained the mainstay of management. But many ulcers take too long to heals with these modalities esp. diabetes mellitus, sickle cell disease, leprosy, Buerger's disease, deep vein thrombosis, atherosclerosis, etc.

Newer biological dressings like PDGF, stem cell and bovine colostrums (BC) dressings which are enriched with growth and immune factors for formation of healthy granulation tissue and early epithelialisation; are recently known to have revolutionized ulcer healing[4].

Thus this study is conducted to compare the efficacy of colostrum powder as an add on dressing with that of conventional dressing in the healing of chronic non-healing ulcer.

Patients and Method

This was an open label quasi experimental study conducted in our tertiary care teaching hospital between 2015 to Oct 2017.

All adult Patients of both gender attending the OPD or admitted to Indoor wards for treatment of their non-healing ulcers were included in the study. The ulcer was of three months duration or longer duration[5] and were of any aetiology. The patients who were hypersensitive to colostrums or having history of lactose intolerance were excluded from the study. Also patients suffering from concurrent illness that may interfere with treatment like carcinoma, tuberculosis, Hansen's disease, connective tissue diseases, severe anaemia, or with ulcers with clinical signs of heavy infection were excluded.

The study protocol, study questionnaire and case record form was designed and approved by the Institutional Ethics Committee before the start of the study. Patients satisfying the inclusion and exclusion criteria were explained about the nature of the study and informed consent was taken from them before enrolment. Data was collected from the study subjects through interview and physical observation regarding their demographic profile, underlying diseases, duration of wound, past history of medication or allergy and drug history. Details regarding the baseline physical examination findings like type of ulcer, site, mode of onset and symptomatology were recorded in the Case Record Form (CRF). The enrolled patients were given either conventional treatment or add on treatment with Bovine Colostrum by the treating physician.

- **Group 1** – Conventional Dressing (cleansing with Normal Saline and wound debridement followed by toileting with various topical agents like Povidone Iodine, Hydrogen Peroxide, Silver Suphadiazine and Rectified spirit on daily basis.
- **Group 2** – Conventional Dressing with Add-on Bovine Colostrum Oral Capsules and Powder (Alchemist, Solan, Himachal Pradesh) applied to margins, edges, floor and base of ulcer and wound area covered by a normal saline soaked gauge.

Assessment of Wound Healing *:* Healing of ulcer was determined by using a Ulcer Healing Score designed by RESVECH SCALE V1.0(5) (Resvech score) utilizing 9 parameters (area, depth, edges, perilesional maceration, tunneling, type of tissue in wound bed, exudates, infection and pain (using VAS score) measured at baseline and at weekly follow-up intervals for 3 weeks.

Statistical analysis: Categorical data was calculated by Pearson's chi square test and continuous data calculated by Student's unpaired t- test using SPSS 21.

Result

A total of 120 patients with chronic non-healing ulcers were enrolled into the study out of which 96 were males and 24 were females; most of these patients were between 31 - 50 years. (Table 1)

These patients had chronic ulcers due to various etiology and were assigned to two treatment groups (Conventional Treatment (Group-1) and Add On Bovine Colostrum (Group-2)) (Table 2)

Resvech Score was measured in all the patients in both groups at baseline and weekly for 3 weeks and the Mean Score in all the 60 patients was calculated and compared statistically. (Table 3)

Table 1 Age and Sex Distribution of Patients with Chronic Non Healing Ulcer

Age	Male	Female	Total
21-30	15	3	18
31-40	28	10	38
41-50	26	4	30
51-60	19	3	22
61-70	8	4	12
Total	96	24	120

Table 2 Type of Chronic Ulcer in Each Treatment Group

Sr no	Type of Ulcer	Group-1 (Conventional Dressing) n=60	Group-2 (Bovine Colostrum Add On Dressing) n=60
1	**Diabetic foot ulcer**	32	32
2	**Trophic ulcer**	10	12
3	**Sickle cell disease ulcer**	8	9
4	**Venous ulcer**	5	5
5	**Necrotising fasciitis**	2	0
6	**Fournier gangrene**	1	1
7	**Post burn**	1	1
8	**Buerger's disease ulcer**	1	0
	Total	60	60

Table 3 Mean Resvech Score at Baseline and Follow-Up (max. score = 40)

Groups	Parameter	Baseline	After 1st Week	After 2nd Week	After 3rd Week
Group 1 (n = 60)	Mean Resvech Score ± SEM	27.87±3.549	25.07±4.133	21.53±4.424	16.88±4.826
	% of Healing from Baseline	-	37.35%	46.18%	57.8%
Group 2 (n = 60)	Mean Resvech Score ± SEM	25.47±4.268	15.78±5.663	9.50±3.981	4.83±2.895
	% of Healing from Baseline	-	60.55%	76.25%	87.93%
Group1 vs Group 2	P value (chi-sq)	0.001	0.000	0.000	0.000

Discussion

Non-healing ulcers that are difficult to treat, includes venous ulcers, diabetic ulcers, trophic ulcers, pressure sores, sickle cell disease ulcer and necrotizing fasciitis. The effect of different topical agents on the healing of the abovementioned ulcers has been subject of extensive research but only few have been properly controlled. Bovine colostrum has attracted the attention of a lot of contemporary research due to immense untapped potential they possess towards healing many recalcitrant ulcers Colostrum contains many immune and growth factors like EGF (epidermal growth factor), TGF (transforming growth factor), IGF(insulin like growth factor), FGF(fibroblast growth factor), stimulate skin growth, cellular growth, and repair by direct action on DNA and RNA[6].

Few researchers have conducted studies on bovine colostrums on wound healing. Thapa (2005) observed bovine colostrum to have chemical debridement action, deodorization of offensive wounds, absorption of edematous fluid around ulcers, antibacterial and anti-inflammatory actions which were of greatest clinical advantage in diabetic ulcers, trophic ulcers, sickle cell disease ulcer, Fournier gangrene and necrotizing fasciitis[7]. According to study by Khirsagar Y et al in 2015 the anti-inflammatory, anti-viral and anti-bacterial properties of bovine colostrums makes it suitable for oral/ topical applications[6].

In our study most commonly affected age group of non healing ulcer is 31 to 50 yr of age and males are more affected compared to females which is corroborated by study of Chaterjee et al (2015)[8] and Khirsagar Y et al (2015)[6].

In our study there was highly significant ($p<0.001$) improvement in healing rate in bovine colostrum add on group at the end of first, second and third week of treatment as evident from Resvech score. The healing rate improved from 60.55% at end of first week to 87.93% in third week of treatment in bovine colostrum add on group in comparison to conventional dressing group which showed healing rate from 37.35% to 57.8% in same time period. Studies by Chaterjee et al (2015) and Khirsagar Y et al in 2015 confirmed that bovine colostrum improves healing rate appreciably in non healing ulcers in comparison to conventional dressing[8][6].

Conclusion

Bovine colostrum produces very significant increase in healing of chronic non-healing ulcers due to varying aetiology and has a remarkable potential in revolutionizing management of non healing ulcers.

Source of support/grant- Nil

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Original Article

Surgery Section

A Comparative Study of Colostrum Dressing Versus Conventional Dressing in Deep Wounds

ASHOK Y. KSHIRSAGAR[1], MAYANK A. VEKARIYA[2], VAIBHAV GUPTA[3], AKSHAY S. PEDNEKAR[4], ABHISHEK MAHNA[5], RITVIJ PATANKAR[6], ASHAR SHAIKH[7], BASAVRAJ NAGUR[8]

ABSTRACT

Introduction: Deep wounds are extending deeper, across deep fascia into muscles or deeper structures. Understanding of nutrition, immunology, psychological issues, the physiology and the metabolic interactions require for optimal treatment of deep wounds. Wound dressing plays one of the important roles in wound healing. Newer type of wound dressings - Biological dressings like colostrum powder, collagen granules create the physiological interface between the wound surface and environment which is impermeable to bacteria.

Aim: To compare the efficacy and safety of colostrum dressing and conventional dressing in deep wounds.

Materials and Methods: Data was collected from all patients with deep wounds (stage II-IV), admitted during the period of April 2013 to March 2014, considering the inclusion and exclusion criteria.

Results: Less number of dressings, short healing time, rapid healing and decrease pain seen in colostrum dressing group compared to conventional dressing group.

Conclusion: Colostrum powder dressings are safe, promoter of wound healing, more patient compliance in terms of less pain, less number of dressing required. This treatment though found to be more expensive than conventional dressings; results indicate that colostrum powder dressings may be used as an adjunct in management of deep wound.

Keywords: Discharge, Healing time, Pain

INTRODUCTION

Deep wounds extend deeper, across deep fascia into muscles or deeper structures. Understanding of nutrition, immunology, psychological issues, the physiology and the metabolic interactions are required for optimal treatment of deep wounds. These deep wounds can cause various morbidities in the form of prolonged hospital stay, multiple surgeries, permanent disability and deformity, prolonged rehabilitation and enormous economical problems. Therefore, to tackle these issues, wound dressing plays one of the important roles. It is therefore appropriate that the process and problems of wound healing should be vigorously addressed by all practitioners and investigators involved in the treatment of deep wound patients and in the development and use of new wound repair material [1].

The properties of ideal dressing used in the wound management are that, it should be economical, easy to apply, readily available, a dressing or method or coverage that will provide good pain relief, protect wound from infection, promote healing, maintain moisture, be elastic, and non - antigenic and adhere well to the wound and untill spontaneous epithelisation occurs and healthy granulation tissue is formed [2]. In 150 A.D the Greek surgeon, Galen of Pergamum had first addressed the fact that the wound should be kept moist to ensure adequate healing [3]. Among newer type of wound dressings - Biological dressings like colostrums powder, collagen create the most physiological interface between the wound surface, environment and impermeable to bacteria [4].

Colostrum powder contains many cells, repair and growth factors which are responsible for healthy cell growth and repair of tissues like the skin, muscle, cartilage and bone. Colostrum powder dressing has certain advantages over conventional dressing, like healthy granulation tissue formation, greater reduction in inflammatory cells, decreased days of healing and decreased pain.

This study is conducted to compare the efficacy of colostrum powder dressing with that of conventional dressing in the management of deep wounds.

AIM

To compare the efficacy and safety of colostrum dressing and conventional dressing in deep wounds in terms of reduced pain, healing time, number of dressings healing quality and complications.

MATERIALS AND METHODS

Source of data

Data was collected from all patients with deep wounds (stage II-IV), who were admitted during the period of April 2013 to March 2014, for study considering the inclusion and exclusion criteria. In this study experimental research method was used to assess role of colostrums powder dressing on wound healing. The Colostrum powder was commercially procured in the form of colostrums capsules from bovine colostrums (Immurich). Information was collected through a predesigned pretested proforma prepared by investigators for each patient.

All patients were interviewed as per the proforma and a complete clinical examination was done. Cases were randomly selected and allocated into test group and control group, Cases allocated in test group treated with colostrums powder dressing and Cases allocated in control group treated with conventional dressings. Conventional dressings were done with betadine and hydrogen peroxide. In this study, effect of colostrums powder dressing was studied by evaluating and comparing the dependent variables within experimental and control group. The dependent variables were process of wound healing in the form of size of wound, soakage of wound, amount and colour of exudates, pain experienced by patient and decrease in stages of wound during the days of application of colostrums powder on wound for 15 d.

Sample size

In this study samples were the patients admitted in the hospital during study period having ulcers and pressure sores ranging from

stage II-IV. Two hundred patients were selected randomly after meeting inclusion and exclusion criteria. Which were further divided into two groups. One group with Colostrum dressing (n=100) and other with conventional dressing (n=100).

Inclusion criteria

Patients of age 20-60 y with deep wounds of stage two to four and willing to participate in study were included in the study.

Exclusion criteria

Patients of age below 20 y with ulcer in stage one and patients who were suffering from arterial disease and not willing to participate in the study were excluded from the study. In the pre-intervention period the measurement of dependent variable was carried out for all patients of both the groups. The measured dependent variables were size of wound, soakage of wound, amount and colour of exudates, pain, sepsis, type and stage of wound by using structured observation.

After initial assessment, the manipulation of independent variable i.e. intervention of treatment of colostrums powder on wound carried out for the samples of experimental groups. For the samples of experimental group the observations (O) and application of colostrum powder was done twice in a day 7am and 7pm (stage 3 and 4) the observation was done on every 3rd day. i.e. 3rd, 6th, 9th,12th and 15th day of application.

RESULTS

For the patients of conventional dressing group, the series and timing of observation was same as that of experimental group [Table/Fig-1]. Observation checklist to assess rate and process of wound healing for 15 d areas included were size of wound, temperature, soakage of wound, amount and colour of exudates, sepsis, pain, margins of ulcer etc.

While analysing the scores of wound healing following scoring key was used [5]:

Sr.no.	Percentage	Grade
1	Below 25%	Excellent
2	26-50%	Good
3	51-75%	Satisfactory
4	76 & above	Poor

Data from observation related to wound healing before and after was analysed in frequency and percentage.

DISCUSSION

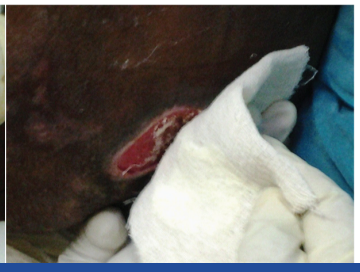
Deep wounds that are difficult to treat, includes diabetic ulcers, venous ulcers, trophic ulcers, pressure sores and necrotizing fasciitis. Colostrum contains many immune factors which make them suitable for topical use in the wounds. Due to its anti-viral, anti-bacterial, and anti-inflammatory properties, it is suitable for oral and/or topical applications. There are seven different growth promoters identified in colostrum involved in growth and repair of body cells. Three of the seven factors identified are involved in the healing of wounds. Nucleotides, EgF (Epidermal growth factor), TgF (Transforming growth factors), FgF (Fibroblast growth factors) and IgF-I (Insulin-like growth factor) stimulate skin growth, cellular growth and repair by direct action on DNA and RNA. These growth factors facilitate the healing of tissues of damaged by ulcers, trauma, burns, surgery or inflammatory disease.

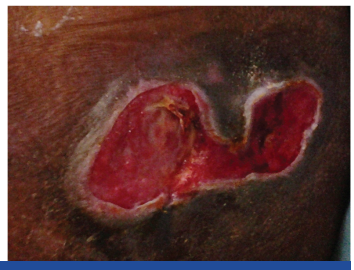
In our study most commonly affected age group is 41 to 50 y of age and males are more affected compared to females [Table/Fig-12-14]. In colostrum dressing group 20% patient stayed for 3-4 wk while in conventional dressing group 40% patient stayed 3-4 wk. Which is almost double than the colostrum dressing group [Table/Fig-15]. Colostrum contains many cells and repair factors, which are important for healthy cell growth. So, in colostrum group there is fast healing and short stay at hospital.

Eighteen patients had percentage reduction of ulcer between 91-99%, 50 patient had percentage reduction between 81-90%. 4

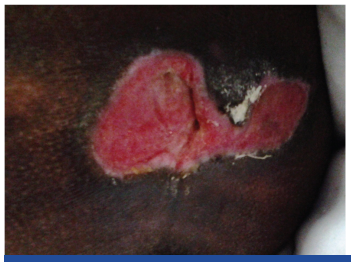
[Table/Fig-1]: Preintervention Day-0

[Table/Fig-2]: Intervention Application of Colostrum powder

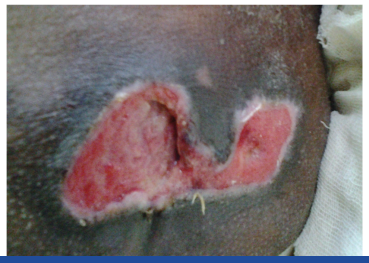




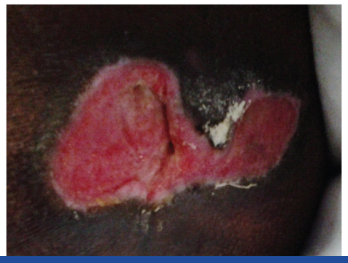
[Table/Fig-3]: Postintervention Day-3



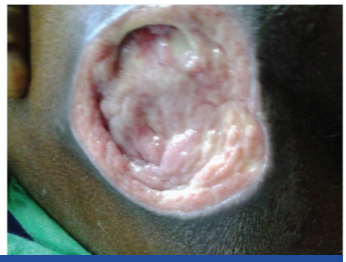
[Table/Fig-4]: Postintervention Day-6



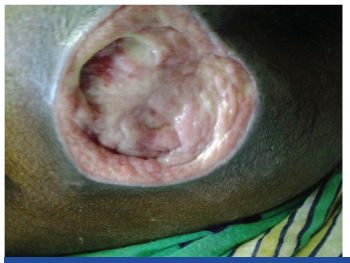
[Table/Fig-5]: Conventional dressing group Day-0



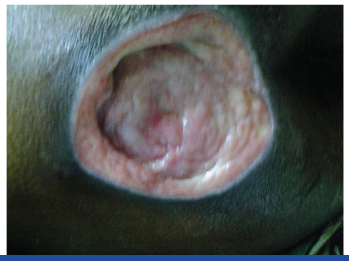
[Table/Fig-6]: Post Intervention Observation (Day-15) Colostrum group



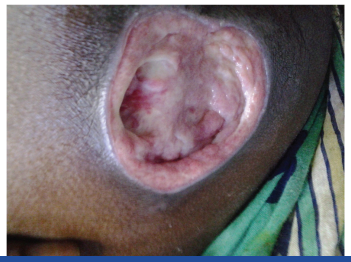
[Table/Fig-7]: Observation (Day-0) conventional dressing group



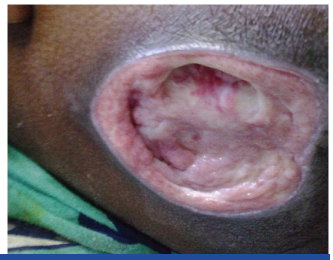
[Table/Fig-8]: Postintervention Day-15 15) conventional dressing group



[Table/Fig-9]: Conventional dressing group Day-6



[Table/Fig-10]: Postintervention Day-12



[Table/Fig-11]: Observation (Day-

Sr.no	Age (Years)	No. of patient	Percentage (%)
1	21-30	28	14
2	31-40	40	20
3	41-50	74	37
4	51-60	58	29
	Total	200	100

[Table/Fig-12]: Age distribution

Sr.no	Sex	No. of patient	Percentage (%)
1	Male	136	68
2	Female	64	32
	Total	200	100

[Table/Fig-13]: Sex distribution

Sr.no	Type of Onset	No. of patient	Percentage (%)
1	Traumatic	140	70
2	Spontaneous	60	30
	Total	200	100

[Table/Fig-14]: Onset of ulcer

Period of stay (weeks) (A)	No. of patients	Percentage (%)
1-2	35	35
2-3	45	45
3-4	20	20
Total	100	100

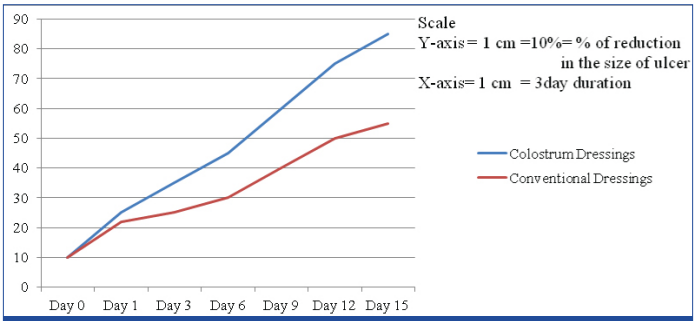
Period of stay (weeks) (B)	No. of patients	Percentage (%)
1-2	25	25
2-3	35	35
3-4	40	40
Total	100	100

[Table/Fig-15]: Average duration of hospital stay (a) colostrum powder dressings (b) conventional dressings

Reduction in size of ulcer (%) (a)	No. of patients
61-70	12
71-80	20
81-90	50
91-99	18
Total	100

Reduction in size of ulcer (%) (b)	No. of patients
61-70	24
71-80	48
81-90	24
91-99	04
Total	100

[Table/Fig-16]: Percentage of reduction of ulcer size (a) Colostrum dressings (b) Conventional dressings



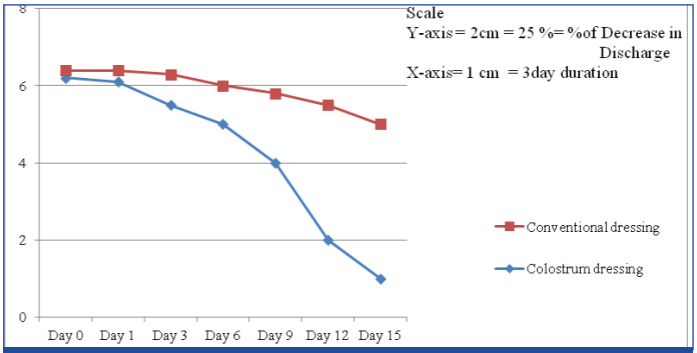
[Table/Fig-17]: Percentage of reduction in the size of ulcer

patients had percentage reduction of ulcer between 90-99% and 24 patients between 81-90% and 48 patients between 71-80% [Table/Fig-16,17].

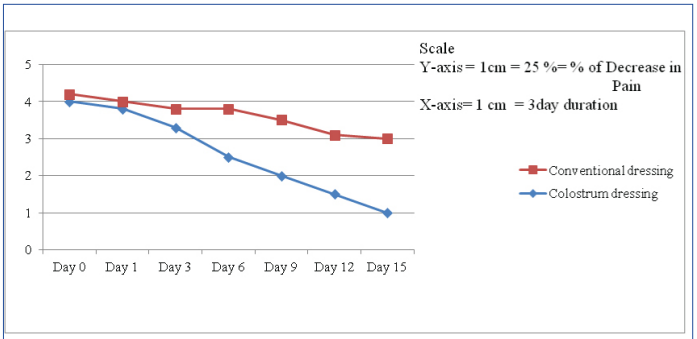
No. of dressings (A)	No. of patients	Percentage (%)
1-5	00	00
6-10	35	35
11-15	31	31
16-20	19	19
21-25	15	15
26-30	00	00
Total	100	100

No. of dressings (B)	No. of patients	Percentage (%)
1-5	00	00
6-10	00	00
11-15	02	02
16-20	34	34
21-25	45	45
26-30	19	19
Total	100	100

[Table/Fig-18]: No. of dressings required (a) Colostrum dressings (b) Conventional dressings



[Table/Fig-19]: Decrease in discharge after colostrum application



[Table/Fig-20]: Decrease in pain after colostrum application

Thirty five patients required colostrum dressing between 6-10, while only 15 patients required between 21-25. 45 patients required conventional dressing between 21-25, which is almost triple time than colostrum dressing. Maximum number of conventional dressing required is 30 [Table/Fig-18]. So, conventional dressings required much more. This is because colostrum decrease the amount of discharge from wound and also fastened the healing leads to decrease in number of dressings [Table/Fig-19]. Barry M, had find that Colostrum proves to be a powerful agent when applied externally [6] [Table/Fig-20]. A colostrum powder dressing has another advantage over conventional dressing in terms of non-immunogenic, non-pyrogenic, being natural, easy application, hypo allergic and pain free [3].

A study by Dr. Sporn et al., reported in Science stated that "Polypeptide Transforming Growth Factors (TGF A & B) and Epithelial Growth Factor Isolated from Bovine Colostrum Used for Wound Healing" because growth factors in bovine colostrum were found to be very effective in promoting wound healing. Our study have shown that colostrum is most effective at promoting healing

of injuries when it is both taken internally and applied topically to the affected area [7]. A clinical research study by Dr. Bhora et al., found that for promoting wound healing growth factors present in colostrums had certain important part [8].

Noda et al., discovered that Transforming growth Factors A and B (TGF A & B) present in bovine colostrum were helpful in embryonic development, cell proliferation, and tissue repair like cellular activities. They also reported it promoted the synthesis and repair of DNA -the master code of the cell [9]. Skottner, Arrhenius-Nyberg, Kanje and Fryklund observed that IGF-1 had role in significant body weight gain and significant bone growth. After Topical application to wounds, It resulted in more effective healing [10].

Allen and Rankin, observed that Fibroblast growth factor (FGF), Insulin like Growth Factor (IGF-1) and Transforming Growth Factor (TGF-b), when administered in combination these factors induce growth, proliferation and regeneration of satellite cells. After sometimes these cells will fuse with one another or the adjacent muscle fiber thereby increasing myonuclei numbers for growth and repair. All three Factors found in Bovine Colostrum [11].

Based on the findings of this study, it can be concluded that colostrum dressing can decrease the hospital stay, promote ulcer healing and decrease pain in cases of deep ulcers. Though at present many different types of dressings like honey dressings, vacuum assisted dressings, hyperbaric oxygen therapy, collagen sheet application and herbal medication like turmeric powder has been tried. Colostrum dressing is cheap, easily available, non immunogenic, easy to apply, provide good pain relief, protect wound from infection and promote healing. So, in future it can be a useful measure for management of deep wounds.

CONCLUSION

Colostrum powder dressing is non-allergic, safe, promotes wound healing. Patient compliance is more as it causes less pain while the dressing is changed, also in terms of less number of dressing required. This treatment however is found to be more expensive than conventional dressings. The above results indicate that colostrum powder dressings may be used as an adjunct in management of deep wound.

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