Call for Editorial Board Members

As you are well aware that we are a medical and health sciences publishers; publishing peer-reviewed journals and books since 2004.

We are always looking for dedicated editorial board members for our journals. If you completed your master's degree and must have at least five years experience in teaching and having good publication records in journals and books.

If you are interested to be an editorial board member of the journal; please provide your complete resume and affiliation through e-mail (i.e. info@rfppl.co.in) or visit our website (i.e. www.rfppl.co.in) to register yourself online.

Call for Publication of Conference Papers/Abstracts

We publish pre-conference or post-conference papers and abstracts in our journals, and deliver hard copy and giving online access in a timely fashion to the authors.

For more information, please contact:

For more information, please contact:
A Lal
Publication-in-charge
Red Flower Publication Pvt. Ltd.
48/41-42, DSIDC, Pocket-II
Mayur Vihar Phase-I
Delhi – 110 091 (India)
Phone: 91-11-79695648
E-mail: info@rfppl.co.in

Free Announcements of your Conferences/Workshops/CMEs

This privilege to all Indian and other countries conferences organizing committee members to publish free announcements of your conferences/ workshops. If you are interested, please send your matter in word formats and images or pictures in JPG/JPEG/Tiff formats through e-mail attachments to sales@rfppl.co.in.

Terms & Conditions to publish free announcements:

1. Only conference organizers are eligible up to one full black and white page, but not applicable for the front, inside front, inside back and back cover, however, these pages are paid.
2. Only five pages in every issue are available for free announcements for different conferences.
3. This announcement will come in the next coming issue and no priority will be given.
4. All legal disputes subject to Delhi jurisdiction only.
5. The executive committee of the Red Flower Publication reserve the right to cancel, revise or modify terms and conditions any time without prior notice.

For more information, please contact:
A Lal
Publication-in-charge
Red Flower Publication Pvt. Ltd.
48/41-42, DSIDC, Pocket-II
Mayur Vihar Phase-I
Delhi – 110 091 (India)
Phone: 91-11-79695648
E-mail: info@rfppl.co.in

Win Free Institutional Subscription!

Simply fill out this form and return scanned copy through e-mail or by post to us.

Name of the Institution_____

Name of the Principal/Chairman_____

Management (Trust/Society/Govt./Company)_____

Address 1_____

Address 2_____

Address 3_____

City_____

Country_____

PIN Code_____

Mobile_____

Email_____

We are regular subscriber of Red Flower Publication journals.

Year of first subscription_____

List of ordered journals (if you subscriberd more then 5 titles, please attach separate sheet)

Ordered through

Name of the Vendor	Subscription Year	Direct/subs Yr

Name of the journal for which you wish to be free winner

Terms & Conditions to win free institutional subscription

1. Only institutions can participate in this scheme
2. In group institutions only one institution would be winner
3. Only five institutions will be winner for each journal
4. An institution will be winner only for one journal
5. The free subscription will be valid for one year only (i.e. 1 Jan – 31 Dec)
6. This free subscription is not renewable, however, can be renewed with payment
7. Any institution can again participate after five years
8. All legal disputes subject to Delhi jurisdiction only
9. This scheme will be available to participate throughout year, but draw will be held in last week of August every year
10. The executive committee of the Red Flower Publication reserve the right to cancel, revise or modify terms and conditions any time without prior notice.

I confirm and certify that the above information is true and correct to the best of my knowledge and belief.

Place: Signature with Seal

Date:

Revised Rates for 2023 (Institutional) **Title of the Journal**	**Frequency**	**India(INR) Print Only**	**India(INR) Online Only**	**Outside India(USD) Print Only**	**Outside India(USD) Online Only**
Community and Public Health Nursing	Triannual	6500	6000	507.81	468.75
Indian Journal of Agriculture Business	Semiannual	6500	6000	507.81	468.75
Indian Journal of Anatomy	Quarterly	9500	9000	742.19	703.13
Indian Journal of Ancient Medicine and Yoga	Quarterly	9000	8500	703.13	664.06
Indian Journal of Anesthesia and Analgesia	Bi-monthly	8500	8000	664.06	625
Indian Journal of Biology	Semiannual	6500	6000	507.81	468.75
Indian Journal of Cancer Education and Research	Semiannual	10000	9500	781.25	742.19
Indian Journal of Communicable Diseases	Semiannual	9500	9000	742.19	703.13
Indian Journal of Dental Education	Quarterly	6500	6000	507.81	468.75
Indian Journal of Diabetes and Endocrinology	Semiannual	9000	8500	703.13	664.06
Indian Journal of Emergency Medicine	Quarterly	13500	13000	1054.69	1015.63
Indian Journal of Forensic Medicine and Pathology	Quarterly	17000	16500	1328.13	1289.06
Indian Journal of Forensic Odontology	Semiannual	6500	6000	507.81	468.75
Indian Journal of Genetics and Molecular Research	Semiannual	8000	7500	625	585.94
Indian Journal of Law and Human Behavior	Semiannual	7000	6500	546.88	507.81
Indian Journal of Legal Medicine	Semiannual	9500	9000	742.19	703.13
Indian Journal of Library and Information Science	Triannual	10500	10000	820.31	781.25
Indian Journal of Maternal-Fetal & Neonatal Medicine	Semiannual	10500	10000	820.31	781.25
Indian Journal of Medical and Health Sciences	Semiannual	8000	7500	625	585.94
Indian Journal of Obstetrics and Gynecology	Quarterly	10500	10000	820.31	781.25
Indian Journal of Pathology: Research and Practice	Triannual	13000	12500	1015.63	976.56
Indian Journal of Plant and Soil	Semiannual	7500	7000	585.94	546.88
Indian Journal of Preventive Medicine	Semiannual	8000	7500	625	585.94
Indian Journal of Research in Anthropology	Semiannual	13500	13000	1054.69	1015.63
Indian Journal of Surgical Nursing	Triannual	6500	6000	507.81	468.75
Indian Journal of Trauma and Emergency Pediatrics	Quarterly	10500	10000	820.31	781.25
Indian Journal of Waste Management	Semiannual	10500	10000	820.31	781.25
International Journal of Food, Nutrition & Dietetics	Triannual	6500	6000	507.81	468.75
International Journal of Forensic Science	Semiannual	11000	10500	859.38	820.31
International Journal of Neurology and Neurosurgery	Quarterly	11500	11000	898.44	859.68
International Journal of Pediatric Nursing	Triannual	6500	6000	507.81	468.75
International Journal of Political Science	Semiannual	7000	6500	546.88	507.81
International Journal of Practical Nursing	Triannual	6500	6000	507.81	468.75
International Physiology	Triannual	8500	8000	664.06	625
Journal of Aeronautical Dentistry	Quarterly	8000	7500	625	585.94
Journal of Animal Feed Science and Technology	Semiannual	9000	8500	703.13	664.06
Journal of Cardiovascular Medicine and Surgery	Quarterly	11000	10500	859.38	820.31
Journal of Emergency and Trauma Nursing	Semiannual	6500	6000	507.81	468.75
Journal of Food Additives and Contaminants	Semiannual	6500	6000	507.81	468.75
Journal of Food Technology and Engineering	Semiannual	6000	5500	468.75	429.69
Journal of Forensic Chemistry and Toxicology	Semiannual	10500	10000	820.31	781.25
Journal of Global Medical Education and Research	Semiannual	7000	6500	546.88	507.81
Journal of Global Public Health	Semiannual	13000	12500	1015.63	976.56
Journal of Microbiology and Related Research	Semiannual	9500	9000	742.19	703.13
Journal of Nurse Midwifery and Maternal Health	Triannual	6500	6000	507.81	468.75
Journal of Orthopedic Education	Triannual	6500	6000	507.81	468.75
Journal of Pharmaceutical and Medicinal Chemistry	Semiannual	17500	17000	1367.19	1328.13
Journal of Plastic Surgery and Transplantation	Semiannual	27500	27000	2148.44	2109.38
Journal of Psychiatric Nursing	Triannual	6500	6000	507.81	468.75
Journal of Radiology	Semiannual	9000	8500	703.13	664.06
Journal of Social Welfare and Management	Quarterly	8500	8000	664.06	625
New Indian Journal of Surgery	Quarterly	9000	8500	703.13	664.06
Ophthalmology and Allied Sciences	Triannual	7000	6500	546.88	507.81
Pediatrics Education and Research	Quarterly	8500	8000	664.06	625
Physiotherapy and Occupational Therapy Journal	Quarterly	10000	9500	781.25	742.19
RFP Gastroenterology International	Semiannual	7000	6500	546.88	507.81
RFP Indian Journal of Hospital Infection	Semiannual	13500	13000	1054.69	1015.63
RFP Indian Journal of Medical Psychiatry	Semiannual	9000	8500	703.13	664.06
RFP Journal of Biochemistry and Biophysics	Semiannual	8000	7500	625	585.94
RFP Journal of Dermatology	Semiannual	6500	6000	507.81	468.75
RFP Journal of ENT and Allied Sciences	Semiannual	6500	6000	507.81	468.75
RFP Journal of Gerontology and Geriatric Nursing	Semiannual	6500	6000	507.81	468.75
RFP Journal of Hospital Administration	Semiannual	8000	7500	625	585.94
Urology, Nephrology and Andrology International	Semiannual	8500	8000	664.06	625

Terms of Supply:

1. Agency discount 12.5%. Issues will be sent directly to the end user, otherwise foreign rates will be charged.
2. All back volumes of all journals are available at current rates.
3. All journals are available free online with print order within the subscription period.
4. All legal disputes subject to Delhi jurisdiction.
5. Cancellations are not accepted orders once processed.
6. Demand draft/cheque should be issued in favour of "**Red Flower Publication Pvt. Ltd.**" payable at **Delhi.**
7. Full pre-payment is required. It can be done through online (http://rfppl.co.in/subscribe.php?mid=7).
8. No claims will be entertained if not reported within 6 months of the publishing date.
9. Orders and payments are to be sent to our office address as given below.
10. Postage & Handling is included in the subscription rates.
11. Subscription period is accepted on calendar year basis (i.e. Jan to Dec). However orders may be placed any time throughout the year.

Order from

Red Flower Publication Pvt. Ltd., 48/41-42, DSIDC, Pocket-II, Mayur Vihar Phase-I, Delhi - 110 091 (India)
Mobile: 8130750089, Phone: 91-11-79695648 E-mail: sales@rfppl.co.in, Website: www.rfppl.co.in

RFP Journal of Biochemistry and Biophysics

Corresponding address
Red Flower Publication Pvt. Ltd.
48/41-42 DSIDC, Pocket-II, Mayur Vihar
Phase-I, Delhi - 110 091(India)
Phone: 91-11-79695648,
E-mail: info@rfppl.co.in,
Web: www.rfppl.co.in

.Red Flower Publication (P) Ltd

Presents its Book Publications for sale

1. **Beyond Medicine: A to E for Medical Professionals) (2020)**
   . *Kalidas Chavan* **INR390/USD31**
2. **Biostatistical Methods For Medical Research (2019)**
   . *Sanjeev Sarmukaddam* **INR549/USD44**
3. **Breast Cancer: Biology, Prevention And Treatment (2015)**
   . *Dr. A. Ramesh Rao* **INR 395/USD31**
4. **Chhotanagpur A Hinterland of Tribes (2020)**
   . *Ambrish Gautam* **INR250/ USD20**
5. **Child Intelligence (2004)**
   . *Dr. Rajesh Shukla, Md, Dch.* **INR100/ USD50**
6. **Clinical Applied Physiology and Solutions (2020)**
   . *Varun Malhotra* **INR263/USD21**
7. **Comprehensive Medical Pharmacology (2019)**
   . *Dr. Ahmad Najmi* **INR599/USD47**
8. **Critical Care Nursing in Emergency Toxicology (2019)**
   . *Vivekanshu Verma* **INR460/USD34**
9. **Digital Payment (Blue Print For Shining India) (2020)**
   . *Dr. Bishnu Prasad Patro* **INR329/USD26**
10. **Drugs in Anesthesia (2020)**
    . *R. Varaprasad* **INR449/USD35**
11. **Drugs In Anesthesia and Critical Care (2020)**
    . **Dr. Bhavna Gupta** **INR595/USD46**
12. **MCQs in Medical Physiology (2019)**
    . *Dr. Bharati Mehta* **INR300/ USD29**
13. **MCQs in Microbiology, Biotechnology and Genetics (2020)**
    . *Biswajit Batabyal* **INR285/USD22**
14. **MCQs In Minimal Access and Bariatric Surgery (2nd Edition) (2020)**
    . *Anshuman Kaushal* **INR545/USD42**
15. **Patient Care Management (2019)**
    . *A.K. Mohiuddin* **INR999/USD78**
16. **Pediatrics Companion (2001)**
    . *Rajesh Shukla* **INR 250/USD50**
17. **Pharmaceutics-1 (A Comprehensive Hand Book) (2021)**
    . *V. Sandhiya* **INR525/ USD50**
18. **Poultry Eggs of India (2020)**
    . *Prafulla K. Mohanty* **INR390/USD30**
19. **Practical Emergency Trauma Toxicology Cases Workbook (2019)**
    . *Dr. Vivekanshu Verma, Dr. Shiv Rattan Kochar, Dr. Devendra Richhariya* **INR395/USD31**
20. **Practical Record Book of Forensic Medicine & Toxicology (2019)**
    . *Dr. Akhilesh K. Pathak* **INR299/USD23**
21. **Recent Advances in Neonatology (2020)**
    . *Dr. T.M. Ananda Kesavan* **INR 845/USD66**
22. **Shipping Economics (2018)**
    . *Dr. D. Amutha* **INR347/USD45**
23. **Skeletal and Structural Organizations of Human Body (2019)**
    . *Dr. D.R. Singh* **INR659/USD51**
24. **Statistics In Genetic Data Analysis (2020)**
    . *S.Venkatasubramanian* **INR299/USD23**
25. **Synopsis of Anesthesia (2019)**
    . *Dr. Lalit Gupta* **INR1195/USD75**
26. **A Handbook of Outline of Plastic Surgery Exit Examination (2022)**
    . *Prof Ravi Kumar Chittoria & Dr. Saurabh Gupta* **INR 498/USD 38**
27. **An Introductory Approach to Human Physiology (2021)**
    . *Satyajit Tripathy, Barsha Dasssarma, Motlalpula Gibert Matsabisa* **INR 599/USD 46**
28. **Biochemical and Pharmacological Variations in Venomous Secretion of Toad (Bufo melanostictus)(2021)**
    . *Dr. Thirupathi Koila & Dr. Venkaiah Yanamala* **INR 325/USD26**
29. **Climate, Prey & Predator Insect Poupulation in Bt Cotton and Non-Bt Cotton Agriculture Feilds of Warangal District (2022)**
    . *Dr. Peesari Laxman,Ch. Sammaiah* **INR 325/USD26**
30. **Community Health Nursing Record Book Volume – I & II (2022)**
    . *Ritika Rocque* **INR 999/USD 79**
31. **Handbook of Forest Terminologies (Volume I & II) (2022)**
    . *Dr. C.N.Hari Prasath, Dr. A. Balasubramanian,*
    . *Dr. M. Sivaprakash,V. Manimaran, Dr. G. Swathiga* **INR 1325/USD 104**
32. **MCQs of Biochemistry(2022)**
    . *Sachin C. Narwadiya, Dr. Irfana Begum* **INR 399/USD 49**
33. **Newborn Care in the State of Uttar Pradesh(2022)**
    . *Dr. Tridibesh Tripathy* **INR 545/USD 42**
34. **Osteoporosis: Weak Bone Disease(2022)**
    . *Dr. Dondeti Uday Kumar & Dr. R. B. Uppin* **INR 399/USD49**
35. **Quick Updates in Anesthesia(2022)**
    . *Dr. Rupinder Kaur Kaiche, Dr. Vidhyadhar Modak,*
    . *Dr. Shilpa Sannakki & Dr. Vivek Gupta* **INR 599/USD 44**
36. **Textbook of Practice of Medicine with Homoeopathic Therapeutics(2022)**
    . *Dr. Pramod Kumar* **INR 1325/USD104**
37. **Trends in Anthropological Research(2022)**
    . *Dr. Jyoti Ratan Ghosh,Dr. Rangya Gachui* **INR 399/USD 49**

,**Order from: Red Flower Publication Pvt. Ltd.,** 48/41-42, DSIDC, Pocket-II
,Mayur Vihar Phase-I, Delhi - 110 091(India), Mobile: 8130750089
Phone: 91-11-79695648, E-mail: info@rfppl.co.in

JBB

RFP Journal of Biochemistry and Biophysics

July – December 2022
Volume 7, Number 2

e-ISSN - 2582-3442
p-ISSN - 2582-3558

Contents

Original Articles

Review Articles

RFP Journal of Biochemistry and Biophysics (JBB) (Formerly Journal of Practical Biochemistry and Biophysics) publishes quality original articles and reviews in the Research Areas of Enzyme and protein structure, function, regulation. Folding, turnover, and post-translational processing, Biological oxidations, free radical reactions, redox signaling, oxygenases, P450 reactions, Signal transduction, receptors, membrane transport, intracellular signals. Cellular and integrated metabolism. Solicited peer reviewed articles on contemporary Themes and Methods in Biochemistry and Biophysics form an important feature of JBB.

Subscription Information

India
Institutional (1 year) (Print+Online): INR 8000

Rest of the World
Insitutional (1 year) (Print+Online): $ 625

Payment instructions
Online payment link:
http://rfppl.co.in/payment.php?mid=15

Cheque/DD:
Please send the US dollar check from outside India and INR check from India made. Payable to 'Red Flower Publication Private Limited'. Drawn on Delhi branch

Wire transfer/NEFT/RTGS:
Complete Bank Account No. 604320110000467
Beneficiary Name: Red Flower Publication Pvt. Ltd.
Bank & Branch Name: Bank of India; Mayur Vihar
MICR Code: 110013045
Branch Code: 6043
IFSC Code: BKID0006043 (used for RTGS and NEFT transactions)
Swift Code: BKIDINBBDOS

Send all Orders to: Subscription and Marketing Manager, Red Flower Publication Pvt. Ltd., 48/41-42, DSIDC, Pocket-II, Mayur Vihar Phase-I, Delhi - 110 091(India), Phone: 91-11-79695648, E-mail: sales@rfppl.co.in, Website: www.rfppl.co.in

Original Article

RFP Journal of Biochemistry and Biophysics
Volume 7 Number 2, July - December 2022
DOI: http://dx.doi.org/10.21088/rfpjbb.2582-3558.7222.1

Role of Cyclical Negative Pressure Wound Therapy in Wound Bed Preparation in Necrotizing Fascitis

Shivanand Hosamani[1], Ravi Kumar Chittoria[2], Barath Kumar Singh. P[3]

How to cite this article:
Shivanand Hosamani, Ravi Kumar Chittoria, Barath Kumar Singh. P/Role of Cyclical Negative Pressure Wound Therapy in Wound Bed Preparation in Necrotizing Fascitis/JBB Journal of Biochemistry and Biophysics. 2022;7(2):45–48.

Abstract

Necrotizing fasciitis is an infection of subcutaneous tissue and fascia which may spread rapidly to deeper tissue and surrounding tissue which may cause damage to the tissue and present as a localized infection and fulminant septic shock with high mortality rate. Negative pressure wound therapy (NPWT) has been used to treat wounds in numerous different anatomical locations, with different levels of complexity and varying pathologies. NPWT has been found to be effective in wound bed preparation but cyclical negative pressure wound therapy (cNPWT) has not been reported in literature. This study highlights our experience in wound bed preparation using cNPWTin a case on necrotizing fasciitis.

Keywords: Cyclical Negative pressure wound therapy (cNPWT); Wound bed preparation; Necrotizing fasciitis.

INTRODUCTION

Necrotizing soft tissue infections (NSTIs) include necrotizing forms of fasciitis, myositis, and cellulitis. These infections are characterized clinically by fulminant tissue destruction, systemic signs of toxicity, and high mortality.[1,2] Accurate diagnosis and appropriate treatment must include early surgical intervention and antibiotic therapy. Several different names have been used to describe the various forms of necrotizing infections; this is related in part to naming based on clinical features rather than surgical or pathologic findings. The degree of suspicion should be high since the clinical presentation is variable and prompt intervention is critical. The lay press has referred to organisms that cause NSTI as flesh eating bacteria.[3] There is sufficient evidence to conclude that healing of necrotizing fasciitis is accelerated by NPWT. Though it is well established therapy in the armamentarium of wound management, its role in wound bed preparation before cover by skin graft

Author's Affiliation: [1]Junior Resident, [3]Senior Resident, Department of Plastic Surgery, [2]Professor & Head of IT Wing and Telemedicine, Department of Plastic Surgery & Telemedicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

Corresponding Author: Ravi Kumar Chittoria, Professor & Head of IT Wing and Telemedicine, Department of Plastic Surgery & Telemedicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

E-mail: drchittoria@yahoo.com

Received: 21.11.2022 **Accepted:** 03.12.2022

or flap has not been studied well. NPWT has been found to be effective in wound bed preparation but cyclical negative pressure wound therapy (cNPWT) has not been reported in literature. This study highlights our experience in wound bed preparation using cyclical NPWT in a case on necrotizing fasciitis.

MATERIALS ANDMETHODS

This study was conducted in the department of plastic surgery in a tertiary care center after obtaining the departmental ethical committee approval. Informed written consent was taken from the patient. The study is a prospective observational type done on a 60-year-old male with known co-morbidities including hypertension & coronary artery disease with ejection fraction of 25%. Patient presented with raw area (Fig. 1) over left lower limb & perineum of one month duration. He was apparently well one month back when he developed multiple blebs over left lower limb & perineum which ruptured leaving raw area with rapid progression of wound infection with foul smelling discharge. He was diagnosed with clinically as a case of necrotizing fasciitis. He underwent multiple debridement in referral surgery department after that he was referred to department of plastic surgery for further wound care. Further multiple wound debridement was done followed by cyclic negative pressure wound therapy was applied for wound bed preparation (Fig. 2). Till wound bed got ready cadaveric human skin (allograft) was used as biological dressing. Wound bed was reassessed every weekly till wound bed got ready for cover by skin graft or flap.

Fig. 1: At admission with extensive necrotizing fasciitis of left lower limb & perineum.

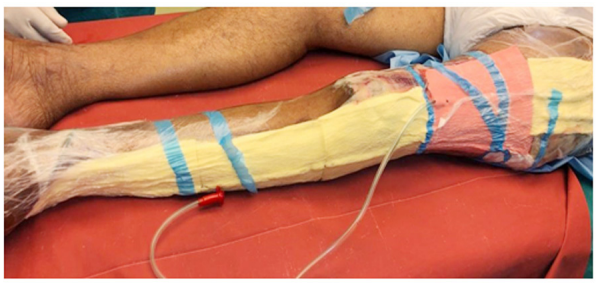

Fig. 2: Application of cNPWT

RESULTS

After 2 weeks, the wound bed got ready with appearance of healthy granulation tissue (Fig. 3). The future plan is to cover the raw area with skin grafting once patient becomes fit for anesthesia.

Fig. 3: Wound bed with healthy granulation tissue with allograft in position

DISCUSSION

Necrotizing fasciitis is a life-threatening condition, with a high mortality rate (median mortality 32.2%) that approaches 100% without treatment. Numerous conditions are associated with this pathology, such as diabetes mellitus, immunosuppression, chronic alcohol disease, chronic renal failure, and liver cirrhosis, which can be conductive to the rapid spread of necrosis, and increase in the mortality rate. The diagnosis of NF is difficult and the differential diagnosis between NF and other necrotizing soft tissue infections. The delay in diagnosis can be fatal, and septic shock is inevitable if the disease remains untreated. The characteristic of NF is the clinical status change over time. The early clinical picture includes erythema, swelling, tenderness to palpation, and local warmth; once the infection develops, the infection site presents skin ischemia with blisters and bullae. The diagnosis of NF can be secured faster with the use of laboratory based scoring systems, such as the LRINEC score or the FGSI score, especially in cases of Fournier's gangrene. However, the diagnosis is definitely established by performing explorative surgery at the infected site.[4]

Management of the infection begins with antibiotic treatment. In the majority of cases with NF (70–90%) the reasonable pathogens are two or more, suggesting the use of broad spectrum antibiotics. The value of antibiotic treatment in

NF is relatively low, and early and aggressive drainage and debridement is required. In NF of the extremities, the clinician should consider amputating the infected limb, although this will not reduce the risk of mortality. Finally, postoperative management of the surgical wound is important, along with proper nutrition of the patient.[5]

The introduction of the negative pressure wound therapy (NPWT) system by Moryk was and Argenta, it has been applied to a number of wounds and has become an influential and effective technique for healing simple and complex wounds. The conventional NPWT system adopts either 'intermittent' or 'continuous' mode.[6] While the continuous mode constantly applies a sub-atmospheric pressure of 125 mmHg, the intermittent mode creates a sub-atmospheric pressure of 125 mmHg for 5 minutes and a 2 minute resting phase of 0 mmHg. [7] In experiments performed on animal models, the intermittent mode showed increased perfusion level and formation of granulation tissue in the wound area compared with the continuous mode.[8] Despite the effectiveness of intermittent mode in wound healing, it has been avoided in clinical application because of the pain occurring every few minutes during the initiation phase of the system to reach 125 mmHg. Thus, 'cyclic' mode would minimize the pain while maintaining the superior efficacy of the intermittent mode. The cyclic NPWT system is similar to the intermittent mode in terms of using the same maximal sub atmospheric pressure, but the pressure never reaches zero in the cyclic mode. So, it continuously creates certain pressure gradient that oscillates between 125 mmHg and the preset sub atmospheric pressure. The cycle runs based on the changes in sub atmospheric pressure, not time, and thus its frequency reflects the wound volume.Within this preclinical study on acute changes of cutaneous microcirculation under an applied NPWT dressing, we observed a significant increase of local perfusion dynamics with consecutive improvement of tissue oxygen saturation.[9]

Interestingly, all three compared modes of application, continuous, intermittent, and cyclic, resulted in locally enhanced microcirculation of a greater or lesser extent. In the comparison of different application modes, we observed superior effects on local and remote cutaneous perfusion in the cyclic group.[10] The continuous mode represented the most common setting in clinical wound care according to a published meta-analysis of Suissa et al. in 2011, in which discontinuous applications were rarely reported. Notably, continuous treatment represents the generally accepted standard of care despite already available early evidence of superior capabilities of an intermittent NPWT treatment with respect to formation of granulation tissue or angiogenesis. Most likely, this is attributable to the fact that intermittent activation of "negative pressure," which causes repeated spikes in surface pressure to the wound, is believed to be unpleasing. Lately, the introduction of the "cyclic mode" appears as a promising compromise combining both the satisfaction of patients and superior wound treatment. Pain levels were generally low in cyclic NPWT.[11]

In human cutaneous microcirculation, resting capillary pressure was reported in a range from 10.5 to 22.5 mmHg or even 41.0 mmHg. Thus, applied surface pressure of 30.0 mmHg via a NPWT dressing could potentially result in an occlusion of cutaneous capillaries. Given the finding that capillary pressure also increases in response to a higher venous pressure, at least a sub-total occlusion of the dermal microvasculature due to the intervention can be assumed.[16] Overall, the mechanisms of cutaneous vascular response to certain stimuli are complex, especially concerning vasodilation and improvement of local flow.[12] Repeated capillary (subtotal) occlusion represents a strong stimulus for the affected tissue. Both post-occlusive reactive hyperemia (PORHA) and increased mechano-humoral transduction to the vascular bed result in alterations of intravascular shear stress and could be accountable for superior effects in the intermittent and, particularly, in the cyclic group. We also assessed changes of cutaneous microcirculation on the contralateral thigh and found stronger effects in the cyclic group. Previous studies on Remote Ischemic Conditioning (RIC), showed alterations in the applied stimulus can influence the triggered improvement of cutaneous perfusion.[13] Duration of applied pressure, number of repeated cycles, and body site are important variables to optimize the conditioning effect on the improvement of remote microcirculation. An ideal application of a NPWT dressing must respect the individual circumstances of each patient and treated wounds with respect to comorbidities, location of the wound, and tissue composition. In our study cyclical negative pressure wound therapy plays an effective role as an adjuvant in the wound bed preparation in necrotizing fasciitis.

CONCLUSION

Cyclic application of "negative pressure" results in a superior local enhancement of cutaneous microcirculation with regards to blood flow and consecutive tissue oxygenation. Beyond that, repeated alterations between different levels of "negative pressure" due to cyclic application represent a greater stimulus for remote conditioning effects, indicating a superior local interaction with the underlying tissue. Further research is warranted to investigate the correlation between local perfusion enhancements and granulation tissue formation due to cyclic NPWT in humans.

REFERENCES

1. Stevens DL, Bryant AE. Necrotizing Soft-Tissue Infections. N Engl J Med 2017; 377:2253.
2. Stevens DL, Bisno AL, Chambers HF, et al. Practice guidelines for the diagnosis and management of skin and soft tissue infections: 2014 update by the infectious diseases' society of America. Clin Infect Dis 2014; 59:147.
3. Bonne SL, Kadri SS. Evaluation and Management of Necrotizing Soft Tissue Infections. Infect Dis Clin North Am 2017; 31:497.
4. Camille Hua, Tomas Urbina, RomainBosc, et al. Necrotising soft-tissue infections. Lancet Infect Dis 2022.
5. Jahnson L, Berggren L, Björsell-Ostling E, et al. Streptococcal myositis. Scand J Infect Dis 1992; 24:661.
6. Argenta LC, Morykwas MJ. Vacuum-assisted closure: a new method for wound control and treatment: clinical experience. Ann PlastSurg 1997;38:563–76.
7. Morykwas MJ, Argenta LC, Shelton-Brown EI, McGuirt W. Vacuum-assisted closure: a new method for wound control and treatment: animal studies and basic foundation. Ann PlastSurg 1997;38:553–62.
8. Glass GE, Nanchahal J. The methodology of negative pressure wound therapy: separating fact from fiction. J PlastReconstrAesthet Surg. (2012) 65:989– 1001.
9. Kairinos N, Voogd AM, Botha PH, Kotze T, Kahn D, Hudson DA, et al. Negative-pressure wound therapy II: negative-pressure wound therapy and increased perfusion. Just an illusion? PlastReconstr Surg. (2009) 123:601– 12.
10. Borgquist O, Ingemansson R, Malmsjö M. Wound edge microvascular blood flow during negative-pressure wound therapy: examining the effects of pressures from−10 to−175 mmHg. PlastReconstr Surg. (2010) 125:502– 9.
11. Kairinos N, McKune A, Solomons M, Hudson DA, Kahn D. The flaws of laser Doppler in negative-pressure wound therapy research. Wound Repair Regen. (2014) 22:424–9.
12. Muenchow S, Horch RE, Dragu A. Effects of topical negative pressure therapy on perfusion and microcirculation of human skin. ClinHemorheolMicrocirc. (2019) 72:365–74.
13. Sogorski A, Lehnhardt M, Goertz O, Harati K, Kapalschinski N, Hirsch T, et al. Improvement of local microcirculation through intermittent Negative Pressure Wound Therapy (NPWT). J Tissue Viability. (2018) 27:267– 73.

Instructions to Authors

Submission to the journal must comply with the Guidelines for Authors.
Non-compliant submission will be returned to the author for correction.

To access the online submission system and for the most
up-to-date version of the Guide for Authors please visit:

http://www.rfppl.co.in

Technical problems or general questions on publishing with **JBB** are supported by Red Flower Publication Pvt. Ltd.'s Author Support team (http://rfppl.co.in/article_submission_system.php?mid=5#)

Alternatively, please contact the Journal's Editorial Office for further assistance.

Editorial Manager
Red Flower Publication Pvt. Ltd.
48/41-42, DSIDC, Pocket-II
Mayur Vihar Phase-I
Delhi - 110 091(India)
Mobile: 9821671871, Phone: 91-11-79695648
E-mail: info@rfppl.co.in

Original Article

RFP Journal of Biochemistry and Biophysics
Volume 7 Number 2, July - December 2022
DOI: http://dx.doi.org/10.21088/rfpjbb.2582-3558.7222.2

Ethnobotanical Studies on Some Medicinal Plants of Sonebhadra District of Uttar Pradesh, India W.S.R. to Skin Diseases, Wounds and Fractures

Nitu Shree[1], Anil Kumar Singh[2]

How to cite this article:
Nitu Shree, Anil Kumar Singh/Ethnobotanical Studies on some Medicinal Plants of Sonebhadra District of Uttar Pradesh, India W.S.R. to Skin Diseases, Wounds and Fractures/JBB Journal of Biochemistry and Biophysics. 2022;7(2):51–55.

Abstract

Introduction: Sonebhadra is the only district in India which borders four states namely MP, Chhattisgarh, Bihar and Jharkhand. This district has eight blocks Babhani, Chatra, Chopan, Duddhi, Ghorawal, Myorpur, Nagwan and Robertsganj. This district has an area of 6,788km^2 and a population of 1,862,559 (2011 census), with a population density of 270 inhabitants per square kilometre. It lies in extreme south-east of the state. About 83.12% population of this district lives in rural areas. Nature is integrated part of their life. These tribes having distinct culture, values and practices hold on their traditional knowledge which is transmitted only to people belonging to their clan. The present study is designed to explore the traditional medicine used for skin disorders, cuts, wounds and fractures by different tribal communities of Sonebhadra.

Objectives: (1) To find out the ethnobotanical knowledge of different tribes of Myorpur and Chopan block of Sonebhadra district of Uttar Pradesh; related to cure of skin diseases, wounds and fractures. (2) Collection of medicinal plants used by tribes for treatment of skin disorders, cuts, wounds and fractures and their botanical identification in lab.

Methodology: It is a survey study in which primary and secondary data has been collected. Primary data was collected by interview of participants; collection of medicinal plants used by tribes for the treatment of skin disorders, cuts, wounds and fracture and their botanical identification in lab. Audio and visual aids (camera and mobile) was used to take photographs and videos related to the present study. Secondary data was collected by related books and previous researches.

Result: Many of the plants used by different tribal communities of Sonebhadra for the treatment of skin disorders, cuts, wounds and fracture. There are many plants which are known by different vernacular names by different tribal communities. Some of the plants used by them are – Dhawai (Wood for diafruticosa Kurz.), Chilbil (Holopteleaintegrifolia Planch), Kuthua (Xanthium strumarium L.), Mamarkhi, Bhains (Martyniaannua L.), Giloy (Tinosporacordifolia Willd.), Shatawar (Asparagus racemosus Willd.), Hadjod (Cissusquadrangularis Linn.), Indarbagai, Padhar (Randiauliginosa DC.), Barwat etc.

Conclusion: Tribal communities of Sonebhadra have Unique life style and culture. Their Knowledge about herbs related to treatment of skin disorders, cuts, wounds and fractures are unique and surprising. There is need to explore their knowledge and to establish it on scientific basis.

Keywords: Ethnobotanical; Skin disorders; Cuts; Wounds and Fractures.

Author's Affiliation: [1]PhD Scholar, [2]Professor, Department of Dravyaguna, Faculty of Ayurveda, IMS, BHU, Varanasi, Uttar Pradesh, India.

Corresponding Author: Anil Kumar Singh, Professor, Department of Dravyaguna, Faculty of Ayurveda, IMS, BHU, Varanasi, Uttar Pradesh, India.

E-mail: anilkumar.singh113@gmail.com

Received: 05.11.2022 **Accepted:** 02.12.2022

INTRODUCTION

Sonebhadra is the second largest district of Uttar Pradesh by area.[1] It is the only district in India which borders four states namely MP, Chhattisgarh, Bihar and Jharkhand.[2] This district has eight blocks-Babhani, Chatra, Chopan, Duddhi, Ghorawal, Myorpur, Navgaon and Robertsganj.[2] Northern part of district lies on a plateau of Vindhya range and is drained by tributaries of Ganges including the Belan and Karmnasa river. South of the steep escarpment of the Kaimur range is the valley of Son river, which flows through the district from West to East. This district has an area of 6,788km^2 and a population of 1,862,559 (2011 census), with a population density of 270 inhabitants per square kilometre. It lies in extreme south-east of the state This district has an area of 6,788km2 and a population of 1,862,559 (2011 census), with a population density of 270 inhabitants per square kilometre. It lies in extreme south-east of the state Chopan and Myorpur is the first and second largest block of this district by area and area covered by forest.[3] Most of the Scheduled Tribes of this district reside in Myorpur and Chopan blocks.[4] These tribal communities believe that they are son of natue and nature is integrated part of their life. These areas are inhabited by a large number of tribes such as Baiga, Gond, Kharwar, Bhil, Panika etc. Therse tribes having distinct culture, values and practices hold on their traditional knowledge which is transmitted only to people belonging to their clan.

Due to living in the forest and surrounding areas and poor hygienic condition such people are more prone to skin diseases, cuts, wounds and fractures. These tribal communitespossess a pool of undisclosed ethnomedicinal information regarding the flora of their surroundings.

AIM & OBJECTIVES

To find out the ethnobotanical knowledge of different tribes of Myorpur and Chopan block of Sonebhadra district of Uttar Pradesh related to skin diseases, cuts, wounds and fractures.[2] Collection of medicinal plants used by tribes for skin diseases, cuts, wounds and fracturesand their botanical identification in lab.

STUDY AREA

Myorpur and Chopan block of Sonebhadra district of Uttar Pradesh ($23^0$45′ to $24^0$30′N; $82^0$45′ to $83^0$23′E) have been selected for the present study. The elevation above the mean sea level ranges between 315 and 485 m[5]. Due to presence of more forests and more tribal communities in these blocks of the district, these areas were selected for the study. Sonebhadra district has a relatively subtropical climate with high variation between Summer and Winter temperatures. The average temperature is 30^0C to 46^0C in the Summer and 2^0C to 15^0C in the winter. The weather is pleasant in rainy season from July to October.[6]

The average annual rainfall of this area is 1115.00 mm. About 90% of rainfall takes place from June to September. The average relative humidity ranges from 25 to 81%.[7]

METHODOLOGY

The present study is a survey study based based on field excursion during 2020-2022. In this study primary data was collected by interview of participants including traditional medical practitioners of different tribal communities of this area and other local informants; collection of medicinal plants used by tribes for the treatment ofskin diseases, cuts, wounds and fractures. and their botanical identification in lab. The plant species collected during these field trips were identified at Department of Dravyaguna, Faculty of Ayurveda, IMS, BHU, Varanasi, India. Audio and visual aids (camera and mobile) was used to take photographs and videos related to the present study. Secondary data was collected by related books and previous researches.

There is no explicit rule and regulations to the practice of ethnomedicinal research in India. The purpose of the research project had explained to participants before their interview. Each participant agreed to participate voluntarily and they were allowed to discontinue the interview at any time.

RESULTS

There are forty nine plant species (five unidentified) belonging to thirty six families were recorded to be used by the local tribal communities for treatment related to cure of skin disorders, cuts, wounds and fractures. Medicinal plants used for the same purpose are arranged in table 1 where different species are arranged according to their family in alphabetical order. Vernacular names, type of plant and parts used for the treatment are also mentioned in table 1. Various ways of using the plants are given in table 2. Voucher herbarium specimens were identified and deposited in Dravyaguna

Department Laboratory, Faculty of Ayurveda, IMS,Banaras Hindu University, Varanasi, India. The newly reported vernacular names and uses (not found in earlier studies) are marked by an asterisk (*). Doule asterisk (**) mark is used for the plants which are not yet identified.

Table 1: Family, Botanical name, Vernacular name, Plant type and Parts used for treatment

Family	Botanical name	Vernacular name	Plant type	Parts used/Treatment
Acanthaceae	*Lapidagathiscristata* Willd.	*Ot-dhompol*	Undershrub	Whole plant / Allergy, Itching / Boils
Amaryllidaceae	*Curculigoorchioides* Gaertn.	*Kali-Musali, Dhutara, Tinpatia*	Herb	Root / Itching & other skin disease
Anacardiaceae	*Lanneacoromendelica* (Houtt.) Merrill.	*Jingan*	Tree	Bark / Leprous & other ulcers, impetigenous eruptions, *Cuts & Wounds
Anacardiaceae	*Semecarpusanacardium* Linn.	*Bhela / Bhelwa*	Tree	Resin, Seed oil / Leprosy & other skin diseases; Warts, Tumours,Cuts
Apocynaceae	*Hemidesmusindicus* (L.) R.Br.	*Anantmoola, Kapuri, Badi Banwar, Dudhiya*	Climber	Whole plant / Leucoderma
Apocynaceae	*Tylophorarotundifolia Buch-Ham ex* Wight.	*Anto–mul*	Climber	Whole plant / Leucoderma, Psoriasis
Asteraceae	*Blumeabifoliata* DC	*Kukrauna*	Herb	Whole plant / Cuts & Wounds
Asteraceae	*Eclipta alba* Hassak	*Bhangra*	Herb	Whole plant / Leucoderma
Asteraceae	*Sonchusarvensis* Linn.	*Bari - sahadevi*	Herb	Whole plant / Cuts, Wounds,Swelling
Asteraceae	*Tridaxprocumbens* Linn.	*Masbhari*	Herb	Whole plant/ Cuts & wounds
Begoniaceae	*Bigoniapicta* Sm.	*Lundiara*	Herb	Fresh leaves / Ulcer of mouth & tongue
Bombacaceae	*Bombaxceiba* Linn.	*Semur, Semal*	Tree	Seed / Small- pox boils
Caesalpinaceae	*Cassia tora* Linn.	*Chakawad, Chakunda*	Herb	Seed / Skin diseases like itches,eczema& ringworm
Caesalpinaceae	*Cassia fistula* Linn.	*Amaltas, Dhanba*	Tree	Leaf / Skin diseases
Caricaceae	*Carica papaya* L.	*Papita*	Tree	*Leaf / Boils
Celastraceae	*Cassineglauca* (Rottb.) Kuntze	*Mamar*	Tree	*Leaf / Wound & Ulcers
Cochlospermaceae	*Cochlospermumreligiosum* (L.) Alston	*Galgal*	Tree	Bark / Sore caused by septicaemial poisoning
Commelinaceae	*Commelinabenghalensis* Linn.	*Kanchura*	Herb	Whole plant / Skin disease
Convolvulaceae	*Argyreia nervosa* (Burm.f.) Bojer	*Samundar –ka-pat,Ghao-bel*	Climber	Leaves / Wound & skin diseases
Convolvulaceae	*Ipomeapes-tigridis*	*Besharama,Panchpatri, *Bilariputu*	Climber	Leaf / Pimples, boils& sores, carbuncles
Dioscoreaceae	*Dioscoreabulbifera* Linn.	*Piska*	Climber	Roasted tubers / ulcers
Euphorbiaceae	*Emblicaofficinalis* Gaertn.	*Aonla / Aamla*	Tree	Bark / Sores & pimples
Fabaceae	*Buteamonosperma* (Lam.) Taub	*Palash / Dhak / Paraas*	Tree	Bark / Ulcers
Fabaceae	*Pterocarpusmarsupium* Roxb.	*Bijaisal*	Tree	Leaves / Boils, Sores & Skin diseases
Fabaceae	*Tephrosiapurpurea* Pers.	*Sarphonk / Sarpunkha / Sarpankha*	Shrub	Seed oil / Scabies, eczema & other skin diseases
Fabaceae	*Urariapicta* Desv.	*Dabraa*	Herb	Whole plant / Bone fracture
Flacourtiaceae	*Flacourtiaindica* (Burm.f.) Merr.	*Kantaila*	Tree	Bark / Eczema
Lamiaceae	*Leucascephalotes* Spreng.	*Guma*	Herb	*Whole plant / Leucoderma
Lauraceae	*Listeaglutinosa* (Lour.)	*Meda*	Tree	*Leaf. Bark / Injury

Loranthaceae	*Dendrophthae falcate* (L.f.) Etting	*Banda / Banjha / *Manjha*	Shoot parasite	Bark / Wounds
Lytheraceae	*Wood for diafruticosa* Kurz.	**Dhawai*	Shrub	*Bark / Burn
Martyniaceae	*Martyniaannua* L.	**Bhains / Kaknasa*	Shrub	*Fruit / Chronic wound
Meliaceae	*Azadirachtaindica* A.Juss.	*Neem*	Tree	Bark (Root & Stem) / Skin diseases; Oil / leprosy
Menispermaceae	*Tinosporacordifolia* Willd Miersex Hook f. & Thomas	*Guruch*	Cllimber	*Stem / Fracture of bones
Mimosaceae	*Acacia catechu* willd.	*Khair*	Tree	Heartwood / Canceroius sores
Mimosaceae	*Albizizaodoratissima* (Willd.) Benth.	*Kala - Shirish*	Tree	Stem bark / Leprosy, persistent ulcers & other skin diseases
Moraceae	*Ficusreligiosa* L.	*Peepal*	Tree	Bark / Scabies
Nyctaginaceae	*Boerhaaviadiffusa* L.	*Chotwa Bhaji / Patharchatta*	Herb	Leaves / Skin diseases
Papaveraceae	*Argemone Mexicana* Linn.	*Satyanashi / Peeli – Kateli / *Bhatkataiya*	Herb	Plant juice / Chronic skin diseases; Latex / Scabies
Plumbaginaceae	*Plumbagozeylanica* Linn.	**Chit /Chita /Jaharbaj*	Shrub	*Root / Boils in cheek
Rubiaceae	*Randiaulginosa* DC	**Pandar*	Tree	*Bark / Fracture of Bone
Sapindaceae	*Schleicheraoleosa* (Lour.) oken.	*Kusum*	Tree	Seed oil / Burns, skin diseases
Sterculiaceae	*Helicterusisora* Linn.	*Aithani / Marodphali*	Shrub	Root / Sores & carbuncles
Ulmaceae	*Holopteleaintegrifolia* Planch	**Chilbil*	Tree	*Leaf / Ringworm, Wound
Verbenaceae	*Clerodendrumindicum* (L.) Kuntze.	*Bhaarangi*	Under shrub	Whole plant / Skin diseases
Vitaceae	*Cissusrepanda* Vahl.	*Pani – Bel / dahini*	Climber	Leaf / Neck sore of cattle
Vitaceae	*Cissusquadrangularis* Linn.	*Hadjod*	Climber	*Stem / Fracture of Bone
Vitaceae	*Vitisreparia* Michx	**Amlola*	Climber	*Leaf / Wound
Zingiberaceae	*Curcuma longa* Linn.	*Hardi*	Herb	*Rhizome / Injury
		***Barwat*	Climber	*Leaf / Fracture of bone
		***Bhudakki*	Climber	*Leaf, Root / Cut & injury
		***Indarbagai*	Herb	*Whole plant / Injury in animals
		***KauwaKanna*	Herb	*Root /
		***Korkach*	Tree	*Bark / Fracture of Bone
	Slaked llime / Calcium hydroxide	*Chuna*		*Chuna / Fracture of Bone

Table 2: Various ways to use the plants

Plant	Method to Use
***Barwat*	*Juice of 3 or 5 or 7 leaves are administered orally as single dose and should consume only that much quantity which fill the mouth and throw the rest juice.Crushed leaf paste are also applied over the broken area.
***Bhudakki*	*Paste of its leaves & root are applied to stop bleeding from cut area.
***Indarbagai*	*Decoction of paste of Indarbagai, Turmeric, Ginger and Jaggery are given orally to animals for any kind of injury and injury related pain.
***KauwaKanna*	*Root paste are applied over wound
***Korkach*	*In case of fracture of bone paste of its bark are given orally and also applied externally on affected area.
Carica papaya L.	*Papaya leaf juice is given in case of boils due to impurity of blood.
Cassineglauca (Rottb.) Kuntze	*Leaf paste is applied externally in case of wounds and ulcers.
Chuna	*Lime paste is applied externally for injury.
Cissusquadrangularis Linn.	*For fractured bone 3-4 inch of stem is to be crushed and given orally and its paste is also to be applied on the broken area.

Curcuma longa Linn.	*Tturmeric and jaggery is given to drink in any kind of injury.
Holopteleaintegrifolia Planch	*Leaf paste is used externally to cure wounds and ring worm infection. But it should not be applied for longer time otherwise it burns the skin.
Lanneacoromendelica (Houtt.) Merrill.	*Paste of bark is applied for cuts and wounds. Its bark juice has been poured over penis after circumcision.
Leucascephalotes Spreng.	*Its paste are applied along with black pepper paste over the white patches of leucoderma and the patches starts getting cured in one month.
Listeaglutinosa (Lour.)	*The warm paste of leaves and bark are applied in case of injury.
Martyniaannua L.	*The wound which is not getting cured, it gets cured by application of paste of fruit of this plant.
Plumbagozeylanica Linn.	*Root –paste is applied over the boils of face 2-3 times once in a day for 3-4 days and after removing the paste cow ghee should be applied over it.
Randiaulginosa DC	*For fractured bone, juice of bark of this plant is given orally and bark-paste is also applied externally.
Tinosporacordifolia Willd Miersex Hook f. & Thomas	*Juice of stem is administered orally in case of injury.
Vitisreparia Michx	*Leaf paste is applied locally over any kind of wound.
Woodfordiafruticosa Kurz.	*Paste of dried bark powder mixed with oil is applied over burnt area.

DISCUSSION AND CONCLUSIONS

The information collected from different tribal communities of Sonebhadra district and previous studies like Wealth of India (Anonymous 1948-1992), Indian Medicinal Plants (Kartikar & Basu), Medical ethnobotany of the tribals of Soneghati of Sonebhadra (A.K. Singh et al, 2002), Indian folk medicine and other plant based products (editor-V. Singh) etc. shows that these tribal people use a number of plants and plant parts on the basis of their acquired knowledge. As they live in forest and hilly area they and their cattles are more prone to cuts, fractures and injuries. Due to poor hygienic condition they usually also get skin infection like ring worm, itching etc. They often use medicine orally as well as for local application to cure fracture, cuts, wounds, injuries and various skin diseases. But due to urbanization and continuous exploitation of natural resources, traditional knowledge of these communities related to use of plants and other natural resources is depleting day by day. Hence, there is an urgent need for the preservation of flora of this region and systematic documentation of related traditional knowledge before it disappears. The claims emanating from present survey need to be studied pharmacologically and clinically. The purpose of this work is not to prescribe any remedies for above mentioned conditions but to document the uses and draw the attention of research scholars and pharmacologists for further scientific research in this field.

ACKNOWLEDGEMENTS

Authors are thankful to all the tribal communities of Myorpur and Chopan block of Sonebhadra district who have participated and cooperated for this survey study either directly or indirectly. We are also thankful to all teaching and non teaching staffs and Scholars of Department of Dravyaguna, Faculty of Ayurveda, IMS, Banaras Hindu University, Varanasi, Uttar Pradesh who have helped and supported for the study.

REFERENCES

1. https://Sonebhadra.nic.in.
2. Sankhiki Patrika2021, Sonebhadra; 33rd edition, Rajya Niyojana Sansthana, Arthevum Sankhya Prabhaga, Uttar Pradesh; Website- http//:updes.up.nic.in/spatrika.
3. Sankhiki Patrika2021, Sonebhadra; 33rd edition, Rajya Niyojana Sansthana, Arthevum Sankhya Prabhaga, Uttar Pradesh; Website- http//:updes.up.nic.in/spatrika p-37.
4. Sankhiki Patrika2021, Sonebhadra; 33rd edition, Rajya Niyojana Sansthana, Arthevum Sankhya Prabhaga, Uttar Pradesh; Website- http//:updes.up.nic.in/spatrika p-28.
5. A.K. Singh et al., Medical ethnobotany of the tribals of Soneghati of Sonebhadra district of Uttar Pradesh, India; Journa of Ethnopharmacology 81 (2002) p-31-41.
6. https://Sonebhadra.nic.in.
7. Groundwater Brochure of Sonebhadra District, UP by Dr. H.K. Pandey, Scientist C; Website- http:/cgwb.gov.in.

SUBSCRIPTION FORM

I want to renew/subscribe international class journal "**RFP Journal of Biochemistry and Biophysics**" of Red Flower Publication Pvt. Ltd.

Subscription Rates:

• Institutional: **INR 8000/USD 625**

Name and complete address (in capitals):_____

_____

Payment detail:
Online payment link: http://rfppl.co.in/payment.php?mid=15

Cheque/DD: Please send the US dollar check from outside India and INR check from India made payable to 'Red Flower Publication Private Limited'. Drawn on Delhi branch.

Wire transfer/NEFT/RTGS:
Complete Bank Account No. 604320110000467
Beneficiary Name: Red Flower Publication Pvt. Ltd.
Bank & Branch Name: Bank of India; Mayur Vihar
MICR Code: 110013045
Branch Code: 6043
IFSC Code: BKID0006043 (used for RTGS and NEFT transactions)
Swift Code: BKIDINBBDOS

Term and condition for supply of journals
1. Advance payment required by Demand Draft payable to **Red Flower Publication Pvt. Ltd**. payable at **Delhi.**
2. Cancellation not allowed except for duplicate payment.
3. Agents allowed 12.5% discount.
4. Claim must be made within six months from issue date.

Mail all orders to
Subscription and Marketing Manager
Red Flower Publication Pvt. Ltd.
48/41-42, DSIDC, Pocket-II
Mayur Vihar Phase-I
Delhi - 110 091(India)
Phone: 91-11-79695648
Cell: +91-9821671871
E-mail: sales@rfppl.co.in

Review Article

RFP Journal of Biochemistry and Biophysics
Volume 7 Number 2, July - December 2022
DOI: http://dx.doi.org/10.21088/rfpjbb.2582-3558.7222.3

Blood Culture Methods Advancing in Technology

Sachin C Narwadiya[1], Bharti R Vaidya[2], Neha Suthar[3]

How to cite this article:
Sachin C Narwadiya, Bharti R Vaidya, Neha Suthar/Blood Culture Methods Advancing in Technology/JBB Journal of Biochemistry and Biophysics. 2022;7(2):57–59.

Abstract

Culture and sensitivity (C & S) tests are the tests generally used for the detection of the causative microbes. The Culture and sensitivity tests are also important to know the resistance or sensitivity of a particular antibiotics to the microbes cultured and grown. It will be helpful for the physician to decide the line of treatment for the patients. Over period of 3-4 decades the technology of blood culture advanced which resulted into less time in results, easy testing. The BECTEC method is an automated blood culture systems are the important choice for the detection of pathogens from blood specimens. The automated method is better over the manual broth based conventional methods. The method requires laboratories to continuously monitored. The automated blood culture systems for the processing of blood culture specimens are taking lesser time more accuracy in present times. The present study involves the methods and its advancement in the diagnosis. The impact of saving lives due to adoption of advanced method over the conventional ones.

Keywords: Blood Culture; Culture and Sensitivity; Antibiotics; Public Health.

INTRODUCTION

A culture is aninitiation of a matter to an artificial growth culture medium such as liquid (broth), solid (agar), or cell culture lines. These can be classified as selective, non selective, or differential, depending on the growth support needed by microorganisms to be studied. Liquid and solid media are used to culture bacteria and fungi. The cell lines are used to culture viruses and chlamydiae. Culture media are contained in Petri dishes, test tubes, and dilution containers. After the material is introduced into the proper medium, the culture is incubated for a specific length of time (usually 48 to 72 hours for agar and 3 to 7 days for broth media), at a specific temperature [usually 95°F (35°C)], and under other conditions suitable for thesuspected microorganism (e.g., CO_2 for anaerobic culture). Another 24 hours are needed to identify the pathogen that is causing a particular infectious disease.

Author's Affiliation: [1,2]Research Scholar, School of Public Health, Poornima University, Jaipur 302022, Rajasthan, India, [3]Lecturer, Department of Medical Biochemistry, Surendra Dental College, Sriganganagar 335001, Rajasthan, India.

Corresponding Author: Sachin C Narwadiya, Research Scholar, School of Public Health, Poornima University, Jaipur 302022, Rajasthan, India.

E-mail: snarwadiya@gmail.com

Received: 18.07.2022

Accepted: 20.08.2022

In combining with the culture, microorganisms are tested for sensitivity to specific antibiotics. This is known as culture and sensitivity (C & S) testing. The bacteria are classified according to their response to antibiotics as (1) resistant (growth not inhibited), (2) sensitive (growth inhibited), or (3) intermediately sensitive (some inhibition).

Blood cultures are microbiological tests performed to help diagnose bacteremia, septicemia, or infectious diseases such as typhoid, plague, and malaria. When bacteria or fungi enter the blood stream, an infection of greater or lesser severity can occur. Pathogens entering the bloodstream from sites of soft tissue infection, contaminated intravenous (IV) lines, or invasive procedures such as minor surgery, tooth extraction, or cystoscopy do not usually lead to infections severe enough to cause sepsis. But ifthe infection is persistent or recurrent, may lead to septicemia, a life-threatening condition, i.e presenting with severe signs and symptoms of infection. Microorganisms are the most common in adultscausing septicemia are Staphylococcus aureus, gram negative rods such as Escherichia coli, Aerobacter spp. and Klebsiella spp.; in infants, microorganisms are E. coli and haemolyticstreptococcus.

For patients who have received antimicrobial therapy prior to the test, an antimicrobial removal device containing a resin is used to remove the inhibitory effects of antibiotics from the blood sample prior to culture. This practice allows for faster growth and identification of the organism.

Test results are recorded as negative without growth or as positive if growth occurs. After culture, the microbiologist identifies the pathogen based on colony characteristics, Gram staining methods and other biochemical tests. In the past 50 years ago, man had less advanced techniques and tests were mostly done manually. Now, in every industry, newer techniques are emerging day by day that allow the user to easily achieve results in less time than in the past. It was the same with Blood Culture.

A blood culture is a test prescribed to investigate foreign invaders such as bacteria, yeast, and other microorganisms in the blood. If any of these pathogens are present in the bloodstream, it will be a sign of a blood infection called a condition known as bacteraemia.

AUTOMATED BLOOD CULTURE METHODS

There are several automated blood culture systems are available commercially. Some of the most popular continuous monitoring blood culture systems are: BACTEC (Becton Dickinson and Company), BacT/ALERT (bio Mérieux), and Versa TREK (Thermo Scientific).

Composition of Bactec Blood Culture vials

All the BACTEC culture vials has soybean casein digest broth, yeast, amino acids, sugar, vitamins, and sodium polyanetholsulfonate. The resin containing vials hasnon-ionic adsorbing resins and cationic-exchange resins. Sodium polyanetholsulfonate is an anticoagulant and prevents the killing of bacteria by innate cellular and humoral factors. Resin neutralizes the effect of antibiotics present in the blood and increases the chances of recovery of the pathogen.[3]

The study executed by Anja von Laer et al. 2021 concluded that implementation of the automated Blood Culture in a resource limited setting is easy which can provide improvement in the microbiological diagnostic. The automated BC increased yield and shortened turn around times. Regular training and mentorship of clinicians must be intensified to increase number and quality of BC. Pre-analytical training to improve diagnostic stewardship is essential when new microbiological method implemented in the laboratory. The Bectec Dickinson system uses generation of CO_2 by the growing Mycobacterium tuberculosis bacteria as an indicator. This technology of sensing inbuilt into the cultured tubes can give the growth of bacteria too early than the conventional techniques.[1]

Automated continuous monitoring of blood cultures (CMBC) systems is having a key role in the clinical microbiology laboratory. Despite the critical role of these systems in the diagnosis of life-threatening bloodstream infections, their basic technology and performance characteristics have remained essentially unchanged since their introduction in the 1990s. This stability and uniformity allowed the development of qualitative measures such as percent positivity and contamination rate; subsequent diagnostics, e.g., as direct identification and sensitivity testing of microorganisms in positive cultures and clinical recommendations based on time to positivity or duration of bacteremia.[2]

CONCLUSION

The blood culture testing shifted to highly advanced mode. The newer method requires less time for reporting. Due to reduction in time for results the patients get benefits in line of treatment. The test results enable physician to decide the antibiotics to be administered to the patients. Thus, the advancing technology is saving lives and plays an important role in Public Health. The BECTEC method is well adopted by the microbiologists. The review study concluded that more advancement is further needed for the more benefits in future.

REFERENCES

1. Anja von Laer et.al (2021) published: 21 May 2021 doi: 10.3389/fmed.2021.627513, Frontiers in Medicine | www.frontiersin.org 1 May 2021 | Volume 8 | Article 627513.
2. Blake W. Buchana (2021), Commentary: Can Automated Blood Culture Systems Be Both New and Improved, Journal of Clinical Microbiology, Chavez et al. (J Clin Microbiol 60:e02261-21. 2021, https://doi.org/10.1128/JCM.02261-21).
3. Alikhani MY, Hashemi SH, Naseri Z, Farajnia S, Peeri-Dogaheh H. Diagnosis of Human Brucellosis by Blood Culture (BACTEC) and PCR Method via Whole Blood and Serum. Jundishapur J Microbiol.2013;6(3):248-51. DOI: 10.5812/jjm.5073.

Subject Index

Author Index

Guidelines for Authors

Manuscripts must be prepared in accordance with "Uniform requirements for Manuscripts submitted to Biomedical Journal" developed by international committee of medical Journal Editors

Types of Manuscripts and Limits

Original articles: Up to 3000 words excluding references and abstract and up to 10 references.

Review articles: Up to 2500 words excluding references and abstract and up to 10 references.

Case reports: Up to 1000 words excluding references and abstract and up to 10 references.

Online Submission of the Manuscripts

Articles can also be submitted online from http://rfppl.co.in/customer_index.php.

I) First Page File: Prepare the title page, covering letter, acknowledgement, etc. using a word processor program. All information which can reveal your identity should be here. use text/rtf/doc/PDF files. Do not zip the files.

2) Article file: The main text of the article, beginning from Abstract till References (including tables) should be in this file. Do not include any information (such as acknowledgement, your name in page headers, etc.) in this file. Use text/rtf/doc/PDF files. Do not zip the files. Limit the file size to 400 Kb. Do not incorporate images in the file. If file size is large, graphs can be submitted as images separately without incorporating them in the article file to reduce the size of the file.

3) Images: Submit good quality color images. Each image should be less than 100 Kb in size. Size of the image can be reduced by decreasing the actual height and width of the images (keep up to 400 pixels or 3 inches). All image formats (jpeg, tiff, gif, bmp, png, eps etc.) are acceptable; jpeg is most suitable.

Legends: Legends for the figures/images should be included at the end of the article file.

If the manuscript is submitted online, the contributors' form and copyright transfer form has to be submitted in original with the signatures of all the contributors within two weeks from submission. Hard copies of the images (3 sets), for articles submitted online, should be sent to the journal office at the time of submission of a revised manuscript. Editorial office: Red Flower Publication Pvt. Ltd., 48/41-42, DSIDC, Pocket-II, Mayur Vihar Phase-I, Delhi – 110 091, India, Phone: 91-11-79695648, Cell: +91-9821671871. E-mail: author@rfppl.co.in. Submission page: http://rfppl.co.in/article_submission_system.php?mid=5.

Preparation of the Manuscript

The text of observational and experimental articles should be divided into sections with the headings: Introduction, Methods, Results, Discussion, References, Tables, Figures, Figure legends, and Acknowledgment. Do not make subheadings in these sections.

Title Page

The title page should carry

1) Type of manuscript (e.g. Original article, Review article, Case Report)
2) The title of the article should be concise and informative;
3) Running title or short title not more than 50 characters;
4) The name by which each contributor is known (Last name, First name and initials of middle name), with his or her highest academic degree(s) and institutional affiliation;
5) The name of the department(s) and institution(s) to which the work should be attributed;
6) The name, address, phone numbers, facsimile numbers and e-mail address of the contributor responsible for correspondence about the manuscript; should be mentoined.
7) The total number of pages, total number of photographs and word counts separately for abstract and for the text (excluding the references and abstract);
8) Source(s) of support in the form of grants, equipment, drugs, or all of these;
9) Acknowledgement, if any; and
l0) If the manuscript was presented as part at a meeting, the organization, place, and exact date on which it was read.

Abstract Page

The second page should carry the full title of the manuscript and an abstract (of no more than 150 words for case reports, brief reports and 250 words for original articles). The abstract should

be structured and state the Context (Background), Aims, Settings and Design, Methods and Materials, Statistical Analyzis used, Results and Conclusions. Below the abstract should provide 3 to 10 keywords.

Introduction

State the background of the study and purpose of the study and summarize the rationale for the study or observation.

Methods

The methods section should include only information that was available at the time the plan or protocol for the study was written such as study approach, design, type of sample, sample size, sampling technique, setting of the study, description of data collection tools and methods; all information obtained during the conduct of the study belongs in the Results section.

Reports of randomized clinical trials should be based on the CONSORT Statement (http:// www. consort-statement. org). When reporting experiments on human subjects, indicate whether the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional or regional) and with the Helsinki Declaration of 1975, as revised in 2000 (available at http://www.wma. net/e/policy/l7-c_e.html).

Results

Present your results in logical sequence in the text, tables, and illustrations, giving the main or most important findings first. Do not repeat in the text all the data in the tables or illustrations; emphasize or summarize only important observations. Extra or supplementary materials and technical details can be placed in an appendix where it will be accessible but will not interrupt the flow of the text; alternatively, it can be published only in the electronic version of the journal.

Discussion

Include summary of key findings (primary outcome measures, secondary outcome measures, results as they relate to a prior hypothesis); Strengths and limitations of the study (study question, study design, data collection, Analyzis and interpretation); Interpretation and implications in the context of the totality of evidence (is there a systematic review to refer to, if not, could one be reasonably done here and now?, What this study adds to the available evidence, effects on patient care and health policy, possible mechanisms)? Controversies raised by this study; and Future research directions (for this particular research collaboration, underlying mechanisms, clinical research). Do not repeat in detail data or other material given in the Introduction or the Results section.

References

List references in alphabetical order. Each listed reference should be cited in text (not in alphabetic order), and each text citation should be listed in the References section. Identify references in text, tables, and legends by Arabic numerals in square bracket (e.g. [10]). Please refer to ICMJE Guidelines (http://www.nlm.nih.gov/bsd/uniform_ requirements.html) for more examples.

Standard journal article

[1] Flink H, Tegelberg Å, Thörn M, Lagerlöf F. Effect of oral iron supplementation on unstimulated salivary flow rate: A randomized, double-blind, placebo-controlled trial. J Oral Pathol Med 2006; 35: 540–7.

[2] Twetman S, Axelsson S, Dahlgren H, Holm AK, Källestål C, Lagerlöf F, et al. Caries-preventive effect of fluoride toothpaste: A systematic review. Acta Odontol Scand 2003; 61: 347–55.

Article in supplement or special issue

[3] Fleischer W, Reimer K. Povidone-iodine antisepsis. State of the art. Dermatology 1997; 195 Suppl 2: 3–9.

Corporate (collective) author

[4] American Academy of Periodontology. Sonic and ultrasonic scalers in periodontics. J Periodontol 2000; 71: 1792–801.

Unpublished article

[5] Garoushi S, Lassila LV, Tezvergil A, Vallittu PK. Static and fatigue compression test for particulate filler composite resin with fiber-reinforced composite substructure. Dent Mater 2006.

Personal author(s)

[6] Hosmer D, Lemeshow S. Applied logistic regression, 2nd edn. New York: Wiley-Interscience; 2000.

Chapter in book

[7] Nauntofte B, Tenovuo J, Lagerlöf F. Secretion and composition of saliva. In: Fejerskov O,

Kidd EAM, editors. Dental caries: The disease and its clinical management. Oxford: Blackwell Munksgaard; 2003. pp 7–27.

No author given

[8] World Health Organization. Oral health surveys - basic methods, 4th edn. Geneva: World Health Organization; 1997.

Reference from electronic media

[9] National Statistics Online—Trends in suicide by method in England and Wales, 1979–2001. www.statistics.gov.uk/downloads/theme_health/HSQ20.pdf (accessed Jan 24, 2005): 7–18. Only verified references against the original documents should be cited. Authors are responsible for the accuracy and completeness of their references and for correct text citation. The number of reference should be kept limited to 20 in case of major communications and 10 for short communications.

More information about other reference types is available at www.nlm.nih.gov/bsd/uniform_requirements.html, but observes some minor deviations (no full stop after journal title, no issue or date after volume, etc.).

Tables

Tables should be self-explanatory and should not duplicate textual material.

Tables with more than 10 columns and 25 rows are not acceptable.

Table numbers should be in Arabic numerals, consecutively in the order of their first citation in the text and supply a brief title for each.

Explain in footnotes all non-standard abbreviations that are used in each table.

For footnotes use the following symbols, in this sequence: *, ¶, †, ‡‡,

Illustrations (Figures)

Graphics files are welcome if supplied as Tiff, EPS, or PowerPoint files of minimum 1200x1600 pixel size. The minimum line weight for line art is 0.5 point for optimal printing.

When possible, please place symbol legends below the figure instead of the side.

Original color figures can be printed in color at the editor's and publisher's discretion provided the author agrees to pay.

Type or print out legends (maximum 40 words, excluding the credit line) for illustrations using double spacing, with Arabic numerals corresponding to the illustrations.

Sending a revised manuscript

While submitting a revised manuscript, contributors are requested to include, along with single copy of the final revised manuscript, a photocopy of the revised manuscript with the changes underlined in red and copy of the comments with the point-to-point clarification to each comment. The manuscript number should be written on each of these documents. If the manuscript is submitted online, the contributors' form and copyright transfer form has to be submitted in original with the signatures of all the contributors within two weeks of submission. Hard copies of images should be sent to the office of the journal. There is no need to send printed manuscript for articles submitted online.

Reprints

Journal provides no free printed, reprints, however an author copy is sent to the main author and additional copies are available on payment (ask to the journal office).

Copyrights

The whole of the literary matter in the journal is copyright and cannot be reproduced without the written permission.

Declaration

A declaration should be submitted stating that the manuscript represents valid work and that neither this manuscript nor one with substantially similar content under the present authorship has been published or is being considered for publication elsewhere and the authorship of this article will not be contested by any one whose name(s) is/are not listed here, and that the order of authorship as placed in the manuscript is final and accepted by the co-authors. Declarations should be signed by all the authors in the order in which they are mentioned in the original manuscript. Matters appearing in the Journal are covered by copyright but no objection will be made to their reproduction provided permission is obtained from the Editor

prior to publication and due acknowledgment of the source is made.

Approval of Ethics Committee

We need the Ethics committee approval letter from an Institutional ethical committee (IEC) or an institutional review board (IRB) to publish your Research article or author should submit a statement that the study does not require ethics approval along with evidence. The evidence could either be consent from patients is available and there are no ethics issues in the paper or a letter from an IRB stating that the study in question does not require ethics approval.

Abbreviations

Standard abbreviations should be used and be spelt out when first used in the text. Abbreviations should not be used in the title or abstract.

Checklist

- Manuscript Title
- Covering letter: Signed by all contributors
- Previous publication/ presentations mentioned, Source of funding mentioned
- Conflicts of interest disclosed

Authors

- Middle name initials provided.
- Author for correspondence, with e-mail address provided.
- Number of contributors restricted as per the instructions.
- Identity not revealed in paper except title page (e.g. name of the institute in Methods, citing previous study as 'our study')

Presentation and Format

- Double spacing
- Margins 2.5 cm from all four sides
- Title page contains all the desired information. Running title provided (not more than 50 characters)
- Abstract page contains the full title of the manuscript
- Abstract provided: Structured abstract provided for an original article.
- Keywords provided (three or more)
- Introduction of 75–100 words
- Headings in title case (not ALL CAPITALS).
  References cited in square brackets
- References according to the journal's instructions

Language and grammar

- Uniformly American English
- Abbreviations spelt out in full for the first time. Numerals from 1 to l0 spelt out
- Numerals at the beginning of the sentence spelt out

Tables and figures

- No repetition of data in tables and graphs and in text.
- Actual numbers from which graphs drawn, provided.
- Figures necessary and of good quality (color)
- Table and figure numbers in Arabic letters (not Roman).
- Labels pasted on back of the photographs (no names written)
- Figure legends provided (not more than 40 words)
- Patients' privacy maintained, (if not permission taken)
- Credit note for borrowed figures/tables provided
- Manuscript provided on a CDROM (with double spacing)

Submitting the Manuscript

- Is the journal editor's contact information current?
- Is the cover letter included with the manuscript? Does the letter:

1. Include the author's postal address, e-mail address, telephone number, and fax number for future correspondence?
2. State that the manuscript is original, not previously published, and not under concurrent consideration elsewhere?
3. Inform the journal editor of the existence of any similar published manuscripts written by the author?
4. Mention any supplemental material you are submitting for the online version of your article. Contributors' Form (to be modified as applicable and one signed copy attached with the manuscript)

Instructions to Authors

Submission to the journal must comply with the Guidelines for Authors.
Non-compliant submission will be returned to the author for correction.

To access the online submission system and for the most
up-to-date version of the Guide for Authors please visit:

http://www.rfppl.co.in

Technical problems or general questions on publishing with **JBB** are supported by Red Flower Publication Pvt. Ltd.'s Author Support team (http://rfppl.co.in/article_submission_system.php?mid=5#)

Alternatively, please contact the Journal's Editorial Office for further assistance.

Editorial Manager
Red Flower Publication Pvt. Ltd.
48/41-42, DSIDC, Pocket-II
Mayur Vihar Phase-I
Delhi - 110 091(India)
Mobile: 9821671871, Phone: 91-11-79695648
E-mail: info@rfppl.co.in