EDITIOAL

Management of autoimmune urticaria
Arun C. Inamadar, Aparna Palit ................................................................. 89

VIEWPOINT

Cosmetic dermatology versus cosmetology: A misnomer in need of urgent correction
Shyam B. Verma, Zoe D. Draelos ................................................................. 92

REVIEW ARTICLE

Psoriasiform dermatoses
Virendra N. Sehgal, Sunil Dogra, Govind Srivastava, Ashok K. Aggarwal .... 94

ORIGINAL ARTICLES

A study of allergen-specific IgE antibodies in Indian patients of atopic dermatitis
V. K. Somani .................................................................................................. 100

Chronic idiopathic urticaria: Comparison of clinical features with positive autologous serum skin test
George Mamatha, C. Balachandran, Prabhu Smitha ................................. 105

Autologous serum therapy in chronic urticaria: Old wine in a new bottle
A. K. Bajaj, Abir Saraswat, Amitabh Upadhyay, Rajetha Damisetty, Sandipan Dhar ................................................... 109

Use of patch testing for identifying allergen causing chronic urticaria
Ashimav Deb Sharma .................................................................................. 114

Vitiligoid lichen sclerosus: A reappraisal
Venkat Ratnam Attili, Sasi Kiran Attili ...................................................... 118
BRIEF REPORTS

Activated charcoal and baking soda to reduce odor associated with extensive blistering disorders
Arun Chakravarthi, C. R. Srinivas, Anil C. Mathew ................................................................. 122

Nevus of Ota: A series of 15 cases
Shanmuga Sekar, Maria Kuruvila, Harsha S. Pai ................................................................. 125

Premature ovarian failure due to cyclophosphamide: A report of four cases in dermatology practice
Vikrant A. Saoji ........................................................................................................................ 128

CASE REPORTS

Hand, foot and mouth disease in Nagpur
Vikrant A. Saoji ......................................................................................................................... 133

Non-familial multiple keratoacanthomas in a 70 year-old long-term non-progressor HIV-seropositive man
Hemanta Kumar Kar, Sunil T. Sabhnani, R. K. Gautam, P. K. Sharma, Kalpana Solanki, Meenakshi Bhardwaj ................................................................. 136

Late onset isotretinoin resistant acne conglobata in a patient with acromegaly
Kapil Jain, V. K. Jain, Kamal Aggarwal, Anu Bansal ................................................................. 139

Familial dyskeratotic comedones
M. Sendhil Kumaran, Divya Appachu, Elizabeth Jayaseelan .................................................. 142
Contents (Contd.)

Nasal NK/T cell lymphoma presenting as a lethal midline granuloma
Vandana Mehta, C. Balachandran, Sudha Bhat, V. Geetha, Donald Fernandes .......................... 145

Childhood sclerodermatomyositis with generalized morphea
Girishkumar R. Ambade, Rachita S. Dhurat, Nitin Lade, Hemangi R. Jerajani......................... 148

Subcutaneous panniculitis-like T-cell cutaneous lymphoma
Avninder Singh, Joginder Kumar, Sujala Kapur, V. Ramesh ..................................................... 151

Letters to Editor

Using a submersible pump to clean large areas of the body with antiseptics
C. R. Srinivas ........................................................................................................................................... 154

Peutz-Jeghers syndrome with prominent palmoplantar pigmentation

Stratum corneum findings as clues to histological diagnosis of pityriasis lichenoides chronica
Rajiv Joshi ............................................................................................................................................. 156

Author’s reply
S. Pradeep Nair ..................................................................................................................................... 157

Omalizumab in severe chronic urticaria
K. V. Godse ............................................................................................................................................ 157

Hypothesis: The potential utility of topical efornithine against cutaneous leishmaniasis
M. R. Namazi ............................................................................................................................................ 158

Nodular melanoma in a skin graft site scar
A. Gnaneshwar Rao, Kamal K. Jhamnani, Chandana Konda ....................................................... 159
Palatal involvement in lepromatous leprosy
A. Gnaneshwar Rao, Chandana Konda, Kamal Jhamnani ................................................................. 161

Unilateral nevoid telangiectasia with no estrogen and progesterone receptors in a pediatric patient
F. Sule Afsar, Ragip Ortac, Gulden Diniz ............................................................................................. 163

Eruptive lichen planus in a child with celiac disease
Dipankar De, Amrinder J. Kanwar ........................................................................................................... 164

Xerosis and pityriasis alba-like changes associated with zonisamide
Feroze Kaliyadan, Jayasree Manoj, S. Venkitakrishnan ............................................................................... 165

Treatment of actinomycetoma with combination of rifampicin and co-trimoxazole
Rajiv Joshi .................................................................................................................................................... 166

Author’s reply

Vitiligo, psoriasis and imiquimod: Fitting all into the same pathway
Bell Raj Eapen .............................................................................................................................................. 169

Author’s reply
Engin Şenel, Deniz Seçkin .......................................................................................................................... 169

Multiple dermatofibromas on face treated with carbon dioxide laser: The importance of laser parameters
Kabir Sardana, Vijay K. Garg ....................................................................................................................... 170

Author’s reply

Alopecia areata progressing to totalis/universalis in non-insulin dependent diabetes mellitus (type II): Failure of dexamethasone-cyclophosphamide pulse therapy
Virendra N. Sehgal, Sambit N. Bhattacharya, Sonal Sharma, Govind Srivastava, Ashok K. Aggarwal ................................................................................................................................. 171

Subungual exostosis
Kamal Aggarwal, Sanjeev Gupta, Vijay Kumar Jain, Amit Mital, Sunita Gupta ............................................ 173
Clinicohistopathological correlation of leprosy
Amrish N. Pandya, Hemali J. Tailor ................................................................. 174

**RESIDENT'S PAGE**

Dermatographism
Dipti Bhute, Bhavana Doshi, Sushil Pande, Sunanda Mahajan, Vidya Kharkar ................................................................. 177

**FOCUS**

Mycophenolate mofetil
Amar Surjushe, D. G. Saple ................................................................. 180

**QUIZ**

Multiple papules on the vulva
G. Raghu Rama Rao, R. Radha Rani, A. Amareswar, P. V. Krishnam Raju, P. Raja Kumari, Y. Hari Kishan Kumar ................................................................. 185

**E-IJDVL**

Net Study
Oral isotretinoin is as effective as a combination of oral isotretinoin and topical anti-acne agents in nodulocystic acne
Rajeev Dhir, Neetu P. Gehi, Reetu Agarwal, Yuvraj E. More ................................................................. 187

Net Case
Cutaneous diphtheria masquerading as a sexually transmitted disease
T. P. Vetrichewvel, Gajanan A. Pise, Kishan Kumar Agrawal, Devinder Mohan Thappa ................................................................. 187

Net Letters
Patch test in Behcet’s disease
Ülker Gül, Müzeyyen Gönül, Seray Külçü Çakmak, Arzu Kulç ................................................................. 187

Cerebriform elephantiasis of the vulva following tuberculous lymphadenitis
Surajit Nayak, Basanti Achariya, Basanti Devi, Satyadarshi Pattnaik, Manoj Kumar Patra ................................................................. 188

Net Quiz
Vesicles on the tongue
Saurabh Agarwal, Krishna Gopal, Binay Kumar ................................................................. 188

The copies of the journal to members of the association are sent by ordinary post. The editorial board, association or publisher will not be responsible for non-receipt of copies. If any of the members wish to receive the copies by registered post or courier, kindly contact the journal’s / publisher’s office. If a copy returns due to incomplete, incorrect or changed address of a member on two consecutive occasions, the names of such members will be deleted from the mailing list of the journal. Providing complete, correct and up-to-date address is the responsibility of the members. Copies are sent to subscribers and members directly from the publisher’s address; it is illegal to acquire copies from any other source. If a copy is received for personal use as a member of the association/society, one cannot resale or give-away the copy for commercial or library use.
Activated charcoal and baking soda to reduce odor associated with extensive blistering disorders

Arun Chakravarthi, C. R. Srinivas, Anil C. Mathew
Departments of Dermatology and Community Medicine, PSG Hospitals, Peelamedu, Coimbatore, India

Address for correspondence: Dr. C. R. Srinivas, Department of Dermatology, PSG Hospitals, Peelamedu, Coimbatore - 641 004, Tamil Nadu, India. E-mail: srini_cr_1955@yahoo.com

ABSTRACT

Background: Skin disease leading to extensive blistering and loss of skin is associated with a characteristic smell. Odor can cause physiologic disturbances such as increase in heart rate and respiratory rate. It can also cause nausea and vomiting and is disturbing to bystanders. Aims: To test odor reducing capability of activated charcoal. Methods: In this blinded experimental study we used putrefied amniotic membrane to produce odor and studied the effectiveness of activated charcoal and soda-bicarbonate to reduce odor. Results: Statistical analysis with Kruskal Wall’s Chi Square Test and Man Whitney U test showed significant reduction of odor using activated charcoal by itself or along with soda-bicarbonate. Conclusion: We recommend the usage of activated charcoal with/or soda bicarbonate as an inexpensive practical measure to reduce foul odor associated with extensive skin loss.

Key Words: Odor, Activated charcoal, Soda bicarbonate

INTRODUCTION

Patients with extensive blistering diseases, such as toxic epidermal necrolysis (TEN) and pemphigus, develop a characteristic malodor.[1] Possibly, it results from the generation of thiol group of chemicals by the infecting bacteria.[2] Odor-producing chemicals are generally of small molecular size, containing 3-4 to 18-20 carbon atoms. Molecules with the same number of carbon atoms but different structural configurations have different odors.[3] The olfactory threshold for different odor-producing chemicals varies.[3] Methyl mercaptan (a chemical present in garlic and which is structurally similar to the odor-producing chemicals in a putrefying material) can be recognized at a concentration of 0.0000004 mg/L, whereas ethyl ether is recognized at a concentration of 5.83 mg/L.[3] Unpleasant odor can induce nausea, vomiting and increased heart rate.[4] The present study was undertaken to find out whether activated charcoal and sodium bicarbonate are effective in reducing the odor commonly associated with extensive vesiculo-bullous disorders.

METHODS

During a study to standardize the use of amniotic membrane for covering extensive areas of skin loss associated with blistering disorders, we found that the amniotic membrane left as such at room temperature got putrefied and emitted malodor. The odor is due to chemicals containing thiol (SH) group.[2] We used putrefied amniotic membrane as the source material for malodor. A piece of amniotic membrane (2 × 2 cm²) was placed in each of the four identical plastic bottles containing 2 mL of normal saline. The bottles were closed and the tissues kept inside were allowed to putrefy at room temperature for 2 days. Another four plastic containers (20 × 15 × 8 cm) were taken. Small holes were made on the lid through which a plastic funnel was introduced [Figure 1]. The point of passage of the stem of the funnel through the lid was sealed with wax. Inside each plastic container two petri-dishes and a plastic bottle with putrefying amniotic membrane were placed. In the first container, the petri-dishes were left empty. In the 2nd container, 15 gm of activated charcoal was kept in one petri-dish and the other
was left empty. Charcoal was spread evenly over the petridish using a spatula. In the third container, instead of charcoal, same amount of sodium bicarbonate was kept in one of the petri-dishes. In the 4th container, both activated charcoal and soda bicarbonate were kept. The lids of the containers were closed and the opening of the funnel was blocked with a piece of cotton. All the plastic containers were covered with thick paper to look identical. Fifteen volunteers with informed consent were asked to grade the intensity of odor on a 10-point scale as described; the containers were placed on a table. The volunteer was asked to sit on a chair, remove the cotton plug from the opening of the funnel and smell at the level of the opening of the funnel. This was repeated for all the four containers with an interval of 15 min before each recording. The order of the containers for the volunteers to assess the smell was randomized. The intensity of smell in each container was recorded on a 10-point scale.

**RESULTS**

The data were analyzed using SPSS CPC (11.5 version). Statistical significance was assessed by Kruskal Walli’s Chi-squared test and the difference in intensity of smell between each sub-group was compared with Mann Whitney U-test. \( P < 0.05 \) was considered statistically significant.

The individual reading as recorded by each volunteer has been shown in Table 1.

Mean and standard error (SE) are shown in Table 2.

Different sub-groups were compared with Mann Whitney U-test (MW-U), which showed the following results. Specimen alone versus specimen with charcoal (MW-U = 49.0, \( P = 0.008 \)), and specimen alone versus specimen with charcoal and sodium bicarbonate (MW-U = 25.00, \( P = 0.000 \)) showed significant difference. However, the difference between specimen alone and specimen with sodium bicarbonate alone was not significant (MW-U = 83.00, \( P = 0.233 \)). There was significant difference between soda-bi-carb alone and soda-bi-carb with activated charcoal (MW-U = 49.000, \( P = 0.08 \)).

**DISCUSSION**

Bad odor can be masked to some extent by using fragrance,
which acts by stimulating different groups of receptors. However, the fragrance does not block the receptors that recognize malodor. Hence, the appropriate way to reduce bad odor would be to deplete the chemicals responsible for generating the odor. Activated charcoal is known to adsorb certain chemicals, and sodium bicarbonate neutralizes volatile sulfur-containing compounds.

Odors can be classified based on the degree of pleasant feeling. Pleasant odors are perceived in the left frontal brain. Malodorous stimuli evoke unpleasant emotions in the bilateral frontal lobes and extensive regions in the brain. Studies indicate that reaction time in response to unpleasant odors were significantly shorter than for pleasant odors as evidenced during affective judgment and right nostril stimulation, indicating greater efficiency of right cerebral hemisphere in decoding unpleasant affects induced by malodors. Oral malodor is caused by hydrogen sulfide, methyl mercaptan and dimethyl-sulfide as determined by gas chromatography.

The study indicates that activated charcoal by itself can significantly reduce bad odor and becomes more efficient when used along with sodium bicarbonate. However, sodium bicarbonate by itself was not significantly effective in reducing the malodor. Activated charcoal is cheap and easy to use. Controlled trials should be conducted to assess the quantity of activated charcoal to be used for this purpose and the frequency at which it has to be changed. In conclusion, the use of activated charcoal may prove to be an inexpensive method to reduce the foul odor associated with severe skin disorders.

**REFERENCES**