

JOURNAL OF HOSPITAL PHARMACY

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The Journal

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PEN

A Clinical Evaluation of Suddha Guggulu, Rasana Churana and Griva Vasti In Cases of Griva Stambha

JOHP

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ABSTRACT:

Ayurveda is the most ancient healing art. It has a history of thousands of year. It has its unique holistic approach in prevention from the diseases as well as cure. The man has acquired the art of healing by observing the nature. Its initial orientation was using the material from plants, animals & Mineral kingdom for this purpose. Today due to lifestyle and work many diseases arise among them cervical spondylosis is common one. In ayurveda it resembles with Griva stambha .It is a due to vata dosha .

Key words: Griva stambha, cervical spondylosis.

1.0 INTRODUCTION:

Among all the Doshas, vata dosha is a ruler of Tridosha. It is dominant in physical structure & function so eighty types of specific diseases of vata dosha are described in ayurvedic classics as nanatamaja vyadhi, while forty & twenty specific diseases of pitta & kapha are mentioned respectively.

Anatomically our body has been divided in six parts called as shadang i.e. Dwau Bahu (two upper limbs). Dwau sakthini (two lower limbs), shiro greeva (head & neck) and antaradhi (thorax & abdomen).

The incidence of various musculoskeletal disorders is increasing day by day due to modern life styles. All these are aggravating agent of vata dosha. When aggravated vata dosha localizes in greeva pradesh leads to Greeva stambha. In modern, greeva stambha resembles to cervical spondylosis. The main symptoms of cervical spondylosis are neck pain, paraesthesia, radiation of pain to back of head, shoulder & arms, restriThe present research work entitled "A

clinical Evaluation of Suddha Guggulu, Rasna Churna & Greeva Vasti in cases of Greeva Stambha (w.s.r. to Cervical Spondylosis) was conducted on 50 patients of Greeva Stambha

In present clinical study patients were selected on the basis of clinical features and radiological changes in cervical spine based on modern diagnosis and Ayurvedic treatment of research methodology. Selected patients were randomly divided into two groups :-

In Group-A : Drug therapy was given orally.

Rasna churna : 3 gm BD with luke warm water for 6 weeks

Suddha Guggulu : 500 mg BD for 6 weeks.

In Group-B : Drug therapies as in group A & Greeva Vasti (with Prasarni Taila) was be given by means of two courses in total period of 6 weeks as follFirst course of Greeva Vasti for two weeks 30 min/day.

ii) Interval for two weeks.

iii) Second course of Greeva Vasti for two weeks 30min/day.

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Material And Methods

In the present clinical study on Greeva Stambha, patients were regertered from O.P.D. and I.P.D. of State Ayurvedic College & Hospital, Lucknow. The patients reffered from other hospitals & clinical were also registered for trial. Patient were diagnosed on the basis of detail clinical examinations and necessary laboratory investigation.

Criteria For The Selection Of Patient :

The criteria for selection and diagnosis of cases for the present series of work as follows :-

1. Thorough personal history of patient i.e. age, sex, religion, occupation, marital status, diet, residential area, economic status, educational status, family history, duration of illness, history of trauma, ruksha, sheetal ahar, excessive vyayama emaciation due to any chronic illness, Anxiety (Chinta), Shoka, nature of onset of disease, nature of involvement of joints.
2. Detailed physical and systemic examination of patients on the basis of proforma specially prepared for the purpoa)

Clinical Diagnosis :-

1. Pain in neck
2. Stiffness of neck
3. Paresthesia
4. Restricted movement of neck
5. Referred pain to back of head, shoulder & arm
6. Sleep disturbance

b) Radiological Investigation :

X-Ray of cervical spine AP & lateral view showing narrowing of cervical intervertebral space & osteophytes. The patient showing more than 50% of the clinical features with positive X-ray findings were selected for the trial.

Doses And Administration Of Trial Drugs :

For present clinical study, patients of Greeva Stambha (cervical spondylosis) were randomly divided into two groups, 25 patients in each group.

Group- A : Drug therapy was given orally for six weeks.

Rasna Churna : 3 gm BD with luke warm water
Suddha Guggulu: 500 mg BD

Group-B : Drug therapy as in group A & Greeva Vasti with prasarni taila was given by means of two courses in the total period of 6 weeks as follows-

- i) First course of Greeva Vasti for two weeks; 30 min/day.
- ii) Interval for two weeks.
- iii) Second course of Greeva Vasti for two weeks, 30 min/day.

Laboratory Investigations :

The following laboratory investigation were undertaken before and after treatment.

Routine Investigations :

1. Haemogram
2. Blood Sugar (fasting and pp)
3. Alkaline phosphatase
4. R.A. Factor
5. Serum Uric acid
6. Serum calcium

Specific Investigation : X-ray cervical spine AP & lateral view, MRI.

Criteria For Exclusion Of Patients :

Following patients will not be registered for this study

1. Extra cervical ribs.
2. Patients having injury to cervical spine.
3. Diabetic neuropathy.
4. Gouty & Rheumatoid arthritis.
5. Torticollis
6. Cervical radiculopathy and myelopathy

Follow-up :

All the patients who had been registered for the clinical trial were carefully observed and data recorded in three follow-ups.

sazaj hindi

(teezpaat), azfar ul teeb, hab ul baan, badam sherein sokhta and mazo in roghan aas and roghane baan.²⁴

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Arab scholar Razi had also advised decoction of chuqandar in which small amount of boraq has been added for hair wash.²²

4. Pruritus:

Elderly patients often experience localized or generalized pruritus, which can be severe. The cause of itching in elderly patients is often difficult to determine. Renal, hematologic, endocrine, cholestatic, allergic, infectious, and malignant causes all potentially contribute to the elderly patient's itch.^{15, 16}

Treatment: Use of Mussafiyat Dam Advia along with local application of Murdar sang, safedah kashghari and kafoor mixed in roghan gul.²³

5. Pediculosis:

Parasitic lice particularly Pediculosis humanus humanus, Pediculosis humanus capitis (larger body louse), and Phthirus pubis (pubic louse) are known to infest hair-bearing areas of the human body and are common in elderly.^{15, 16}

Treatment: Bath with salty water, local application of Qust Talkh Zarawand Taweel, Hartal mixed in Sirka had been advocated by Akbar Arzani along with frequent dress change.¹⁷

6. Psoriasis:

Psoriasis is a common disorder characterized by well-defined, erythematous plaques covered with a silvery scale. Though the disease is commonly seen in young population but studies had revealed that in about 3% of persons with psoriasis first develop the disease after age 60.^{15, 16}

Treatment: Local application of Marham Safedah Kafoori, along with blood purifier medicine like Itrifal Shahtara.²³

7. Scabies:

Likewise of pediculosis infestation scabies is commonly seen in elderly, in elderly population the

reaction to the mite as an irritant and allergic dermatitis is muted but the patient itches severely, most often physicians misdiagnose and itching is attributed to senile pruritus, dry skin or anxiety.^{15, 16}

Treatment: Use of Gandhak (Sulphur) locally and use of compound drugs of Gandhak orally.¹⁷

Preparations That Prevent Premature Graying Of Hairs

The Greeko Arab Scholars were very much concern about premature greying of hairs they had advocated daily intake of Itriphal sagheer.^{22, 24} or, Itriphal kabeer can be used internally once a week.²⁴

Eminent Unani Scholars like Razi, Jurjani and Ibn Hubal Baghdadi had advocated use of Zoofae khushk 25g, zafran 10.5g, shakar 45.5g in powder form with daily dose of 7g of powder for betterment of hairs.^{14, 20, 22} Daily intake of harirah, oily foods and Milk and Itrifal sagheer is also advised.¹⁹

Ibn hubal baghdadi had advised protection from sun exposure and strong wind for healthy hairs, had also prescribed light exercise before meals, bath with clean water and positive psychology for betterment of skin and hairs.¹⁴

Black dye preparations:

Unani scholars preparations which being used as following manner-

- a. Shiqaiq un numan, flowers or leaves of baqla are admixed with roghane kunjad and applied over hair in the form of paste.²⁴
- b. First fry Mazo with Roghane Zaitoon and put it into powder form. Later Misk sokhta, Namak lahori, Phitkari, Mehdi are mixed with powdered Mazo and its paste is prepared in decoction of Barge Moarad.^{19, 22}
- c. Local application of oil prepared from Post Jooz (fresh outer covering of walnut),

Assessment Of Result :

The result was assessed on the basis of clinical and Radiological improvement. The result of present clinical trial has grouped in three categories.

A.) Relieved :

- i) Relief in sign and symptoms more than 70%.
- ii) Marked improvement of radiological findings.

B.) Improved :

- I) Partial relief in sign and symptoms about 40-70%.
- ii) Partial or favourable changes in radiological findings.

C.) Not Improved :

- I) Patient remained in severe, moderate grade .
- ii) No significant changes in X-Ray findings

Observation

In the present clinical trial 50 patients of Greeva Stambha (Cervical Spondylosis) were registered. Out of them 38 patients have completed the full course of trial and 12 patients did not complete the trial period because of unknown reason, hence dropped out from therapeutic observations. The clinical observation was made on 38 patients out of which 20 patients were registered in Group A and 18 patients were in group B.

The observations of clinical trial have been classified under following headings.

- 1. Aetiological Observation
- 2. Clinical Observation
- 3. Therapeutic Observation

Showing the comparative response of treatment on Sign and symptoms in 38 cases of Greeva Stambha (C.S.)

Groups	Response of treatment	Sign and Symptoms						
		1.) Greeva Shool (Neck Pain)	2.) Greeva Stambha (Stiffness of neck)	3.) Gaitra Suprata (Paresthesia)	4.) Greeva Hundana (Restricted Movement)	5.) Paniprishthashiroruja (Radiation of Pain to back head)	6.) Anidra (Sleep Disturbance)	7.) X-Ray findings
Group-A	BT	20	20	19	19	18	14	15
	Relieved	13	12	13	15	12	12	1
	%age	(65)	(60)	(68.4)	(78.94)	(66.7)	(85.7)	(6.66)
	Improved	6	7	5	3	6	2	0
	%age	(30)	(35)	(26.31)	(15.80)	(33.3)	(14.3)	(0)
	Not Imp.	1	1	1	1	0	0	14
Group-B	%ge	(5)	(5)	(5.25)	(5.26)	(0)	(0)	(93.3)
	BT	18	18	16	17	17	14	13
	Relieved	13	12	12	14	12	12	1
	%age	(72.2)	(66.7)	(75)	(82.4)	(70.6)	(85.7)	(7.69)
	Improved	4	6	2	2	5	2	0
	%age	(22.22)	(33.3)	(12.5)	(11.76)	(29.41)	(14.3)	(0)
	Not Imp.	1	0	2	1	0	0	12
%ge	(5.56)	(0)	(12.5)	(5.84)	(0)	(0)	(92.30)	

RESULT

The result was assessed on the basis of symptomatic relief and improvement in radiological findings. The result of present clinical trial was grouped in three categories (relieved, improved and not improved)

CONCLUSION

With the present clinical work entitled as "**A Clinical Evaluation of Suddha Guggulu, Rasna Churna & Greeva Vasti in cases of Greeva Stambha**" (w.s.r. to Cervical Spondylosis)" following conclusions have been drawn :-

1. Greeva Stambha is a disease described by Acharya Charak under the Vatik Nanatmaja Vikar. It is degenerative disease and nearly resembles with cervical spondylosis.
2. The common aetiological factors of Greeva Stambha are Mithya Ahara (irregular dietary habits), Atishram (excessive exercise), Viruddha Chesta (abnormal posture), Kalaj (Seasonal factors) Abhighata (trauma) and Dhaturkshaya (degeneration).
3. Vitiated Vayu circulates in the Asthi Vaha Srotas and localized in the Greeva Pradesh, thus produces the Greeva Stambha.
4. It is characterised by Greeva Shool (neck pain), Greeva Stambha (stiffness of neck), Gatra Suptata (paresthesia), Greeva Hundana (restricted movement of neck), Paniprishthashiroruja (radiation of pain to back of head, shoulder & arms) and Anidra (sleep disturbance).
5. Greeva Stambha is a disease of middle age persons. It is more common in males and Kapha-Vataj Prakriti persons. It is acquired (not familial) disorder having long duration of illness.

6. In observations the commonest presenting clinical features are Greeva Shool (100%), Greeva Stambha (100%) and Greeva Hundana (94.7%) restricted movement of neck.
7. The Haematological values (T.L.C., D.L.C. ESR, Hb%, serum calcium, serum uric acid) and biological values (temperature, pulse rate, respiratory rate, blood pressure) are within normal limit in cases of Greeva Stambha (C.S.).
8. The Radiological changes in Greeva Stambha are loss of lordotic curvature (76.32%), Osteophytes formation (89.5%) and reduced intervertebral disc space (52.63%).
9. In group-A Shuddha Guggulu, Rasna Churna had given orally and in group -B Shuddha Guggulu, Rasna Churna and Greeva vasti with Prasarni taila had given.
10. The response of treatment in group B with Greeva vasti (66.6%) and only with drugs in group A (60%)
11. The responses of treatment on symptoms are more than radiological improvements.
12. The total responses of treatment are in group A, 12 (60%) patients are relieved, 6 (30%) patients are improved and 2 (10%) patients are not improved. In group B, 12 (66.6%) patients are relieved 5 (27.8%) are improved and 1 (5.6%) patients are not improved.
13. With these drugs no any side effects have been observed during the period of trial. So drug therapy (Suddha Guggulu & Rasna churna) are well accepted and well tolerated regimen for the patients of Greeva Stambha (C.S.) as long term therapy.
14. The Drugs (Suddha Guggulu & Rasna Churna) has an analgesic, anti-inflammatory, neurotropic and prevents degeneration of body tissues. The Greeva Vasti with Prasarni Taila

Yabis so they are treated by measures which are har rata; they should live in places which are not dry but the environment may be kept as of Mausame Rabeey (Spring Season).¹³ They should live in houses which have good ventilation.¹⁴

For general skin ailments Unani physicians had advised use of Ratab Roghanyat (oils of wet temperament) for topical application¹⁴

The great Unani scholar Ibn Hubabl Baghdadi in his book Kitabul Mukhtarat Fit Tib advised elderly to take frequent Hammam and Abzan, and also advised to take rest after Hammam and Abzan.¹⁴ But another eminent scholar Majoosi the Mashaikh which are of old age may not take bath daily but bath once or twice a month.¹³

Common Skin Disorders In Elderly And Unani Medicine Treatment

- Eczematous disorders^{15,16}
- Xerosis^{15,16}
- Seborrheic dermatitis
- Pruritus^{15,16}
- Stasis dermatitis^{15,16}
- Scabies^{15,16}
- Pediculosis^{15,16}
- Onychomycosis^{15,16}
- Seborrheic dermatitis^{15,16}
- Psoriasis^{15,16}

1. Eczematous disorders:

In the elderly, natural aging of the skin predisposes patients to eczematous diseases, the chief complaint of most of elderly is often of a pruritic (itchy) rash or lesion that turns out to be an eczematous disease. A study in Russian population suggested the prevalence of disease more than 20%.^{15,16}

Treatment: Regarding treatment of this common disease ancient unani scholar had advised

use of Mazu with Sirka or Murdar Sang with with Roghan Gul for local application.¹⁷

2. Xerosis:

Dryness of skin is commonly observed in elderly due to deficits in skin hydration and lipid content. In addition of this old age results in altered lipid profiles and in decreased production of filaggrin, which are filament associated proteins that bind keratinocytes. A combination of above two leads to xerosis, this condition may be present as Cracking of skin of dorsum of feet or cracking of palm.^{15,16}

Treatment : Unani scholars had advised Use of roghan mom, gond ban, meeyah saelah, qatran for local application (tar/ goudron) and aard til.¹⁴ Application of roghan banafsha, mom zard and barzad (Ferula galbaniflua) is also advised locally.¹⁸ Mom, banafsha, katira, nishastah, luabe bahidana, shahm buz after fomentation of affected area with hot water is also found to be effective.¹⁸

3. Seborrheic dermatitis:

Seborrheic dermatitis of the scalp (dandruff) is common in all age groups after puberty, but involvement of the face and chest is also common in the elderly, particularly those with compromised skin care. The eyebrows, eyelids, nasolabial folds, and postauricular and beard areas are most commonly affected, but the central chest and interscapular areas can also be affected.^{15,16}

Treatment: Regular application of roghane gul with sirka.¹⁹ is found to be effective in curing the disease condition, also eminent unani scholar ismail jurjani had advocated the use of barge kunjad with arde nakhod locally.²⁰ he had also advised about Application of arde nakhod, khatmi mixed with sirka in huzaz.²⁰ Aab chukandar, ard nakhod, khatmi, suboos gondhum, with sirka as hair wash preparation is also found to be effective,²¹ another

organs decreases progressively between ages 10 and 90 by about one third. The result is an age-related reduction in sensations of light touch, vibration, corneal sensitivity, two-point discrimination, and spatial acuity. The cutaneous pain threshold increases by about 20%.^{1,2,6,12}

Glands: The number of eccrine glands declines by an average of 15% during adulthood. Moreover, decreased output of secretion per gland can result in marked decreases of spontaneous sweating in elderly skin in response to dry heat (by as much as 70% in one study). These changes, compounded by decreased cutaneous vascularity, appear to predispose the elderly to heatstroke.^{1,2,6,12}

Hair substantially grays in about 50% of persons by age 50, apparently due to loss of melanocytes.^{1,2,6,12}

Hair loss from the vertex and frontotemporal regions (androgenetic alopecia) in men begins between the late teens and the late 20s; by the time they reach their 60s, 80% of men are substantially bald. In women, the same pattern of hair loss may occur after menopause, although it is rarely pronounced. Excessive or unwanted hair is also common after menopause in women, presumably as a result of the altered estrogen-androgen balance in hormonally sensitive hair follicles. The most common complaint is the appearance of scattered terminal hairs in the beard area. Even men may notice increased hair length in the eyebrows, nares, or ears.¹

^{2,6,12}

Nails: The thickness, shape, color, and growth rate of the nails change with age, reflecting changes in the supporting nail bed and germinative matrix. Nails become dry and brittle and flat or concave instead of convex,^{1,2,6,12}

Percutaneous Drug Absorption Aging's effect on percutaneous drug absorption is partially

dependent on the properties of the topical drug.^{1,2,6,12}

MANAGEMENT PRINCIPLES

The elderly patient who presents with a skin condition should be asked about use of potential irritants, such as rubbing alcohol and detergents. The patient's concept of the skin condition and expectations for therapy should also be discussed.^{2,12}

Maximizing compliance:

The prescribed treatment regimen should be as simple as possible and should be tailored to the patient's physical capabilities. For example, a patient who has difficulty applying a topical medication because of neurologic impairment or arthritis may need a back scratcher-like applicator for hard-to-reach dematoses. In some situations, the assistance of a visiting nurse may be necessary.²

The elderly are 2 to 3 times more likely to experience adverse reactions to antihistamines and corticosteroids, which are frequently used to treat skin disorders. These drugs, therefore, should be prescribed reluctantly and always with clear written instructions. The physician must also consider that regimens that are virtually trouble-free for younger patients, such as adding oil to bathwater, may pose a danger to the elderly.¹

General Nursing Interventions:^{1,2}

Promote the use of sun block and tell patient to avoid overexposure.

Avoid the use of soaps that dry skin and use a lotion after baths.

Protect high-risk areas such as elbows and heels with padding.

Refer to a podiatrist.

Help older adult maintain personal appearance

APPROACH OF UNANI MEDICINE IN TREATING SKIN DISORDERS

The Mizaj of Mashaikh (Elderly) is Barid

has an analgesic and muscles relaxant effects.

15. Thus the drug therapy (Suddha guggulu & Rasna Churna) Prasarni Tail is a comparatively economical, safe and effective regimen for the treatment of Greeva Stambha (cervical sypondylosis).
16. The trial was for short duration, so extend trials for longer duration are suggested.

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Pharmacological Study of Padm-Keshar (Nelumbo Nucifera) On Dysfunctional Uterine Bleeding (DUB)

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ABSTRACT

The Lotus (*Nelumbo nucifera*) is most celebrated flower. It usually symbolizes ideas of beauty and immortality in many of the ancient cultures, and religions. In Vedas Upanishad, Puranas, description is found very much. Stamens of *Nelumbo nucifera* is used for the research work. Dysfunctional uterine bleeding (DUB) is an abnormal vaginal bleeding without any pelvic pathology. IN DUB, all types of irregular and abnormal uterine bleeding such as (Polymenorrhagia or epimenorrhagia, metrorrhagia, menorrhagia) include. To find out the action of padm-keshar (*Nelumbo nucifera*) on DUB with the help of modern parameter, the present work has been taken.

KEYWORDS

Lotus (*Nelumbo nucifera*), Dysfunctional Uterine Bleeding (DUB)

1. INTRODUCTION

Women's health is prime importance to get a health society. If lady doesn't have regular menstrual period, she can't get good health. Now a days, In women's disease Dysfunctional uterine bleeding is one of the most common disease.

1.1. About the Disease

According to modern, Dysfunctional uterine bleeding (DUB) is an abnormal vaginal bleeding, not due to a physical cause that occurs in women in their reproductive years (who have previously started menstruation and not reached menopause). DUB is diagnosed after all other causes of abnormal uterine bleeding are ruled out. This includes infection, tumors, disease, early pregnancy disorders or structure problems.

DUB may be caused by an imbalance of hormones related to ovulation (Estrogen or progesterone).

DUB is most common at the extreme ages of women's reproductive years, either at the beginning or near the end, but it may occur at any time during her reproductive life. Approximately 20% cases of DUB occur in adolescents and 40% in women over 40.

i.e. irregular and acyclic bleeding in more amount is known as Asrugdara.

Ayurveda Treatment is designed to balance tridoshas, Sapta dhatus and malas, thus it focus causes & symptoms of a disease.

There are several drugs are described in Ayurvedic texts. In these drugs Padm-Keshar[*Nelumbo Nucifera*] is selected for the treatment of DUB.

1.2. About the Selected Drug

In Ayurvedic texts it is described as follows ;

According to Sushruta Samhita, this drug is described in Priyangvadi and Ambasthadi gana. It is used in Pittaj Vikara.

Padm-Keshar works as haemostatic agent, due to:-

The cellular damage imposed by this errant oxidative stress inexorably disseminates outward to the level of tissues and organs, where it finally presents itself some or other form of degenerative disease.^{1,2,3,4,5}

THE UNANI CONCEPT

According to concept of Unani Medicine, the age of senescence is called as *Sinne Shaikhookhat*.

Mizaj of this age is *Barid Yabis* (extremely).

During this stage, quantity of the *Rutoobate Ghareeziya* is deficient and lesser than the quantity required for the preservation of *Hararate Ghareeziya*. There is also dominance of *Rutoobate Ghareeba*. In this period, there is an insidious decline in organ functions,^{7,8,9,10} skin and its appendages also get effected by this change, which leads to various physical changes in skin and its appendages.

Most physical changes that occur with ageing are gradual and take place over a long period of time. In addition, the rate and degree of change varies among individuals.^{2,4,6,12}

CHANGES IN SKIN AND APPENDAGES

Production of new skin cells decreases, Oil and Sweat glands become less active, Circulation decreases, Hair losses color, and hair loss occurs; Skin becomes less elastic & dry.^{1,2,6,12}

Epidermis:

Histologically, there is a striking and consistent flattening of the dermal-epidermal junction--a diminished number of interdigitations--which results in a considerably smaller contact surface area between the dermis and epidermis. This age-related change probably compromises communication and nutrient transfer between epidermis and dermis, affecting the mechanical, barrier, and immunologic functions of the epidermis.^{1,2,6,12}

Moreover, epidermal-dermal separation occurs more readily in elderly skin, as manifested by

the propensity of elderly skin to tear or blister.^{1,2,6,12}

Elderly skin often appears dry and flaky, especially over the lower extremities, at least partly due to a dramatic age-associated decrease in epidermal filaggrin in this area of skin. Filaggrin is a protein required for the binding of keratin filaments into macro fibrils.^{1,2,6,12}

Dermis:

Loss of dermal thickness averages about 20% in elderly persons overall and is generally greater in photo damaged skin. UV damage produces hyper plastic changes initially, followed by atrophic changes, particularly in fair-skinned persons. These opposing changes probably explain observed variations in the effects of photo damage. In sun-protected skin, there is a relative decrease in cellularity and vascularity. Elderly skin has a 50% decrease in mast cells and a 30% decrease in venular cross-sectional area. Following UV radiation, these decreases are associated with a corresponding decrease in release of histamine (a mast cell product) and other measures of inflammatory response.^{1,2,6,12}

Dysregulation of collagen synthesis and collagen degradation in the elderly probably contribute to impaired wound healing.^{1,2,6,12}

Subcutaneous Fat:

The overall volume of subcutaneous fat usually diminishes with age, although the proportion of body fat actually increases until age 70. Fat distribution changes as well; eg, there is a relative decrease in subcutaneous fat on the face and hands but a relative increase on the thighs and abdomen. In some instances, these changes in the elderly can limit the function of subcutaneous fat, such as its ability to diffuse pressure over bony areas (eg, the ischial tuberosities in bedridden patients).^{1,2,6,12}

Appendages:

Nerves: The density of cutaneous sensory end

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ABSTRACT

Aging is a natural process, all living beings of this earth aged with time so like humans. Aging in one or more ways affects all system of body including skin and Integumentary system. Senile age group people are prone to some common disorders related to skin and its appendages. Greek-Arab System of medicine is a time tested traditional medicine curing the humanity by using natural herbs and drugs. Scholars of this System of medicine had elaborately discussed the concept of aging, its causes and managements of illnesses associated with aging. This paper aims at reviewing the classical literature of Greek-Arab System of Medicine regarding aging and its exploring treatment with natural herbs to be used in dermatological ailments of elderly.

KEYWORDS

Aging; Greek-Arab Medicine; Integumentary system; Dermatological ailments

INTRODUCTION

Senescence refers only to the degenerative processes that ultimately make continued life impossible. It is stated that the Senescence is a process by which the capacity for cell division, growth, and function is lost over time (due to ageing), ultimately leading to an incompatibility with life. It can be stated that the process of senescence terminates in death.^{1,2,3,4}

The exact cause of aging is unknown but there are certain proposed theories regarding aging and it is believed that the aging may be results due to combination of these one or more theories.^{1,2,3,4,5}

THE FAULTY RECONSTRUCTION THEORY

It argues that, as one ages, the repair process begins to produce faulty reconstruction materials that compromise the repair job and undermine the cell as for example reanimating a house with poor quality materials that lessen its final structure.^{1,2,3,4,5}

IMMUNO-SUPPRESSION THEORY

This theory suggests that the thymus may play a significant role in the aging process. According to this theory Age-related diminution in the size of the thymus seems to correspond to a diminution in immune systems.^{1,2,3,4,5}

FREE RADICAL THEORY OF AGING

this theory believes that, aging occurs after permanently damaged of cells from the life-long and stern attack of charged molecular particles, called as free radicals.

Madhura, Kasaya & katu Rasa, Madhura Vipaka, Sheeta Virya.

Therefore, Present study is based only on DUB.

1.3. Aims & Objectives of the Study

- To evaluate the efficacy of Padm-keshar in the management of Dysfunctional uterine bleeding.
- To provide a drug which is very effective and has no side effects.
- To compare the effect of padm-keshar and tranexamic acid w.s.r. to DUB.

2. MATERIAL AND METHODS

For this research work 45 patients were selected randomly.

- 1 Grouping has been done
- 2 In group A (treated group)-30 patients had been treated with Padm - Keshar Churna in a dose of 3gms B.D orally with water for the period of three months regularly.
- 3 In group B (control group)-15 patients had been treated with tranexamic acid 500 mg T.D.S orally with water, for first three days of onset of menstrual cycle consequently for 3 months.

2.1. Inclusion Criteria

- Age-16-35 yrs.
- History of irregular and excessive menstrual bleeding.
- Patient which was affected from D.U.B for 3 months.

- Laboratory investigations reveal no systemic illness.

2.2. Exclusion Criteria

- The patient accompanied with ovarian cyst, PCOD, Ovarian mass, uterus fibroid carcinoma etc.
- Thyroid problem.
- Non-co-operative patient

3. ASSESSMENT OF CRITERIA OF SEVERITY

3.1. Subjective Assessment

Based on the:

- Amount of menstrual flow.
- Duration of flow.
- Interval between menstrual cycle.
- Body ache.
- Weakness.
- Pallor.

3.2. Objective Assessment

The objective assessment was done on the basis of the investigation reports of the patients before and after trial.

4. OBSERVATIONS

In the present study the efficacy of Padm-keshar churna has been evaluated in the patients of Dysfunctional uterine bleeding. Each and every case has under gone complete clinical examination and laboratory investigations. It is as follows -

Comparative study of effect of therapy in both groups on symptoms of Dysfunctional uterine bleeding:

Table N0. 1. Showing pattern of clinical Results in the amount of menstruation

Group	N	Mean		Dif.	% of Change	SD	SE	T	P
		BT	AT						
A	30	1.77	0.73	1.03	58.49	0.67	0.12	8.46	<0.001
B	15	2.13	0.67	1.47	68.75	0.52	0.13	11.00	<0.001

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Table N0. 2. Showing pattern of clinical Results in the Duration of menstruation

Group	N	Mean		Dif.	% of Change	SD	SE	T	P
		BT	AT						
A	30	1.27	0.33	0.93	73.68	0.78	0.14	6.51	<0.001
B	15	1.33	0.60	0.73	55.0	0.46	0.12	6.20	<0.001

Table N0. 3. Showing pattern of clinical Results in the Interval b/w menstruation

Group	N	Mean		Dif.	% of Change	SD	SE	T	P
		BT	AT						
A	30	1.40	0.53	0.87	61.90	0.57	0.10	8.31	<0.001
B	15	1.47	1.20	0.27	18.18	0.46	0.12	2.26	>0.05

Table N0. 4. Showing pattern of clinical Results in the Bodyache

Group	N	Mean		Dif.	% of Change	SD	SE	T	P
		BT	AT						
A	25	1.48	0.52	0.96	64.86	0.68	0.14	7.10	<0.001
B	10	1.90	1.50	0.40	21.05	0.52	0.16	2.45	>0.05

Table N0. 5. Showing pattern of clinical Results in the Weakness

Group	N	Mean		Dif.	% of Change	SD	SE	T	P
		BT	AT						
A	29	1.76	1.10	0.66	37.25	0.67	0.12	5.27	<0.001
B	14	1.57	1.50	0.07	4.55	0.27	0.07	1.00	<0.10

Table N0. 6. Showing pattern of clinical Results in the Pallor

Group	N	Mean		Dif.	% of Change	SD	SE	T	P
		BT	AT						
A	28	1.71	1.00	0.71	41.67	0.68	0.13	5.59	<0.001
B	12	1.00	0.58	0.42	41.67	0.49	0.14	2.96	>0.02

Table N0. 7. Showing pattern of clinical Results in the Thirst

Group	N	Mean		Dif.	% of Change	SD	SE	T	P
		BT	AT						
A	20	1.85	0.65	1.20	64.86	0.95	0.21	5.64	<0.001
B	8	1.13	1.00	0.13	11.11	0.35	0.13	1.00	<0.10

Table N0. 8. Showing pattern of clinical Results in the Burning sensation (Daha)

Group	N	Mean		Dif.	% of Change	SD	SE	T	P
		BT	AT						
A	14	1.29	0.64	0.64	50.00	0.99	0.26	2.44	<0.02
B	4	1.00	0.50	0.50	50.00	0.58	0.29	1.73	<0.10

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Table No. 9. Showing pattern of change in hemoglobin gm/dl Group -A

Investigation	N	Mean		Dif.	% of Change	SD	SE	T	P
		BT	AT						
HB	30	10.43	10.87	0.44	4.19	0.57	0.10	4.21	<0.001

Group B

Investigation	N	Mean		Dif.	% of Change	SD	SE	T	P
		BT	AT						
HB	15	10.74	10.81	0.07	0.68	0.17	0.04	1.70	<0.10

5. DISCUSSION

Comparative results of the effect of therapy after treatment in both groups:

Table No. 1 shows, % of change in the amount of menstruation is 58.49%. 't' value is 8.46, 'p' value is < 0.001, so it shows highly significant in group-A.

In group-B % of change is 68.75%, 't' value is 11.00, 'p' value is <0.001, it also shows highly significant.

Table No. 2 shows, in group-A % of change is 73.68%, 't' value is 6.51, 'p' value is <0.001, it shows highly significant in the duration of menstruation.

In Group -B, % of change is 55.0%, 't' value is 6.20, 'p' value is <0.001, it shows highly significant.

Table no. 3 Showing that clinical result in interval b/w menstruation in group-A, % of change is 61.90%, 't' value is 8.31, 'p' value is <0.001 i.e. highly significant.

In Group-B % of change is 18.18% 't' value is 2.26, and 'p' value is >0.05 it shows significant results.

Table No. 4 showing results in Body ache, In Group-A % of change is 64.86%, 't' value is 7.10, 'p' value is <0.001 i.e. highly significant.

In group-B % of change is 21.05%, 't' value is 2.45, 'p' value is >0.05, i.e. significant results.

Table no. 5 Showing results in weakness. In group-A, % of change is 37.25%, 't' value is 5.27, 'p' value <0.001 i.e. highly significant.

In Group B % of change is 4.55%, 't' value 1.00, 'p' value is <0.10, so it is insignificant.

Table No. 6, shows in pallor, % of change is 41.67% and 't' value is 5.59, 'p' value <0.001 so it is highly significant group-A.

In group-B % of change is 41.67%'t' value is 2.96, 'p' value >0.02 i.e. showing significant result.

Table No. 7 showing in the symptom of thirst, in group-A , % of change is 64.86%, 't' value is 5.64, 't' value is <0.001 i.e. highly significant.

In group-B, % of change is 11.11%, 't' value is 1.00, 'p' value is <0.10, so it is insignificant.

Table No. 8 Showing results in Burning sensation, in group A % of change is 50%, 't' value is 2.44, 'p' value is <0.02, so it is significant.

In group-B % of change is 50%, 't' value is 1.73, 'p' value is <0.10 so it is insignificant.

Table no. 9 showing change in Hb gm/dl. After treatment, % of change is 4.19%, 't' value is 4.21 and 'p' value is <0.001. It shows highly significance.

In group-B, % of change is 0.68%, 't' value is 1.70, 'p' value is <0.10, so it is insignificant.

6. PROBABLE MODE OF ACTION

6.1. About Padm- Keshar

- In Aurvedic approach, Padm-keshar shows sangrahi activity due to the kashaya Rasa and sheeta virya so, it coagulate bleeding.

- Presence of tannin shows coagulation property.
- Due to the, sheeta virya, resulted in relief in thirst.
- Presence of Iron shows,haematinic property, so Hb gm% of patients is increased.
- Presence of Carbohydrate, fats and oils resulted relief in weakness.
- Padm- keshar being a Ayurvedic drug. It is more effective in the symptoms of DUB.

6.2. About the Tranexamic Acid

It is a modern drug. Due to the chemical substance. It acts only in symptom of excessive menstrual bleeding. It has showed recurrence of DUB. and showed insignificancy in almost symptoms of DUB except excessive menstrual bleeding.

So it can be said that padm-keshar is more effective than Tranexamic acid in all symptoms of DUB.

7. CONCLUSION

The study entitled “Pharmacological study of padm-keshar on Dysfunctional uterine bleeding.”

The following conclusion was drawn from this research work:

- It is essential to aware women about this disease as they get treatment in early stage.
- Psychological counselling is very effective along with medicine.
- Kaphaja prakriti women are less prone to this disease in comparison to vatic, paittika or dwandwaja prakriti.
- Women prefer to take Ayurvedic drug than modern drug.
- Padm-keshar is used in this study, has proved very effective in treating, symptoms of DUB then control drug.
- Padm-keshar is used is this study, has proved very effective in treating, symptoms of DUB.

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associated with various diseases²⁶ (Holick, 2006).

Vitamin D deficiency is so common as to represent a major public health problem²⁷(Cardinal & Gregory, 2009). The prevalence of vitamin D insufficiency is high in South Asian countries¹¹(Chan, Scott & Sen, 2010; Islam et al., 2010).

CONCLUSION

It is very much distressing that Asia-Pacific region is a dwelling to malnourished people. To affray malnutrition and chronic diseases caused by insufficiency of different vitamins including calcium, it is necessary to educate general public. The students studying pharmacy have an extensive academic background related to biological sciences

therefore it is necessary for them to grasp appropriate information regarding essential nutrients for human body as well. The government and policy makers should also implement educational programs in the benefit of common man so as to have improved quality of life.

STUDY LIMITATIONS AND SUGGESTIONS

Only few universities in Karachi running Pharm.D program were covered for this study and in future more universities all over Pakistan could be enrolled to assess the level of awareness and knowledge of pharmacy students. This would identify the gaps in the specific areas in their studies and practice as well. The knowledge and attitude of public towards health should also be addressed.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

Table: Awareness and knowledge regarding Calcium / Vitamin D in students

Questions	Yes (%)	No (%)
Source of knowledge regarding Calcium/ vit. D	55.68	
Teachers	47.05	—
Text books + Teachers	18.56	
Others (leaflets, magazines, newspapers, etc)		
Know importance of Calcium/ vit.D	99.20	0.80
Know what is osteoporosis	98.8	1.2
Know what is rickets	81.1	18.9
Know what is hypovitaminosis	57.6	42.4
Know what is BMD test	97.2	2.8
Ever taken BMD test	7.05	92.95
Dark skin persons are more prone to vit. D deficiency	23.50	76.50
Some drugs interfere with vit. D metabolism	78.0	22.0

regarding calcium and vitamin D among the university going pharmacy students who form a reputed part of the healthcare system. Their role as healthcare expert can play a notable part in improving the quality of life of public.

METHODOLOGY

Participants:

All the participants in the study were undergraduate pharmacy students from three different universities in Karachi, Pakistan who had been taught about the subject up to satisfactory level in pharmacy curriculum. The study was conducted from November, 2013 to March, 2014. There were total n=255 students (83.5% females, 16.4% males) who participated in this study. The questionnaires were filled by the students in presence of researchers and were returned on the same day.

Statistical analysis:

The data was then assessed using descriptive analysis. Statistical analysis was done using the software SPSS® version 16.0.

Ethical consideration:

It was a simple question based survey and no invasive methods were used; therefore, only oral consent was taken from the students for participation in the study.

RESULTS AND DISCUSSION

Vitamin D deficiency is very common representing a major public health predicament especially in South Asian countries²⁴(Zamboni et al., 2002). The students studying Pharmacy are expected to have satisfactory information of the essentiality of calcium and vitamin D and the consequences due to their deficiency as they are considered as distinguished part of healthcare system. In this study, n=255 students of Doctor of

Pharmacy course (Pharm.D) participated and responded to a performa containing different questions about the sources, significance, daily requirements and some related terms to calcium and vitamin D. The results showed that (n=253) 99.2 % of the students were familiar with the importance of calcium and vitamin D in bone health. Regarding the source of their knowledge about calcium and vitamin D, students answered that they first knew about these dietary nutrients from either their teacher (n=142, 55.68%) or from textbooks (n= 120, 47.05%) (Table). Most of the students were able to mention two food items rich in Calcium (88.62%) and vitamin D (93.3%). Majority students were aware of the terms osteoporosis and rickets (n= 252, 98.8%) and hypovitaminosis (n=207) 81.1%. Only (n=147) 57.6% knew about BMD (bone mineral density) and a few (n= 18, 7.05 %) students had taken BMD test. Calcium and vitamin D supplements were prescribed to only 35.71%

(n=15) and 14.28% (n=6) of male students respectively by their physicians whereas these were prescribed to 42.2% (n=90) and 28% (n=60) female students respectively. In a recent study in Vietnam, the incidence of vitamin D insufficiency was found to be 46% in adult women and 20% in adult men²⁵(Ho-Pham, Nguyen, Lai, Eisman, & Nguyen, 2010).

Few students (n=60, 23.5%) students were aware that dark skin people are more prone to Vitamin D deficiency and many (n=199, 78.0%) had knowledge that some drugs interfere with Vitamin D metabolism.

Counseling about the adequate intake of Calcium and Vitamin D was also emphasized by majority (n=250, 98.0 %) students; Vitamin D deficiency has re-emerged as a worldwide public-health concern and is now somehow

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The Unani Perspective of Microorganism

JOHP

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ABSTRACT

Unani-tibb or Unani Medicine also spelled Yunani Medicine (in Arabic, Hindi-Urdu and Persian) means "Greek Medicine." Its origin is traced back to the Greek literature, which has been a source of quite a lot of scientific contributions and also was developed by Arabs and Persians into an elaborate medical science. Since that time Unani Medicine has been known as Greco-Arab Medicine. Unani system of medicine is a great healing art as well as science. It treats a person as a whole not as a group of individual parts. It is aimed at treating body, mind and soul. This system is based on Hippocratic theory of four humors viz. blood, phlegm, yellow bile and black bile. It is believed in society that concept of micro-organism is only by modern system, though this is not completely true. Unani scholars do believe in micro-organisms and their role in disease, but emphasized more on body's response and occurrence of disease. Many of Unani ancient scholars describe the communication through contacts; communication of disease via other factors like air, water, etc. Combating these diseases is to be done at various levels i.e. stopping the progression, building immunity against disease using various means and treating them.

Keywords: Unani Medicine, micro-organism

INTRODUCTION

Communicable disease is amongst the important group of human diseases coming into contact. These diseases have specific etiological cause usually a microorganism. These microbial agents are usually specific in nature, lodge in particular tissues, and grow with the help of human biological system, finally precipitate as disease as a result of toxins (endotoxins or exotoxins). Development in investigative techniques increased knowledge of these infective organism, and also means for combating

against them. Knowing behavior of these organisms it is easier to know the route of spreading and thus control measure of their communication can be made with ease. Unani scholars too described these agents, method of spread, methods of controlling and also curative measure of these diseases. Since ancient times, people have believed that diseases stemmed from unseen organisms, or other forces. Even after microbes were visible with a microscope, it took hundreds of years before people accepted that these tiny creatures could cause disease. This germ theory of disease was controversial when it was first developed, although it is the foundation of many aspects of modern medicine and microbiology.

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Unani concept of disease

Disease is state of altered or vitiated state of *humours*. Alteration in these body elements occurs due to various internal and external factors. External factors directly lead to manifestation of disease followed by involvement of *humours*. Thus the etiological factors of the disease may be in relation to food, routine, external factors like air, water, trauma or microbes, disease occurs only after *humours* vitiation. Thus even in microbial diseases too *humours* are important for occurrence of disease and its management. In view of this it seems that though Scholars of Unani knew the concept of microorganism in occurrence of disease but emphasized more on *humours* only.

Microbial Spontaneous Generation

Spontaneous generation also called abiogenesis; is the belief that organisms can appear from nonliving materials like water, air and dead flesh. In the fourth century BC, the Greek philosopher *Aristotle* included this process in his list of methods of reproduction, along with sexual and asexual reproduction, and budding. This belief continued to be accepted during the Middle Ages and beyond. For example, people believed that maggots could appear from decaying meat, and snakes could be born from horse hairs left in stagnant water.

Conventional History of Microorganism

The existence of microorganisms was hypothesized from many centuries before their actual discovery. Varo and Columella in the first century B.C. postulated that diseases were caused by invisible beings. Fracastorius (1546) proposed a 'Contagium vivum' as a possible cause of infectious disease. Antonie van Leeuwenhoek (1632-1723), a draper observed bacteria and other microorganisms, using a single-lens microscope of his own design and called them 'Little Animalcules'. The earliest discovery of a pathogenic microorganism was probably made by

Agostino Bassi (1835), who showed that the muscardine disease of silk worm was caused by a fungus. Davaine & Pollender (1850) observed anthrax bacilli in the blood of animal dying of the disease. In fact, even before microbial cause of infections had been established, Oliver Wendell Holmes in the USA (1843) and Ignaz Semmelweis in Vienna (1846) had independently concluded that puerperal sepsis was contagious. Semmelweis also identified its mode of transmission by doctors and medical students attending on women in labour in the hospital and had prevented it by the simple measures of washing of hands in an antiseptic solution, for which service to medicine and humanity, he was persecuted by medical orthodoxy and driven insane. Louis Pasteur (1822-95) is a founder of "germ theory of disease" as he visualized that diseases are caused by microorganisms. He has also described the process of Fermentation and Pasteurization. He is considered as "father of microbiology", as his contribution led to the development of microbiology as a separate scientific discipline. Robert Koch (1843-1910) perfected bacteriological technique. He introduced staining techniques and method of obtaining bacteria in pure culture using solid media. Koch is best known for his contributions to the germ theory of disease, proving that specific diseases were caused by specific pathogenic micro-organisms. He developed a series of criteria that have become known as the Koch's postulates. Joseph Lister (1827-1912) successfully prevented post operative sepsis by introducing antiseptic techniques. Ivanovsky (1892) reproduced mosaic disease in the tobacco plant by applying to healthy leave juice from the diseased plants from which all bacteria had been removed by passage through fine filters. Beijerinck (1898) confirmed these findings and coined the term virus for such filterable infectious agents. Stanley (1935) was able to obtain

INTRODUCTION

Calcium and vitamin D are two vital micronutrients for keeping up appropriate bone health. They play a major role in the prevention and treatment of diverse clinical conditions with undue bone loss. These nutrients are fundamental for growing peak bone mass and for reducing age-related bone loss to decrease the risk of osteoporosis and low-trauma fractures¹ (Poliquin, 2009). Vitamin D is one of the 13 important dietary vitamins and is imperative for intestinal absorption of calcium. Apart from bone health

²(Heaney, 2007), vitamin D is also functional in promoting musculoskeletal health ^{2,3}(Heaney, 2007; Holick, 2007a), immune functioning ^{3,5}(Holick, 2007a; van Etten & Mathieu, 2005; White 2008) as well as averting and managing cardiovascular disease ⁶(Giovannucci, Liu, Hollis, & Rimm, 2008), numerous cancers ^{3,7,8}(Gorham et al., 2007, Holick, 2007a/b) and various other diseases ^{3,9,10}(Annweiler, et al., 2010; Hoang et al., 2011; Holick, 2007a). Regular diet and supplementation can provide both Vitamin D and calcium directly. Vitamin D is produced in human body after exposure to sunlight but this is at times compromised due to excessive use of cosmetics or literary reasons and apprehension about the prospective possibility of skin cancer^{11,12} (Chan, Scott, & Sen, 2010; Major et al., 2012).

Numerous reports have shown that Vitamin D deficiency is a global pandemic. The health benefits of vitamin D and high frequency of insufficient levels of vitamin D have been mostly overlooked by both doctors and patients¹¹ (Chan, Scott, & Sen, 2010). Data are existing from various studies on young adults¹³, (Tangpricha, Pearce, Chen, & Holick, 2002) elderly persons, on elderly/ post-menopausal women, who are at utmost danger of developing osteoporosis¹⁴ (Bathi, Zayed, Qenai, Makboul, & El-Shazly, 2012) and healthy adolescents¹⁵(Gordon, Peter, Feldman, Grace, & Emans, 2004) from various countries. Prevalence of hypovitaminosis D in both male and female, in all age groups has been found only with few exceptions in South and Southeast Asia¹⁶(Mithal et al., 2009). There have been reports of rickets in almost all age groups in India, Bangladesh and Pakistan¹⁷ (Pai & Shaw, 2011). Maternal deficiency of vitamin D and low dietary calcium were among the primary reasons of these diseases¹⁸(Pettifor, 2008).

In Pakistan, people are deficient in the basic needs along with the need of proper healthcare. Health education and healthcare

systems are not enough to meet all the public health related demands in this country. These findings are distressing as vitamin D is quite easy to access from low-cost supplements, the sun and from numerous foods³(Holick, 2007a). There is a report that young adults, aged between 20 to 39 years, are at utmost risk of vitamin D insufficiency hence decreased calcium absorption. This is of grave concern as the health behaviors of young adults will contribute to the quality of their lives for several years to come¹⁹(Whiting et al., 2011).

The students studying at the university level are believed to have satisfactory knowledge regarding the importance of calcium and vitamin D but on the contrary they are known as a population at predominantly high risk for reduced health effects. University students in general have more freedom and control over their lifestyles and to build up healthy lifestyle these students require health support training to have better health and also diminishing vitamin D deficiency. Moreover, reports have shown that most university students are concerned in knowing about nutrition and improving their nutritional habits²⁰(Tucker & Irwin, 2011); they are at an ultimate age to build long term optimistic modification when it comes to vitamin D, as their bones are still constructing mass²¹(Nilsson, Ohlsson, Odén, Mellström, & Lorentzon, 2012). Developing healthy behaviors in advance in life will help younger populations to shield from disease development later in life. In fact, adequate intake of vitamin D in advance in life has been shown to aid in averting osteoporosis²² (National Institute of Health, 2012, Osteoporosis Society of Canada, 2012), multiple sclerosis²³ (Simpson et al., 2010) cardiovascular disease⁶(Giovannucci, 2008), etc later in life.

The current study was designed to get an idea about the knowledge and understanding

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Awareness and knowledge of Calcium and Vitamin D in Students

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ABSTRACT

Objective:

This study was done to institute a fundamental perception on the level of information and understanding among under graduate pharmacy students in Karachi upon the requirements of Calcium and Vitamin D by human body.

Method:

The survey was conducted from November, 2013 to March, 2014 using a structured performa which was developed from different published sources. The performa was then filled by undergraduate Pharm.D 5th year students of 3 different universities in Karachi, Pakistan in the presence of the researchers. The data was assessed using descriptive analysis.

Result:

A total of n=255 students of Doctor of Pharmacy course (Pharm.D) participated in the study and majority of them were female (83.5%). The questionnaire contained various questions about the sources, importance, daily requirements and some related terms to calcium and vitamin D. It was found that (n=253) 99.2 % of the students were familiar with the importance of calcium and vitamin D in bone health. The term osteoporosis and rickets were known to (n= 252) 98.8% students, (n=207) 81.1% knew the term hypovitaminosis and (n=147) 57.6% knew about BMD (bone mineral density). The BMD test was taken by (n= 18) 7.05 % students. Unfortunately, (n= 29) 11.3% and (n=17) 6.66% students failed to mention at least one food that is rich in calcium and vitamin D, respectively. Most of the students got familiar about these essential nutrients from their teachers (n=142, 55.68%) and textbooks (n= 120, 47.05%). Calcium/ Vitamin D supplements were taken by (n=171) 67.0% of the students. It was known to (n=60) 23.5% students that dark skin people are more prone to Vitamin D deficiency and (n=199) 78.0% had knowledge that some drugs interfere with Vitamin D metabolism. Almost all the students (n=250, 98.0 %) agreed that counseling is necessary about the adequate intake of Calcium and Vitamin D as the human body needs vitamin D to absorb Calcium which keeps the bones, muscles and the heart healthy and strong; those people who do not get an adequate amount of calcium and vitamin D may require supplements.

Conclusion:

The present study indicates that the under graduate pharmacy students in Karachi have satisfactory knowledge about calcium and vitamin D but it is necessary to move further on the awareness regarding these essential nutrients as pharmacists stand for well informed part of the healthcare system.

KEYWORDS: Vitamin D, calcium, Undergraduate pharmacy students, Awareness

the infectious agent of tobacco-mosaic in a crystalline form. Metchnikoff (1845-1916) discovered the phenomenon of Phagocytosis and proposed the phagocytic response as the prime defense against the microbial invasion of tissues. Paul Ehrlich (1854-1915) pioneered the technique of antimicrobial chemotherapy in medicine. Flemming (1881-1955) in 1929 made the accidental discovery that the fungus *Penicillium notatum* produces a substance that destroys *Staphylococcus*. Macfarlane Burnet (1957) proposed clonal selection theory to explain antibody synthesis. In 1967 he developed the concept of "immunological Surveillance", according to which the primary function of the immune system is to preserve the integrity of the body, seeking and destroy all foreign antigens, whether autogenous or external in origin.^{1,2,3,4}

METHODOLOGY

Literature and reference in support of this article has been collected from Classical and modern *Unani* books. The databases utilized for obtaining information from indexed journals are Google, Google Scholar, Scopus, PubMed and Science Direct. Keywords; *Unani, Unani Perspective of Microorganism* were used to search the literature for this article.

The Unani Perspective of Microorganism

The Unani System of Medicine is a time tested medicine based on Hypothesis, Experience and Investigations. Although there is no by-name mention of various kind of micro organism in the medieval Unani literature, but from careful survey of Unani literature it is amply proved that the medieval Unani physicians were well conversant and hypothesized the concept of *Ajsam-e- khabisah* (microorganism), *Ta'diyah* (Infection), and *Ufunat* (Putrefaction) in their ways.⁵

The Great Medical Scholar of 9th century *Al Razi* was aware of air born infections. He proved his philosophy of microbes, infections and Putrefaction through his thought and experiment. He was the medical director of a great hospital in Baghdad. When he asked regarding the selection of site for construction of a new hospital in Baghdad. He experimented the philosophy of microbes and infections by hanging a piece of meat in the air of different places and noticed that where it putrefied soon due to the air born infection / Putrefaction. Hence he decided to construct the new hospital, at the place where the Putrefaction takes place durably (because of least presence of microbes and infection). *Al Razi* wrote the first medical description of Small pox and Measles and described the clinical differences between two diseases so vividly that nothing since has been added, in his famous Book *Kitab-al-Judri wal Hisbah* (The Book of Small pox and Measles).⁶ *Ali ibn Abbas Majoosi* described contagious diseases like leprosy, elephantiasis.⁷

Abu Ali Ibn Sina (Avicenna, 980-1037) stated explicitly that water did not putrefied alone, until it mixed up with *Ajsam-e-arzia khabisah* (earthy microbes) and after that *raddi kaifiyet* (bad quality) developed. The Putrefaction of air also takes place in same way.^{8,9,10,11}

He also hypothesized on the contagious nature of tuberculosis and other infectious diseases, and used quarantine as a means of limiting the spread of contagious diseases.¹²

Ibn Khatima (1369 AD) was the first to observed that mankind is surrounded by Ghair maryee (non visible) *Ajsam-e-saghirah* (minute bodies) and also described that how minute bodies enter into the human body and cause disease well in-advance of Pasteur's discovery of microbes. There is a famous story about Ibn Khatima, once he fell ill, being a physician he tried to

find out the cause of his illness. But he did not find any exact cause of his illness. Then he realized that some nonvisible tiny bodies were entering into his body through respiratory tract while he used to refer the old wicked books. These minute bodies are real cause of his illness.¹⁰

Ibn al-Khatib (1313 – 1374/5) was the first who explained the existence of contiguity in detail. He composed a treatise in the defence of the theory of Infection in following way: To those who say, “How can we admit the possibility of infection while the religious law denies it?” we reply that “The existence of contagion is established by experience, investigation, the evidence of the senses and trustworthy reports. These facts constitute a sound argument. The fact of infection becomes clear to the investigator who notices how he who establishes contact with the afflicted gets the disease, whereas he who is not in contact remains safe, and how transmission is affected through garments, vessels and earrings.¹²

Abu Mansoor-al Hasan bin Nooh-al Qamari in "Ghina wa Muna" discovered the cause and effect of Gonorrhoea century before it was documented by the Europeans.¹³

CONCLUSION

These passages seem to indicate that the Unani Physician were aware of the existence of microorganisms, their infectious and communicable properties. But there was lack of facilities and experimental instruments, through which their philosophies and theories can be interpreted. It may be summarized that Unani physician was having adequate knowledge about microorganisms, but emphasized more on body's response towards them. This is the reason that Unani ancient Scholars described very little about these microbial agent,

where ever necessary they described with most precise details.

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