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Contents	Page 02
Editorial Broad	Page 03
Editorial Message	Page 04
Message from ACPI	Page 05
Articles	Page 06

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CONTENTS

Articles

- Medical Rumors of Antiperspirants on Breast Cancer risk 06**
Dixon Thomas and Winson Sam
- Consequences of menopause "The change of life": A Survey 09**
In Hadoti, Rajasthan.
Samiksha Sharma, Natasha Sharma, Mahaveer P Khinchi,
Dilip Agarwal and MK Gupta.
- Counterfeit drugs: A Challenge to Pharma industry 24**
Pratibha Nand, Neelam Vashist, Bhawna Khurana and
Sushma Drabu.
- Pharmacist initiated intervention for prevention of acquired 32**
immunity deficiency syndrome (AIDS)
Yogesh Murti.

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Editorial

I am happy to share with you the 8th issue of International Journal of Community Pharmacy (IJCP). International Journal of Community Pharmacy (IJCP) is now one of the online indexed journals. IJCP is now officially indexed in Budapest Open Access Initiative and Directory of Open Access Journals. Hence we are happy that our journal will be accessed and will reach globally to professionals across the world.

Further, I am happy to announce the 62 Indian Pharmaceutical congress will be held at Manipal University during 17-19 December 2010. The focus of the 62 IPC will be on Hospital Pharmacy, Clinical Pharmacy and Community Pharmacy. Although India has established leadership in Pharmaceutical Industry, there is a need to reengineer the profession in the areas of patient safety and pharmaceutical care. There is need to popularize the fields like pharmacoeconomics and pharmacoepidemiology.

The Association community Pharmacists of India has completed its two years and is able to establish itself as a leader in promotion of patient care. It has given encouragement for many young pharmacists to realize the importance of community pharmacist in health care.

In years to come the ACPI will be able to motivate the pharmacists to indulge in patient related services, which are presently not available in India.

Finally I would bring to your notice that, IPC registration is already going on. I welcome each and every student and faculty member to register for the conference and also to present your research work during IPC 2010 at Manipal.

Prof N Udupa

Editor In Chief, IJCP

MESSAGE FROM ACPI

Dear colleagues members,

The people at large in India are ignorant about the risks regarding modern medicine and continue to use medicine in belief that they are harmless and hence no extra precaution needed while using them. Unfortunately all the medicine from A (Aspirin) to Z (Ziduvudine) carries the risk of inflicting potential injury to the persons using them. Hence the Pharmacy Act and D and C Act has been in force in the country. Due to utter indifference by the Govt and regulators, practioners of health, these issues all though important for managements of health has remained as not so important issues. In turn there are no proper documentation on total manufacture and consumption of the medicine. Several times prescription only medicine are bought from the drug stores and used by the people only to save some money on doctors consultation fee.

It is high time that all the pharmacist of the country should declare that they would never dispense the prescription only medicine to any other circumstances unless it is prescribed. This would reduce the drug injuries and enhance the patient safety. Of course the pharmacists would be respected for protecting the common man from the risks illegal use of prescription medicine. It would bring a good image in the long run to the Indian Pharmacist in the society

Prof Anantha Naik Nagappa

President , ACPI, Manipal.

MEDICAL RUMORS OF ANTIPERSPIRANTS ON BREAST CANCER RISK

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ABSTRACT

OBJECTIVE: This survey is aimed to state that “Underarm antiperspirants increase the risk of breast cancer” is a rumor. The study also reviews the influences of this medical rumor in different clinical hierarchy such as oncology physicians, oncology nurses, and breast cancer patients. **METHODS:** Three groups as oncology physician, oncology nurse and cancer patients are interviewed directly or electronically. The study population was from India and USA. **RESULTS:** The influence score on the rumor for oncology physician was found to be 30% when compared to increased scores of oncology nurses, 44% and breast cancer patients, 69%. **CONCLUSION:** The professionals or public who have higher access to evidence based medicine and less chances for developing breast cancer are less influenced by the rumor.

KEY WORDS: medical rumor, breast cancer, antiperspirant, oncology

INTRODUCTION

Medical rumors have a high influence on people who are not supplied with enough evidence to disapprove it. Some rumors spread faster than the scientific evidence that the logic behind the rumors are quiet simple and more convincing to the laymen for their best understandings. There is fair amount of medical evidence to state that “Underarm antiperspirants increase the risk of breast cancer” is a rumor.

There is a critical deception point for rumors in medical science. Once the evidence appears, the rumor is replaced with facts. But evidence may not always have the reach and/or simplicity for the public to follow it. Evidence may be proved facts or unproved rumors. Rumors spread faster by published blogs, news paper, health journals, emails, public meetings, phone and other communications.

Rumor claims include:

1. Underarm shaving allows cancer-causing substances in antiperspirants to be absorbed through razor nicks. These substances are said to keep lymph nodes under the arm from removing cancer-causing toxins before they get to the breasts.
2. Most breast cancers develop in the upper outer quadrant of the breast because that area is closest to the lymph nodes exposed to antiperspirants. (A quadrant is 1/4 of the breast, if you think of the breast as a circle. The upper outer quadrant of the breast is the part closest to the arm pit.)
3. Men have a lower risk of breast cancer because they do not shave their underarms, and their underarm hair keeps chemicals in antiperspirants from being absorbed.¹
4. Aluminum-based compounds are used as the active ingredient in antiperspirants. These compounds form a temporary plug within the sweat duct that stops the flow of sweat to the skin's surface. Some research suggests that aluminum-based compounds, which are applied frequently and left on the skin near the breast, may be absorbed by the skin and cause estrogen-like (hormonal) effects.²

American Cancer Society explains that lymph nodes help clear out bacteria, viruses, and other possible threats to the body, but the lymph nodes do not release waste through sweating. Sweat glands are not connected to lymph nodes. Sweat glands are located in the skin, not in the lymph nodes. Most cancer-causing substances are removed by the kidneys (and released into urine) and by the liver (and released into bile, which mixes with and is eliminated with feces). Lymph nodes can be found throughout the breasts and have an important role. The underarm (axillary) nodes filter most of the lymph flowing out of the breast before it goes back into the body's bloodstream. These nodes are under the arm, in the upper outer quadrant of the breast. The number of breast cancers in the upper outer part of the breast is in proportion to the amount of breast tissue in that area¹.

METHODS

Rumors are based on some crude logics. In this observational study, oncology physicians, nurses and patients were interviewed directly and electronically. The study group includes oncologists and patients of USA and India who had been exposed to the medical rumor; “Underarm antiperspirants increase the risk of breast cancer” through e-mail, newspaper and health journals. The study population includes 25 oncology physicians 25 oncology nurses and 25 breast cancer patients. The degree of influence is scored as five categories. Zero for ‘totally rejecting’ the rumor, one for rejecting the rumor as ‘may be not’, two for ‘not sure’ about to accept or reject the rumor, three for accepting the rumor as ‘may be’ and four for ‘totally accepting’ the rumor.

RESULTS AND DISCUSSION

The degree of influence is scored as five categories. Zero for totally rejecting the rumor, one for rejecting the rumor as ‘may be not’, two for not sure about to accept or reject the rumor, three for accepting the rumor as ‘may be’ and four for totally accepting the rumor. The influence score on the rumor for oncology physician was found to be 30% when compared to increased scores of oncology nurses, 44% and breast cancer patients, 69%. Those who had higher reach to the evidence based medicine such as 7 physician and 4 nurses totally rejected the medical rumor.

Table 1: Influence on the medical rumor;

	Yes × 4	Might be × 3	Not sure × 2	Might not × 1	Not × 0	Total %
Oncology physician	Nil	01	10	07	07	30
Oncology nurse	Nil	05	13	03	04	44
Breast cancer patients	04	14	05	01	01	69

There is also some of the convincing evidence supporting the study results:

1. In 2006, researchers examined antiperspirant use and other factors among 54 women with breast cancer and 50 women without breast cancer. The study found no association between antiperspirant use and the risk of breast cancer; however, family history and the use of oral contraceptives were associated with an increased risk of breast cancer³.
2. Important points from the 2004 study findings include; the researchers looked only for the presence of parabens in breast cancer samples. The study did not show that parabens

caused or contributed to breast cancer development in these cases. Although parabens have weak estrogen-like properties, the estrogens that are made in the body are hundreds to many thousands of times stronger. Parabens are widely used as preservatives in shampoo, lotions, other cosmetics, and even foods. This study did not contain any information to help find the source of the parabens found in breast tissue¹.

3. Findings from 437 breast cancer survivors were released in 2003⁴. This study found that the age of breast cancer diagnosis was significantly earlier in women who used antiperspirant products and shaved their underarms more frequently. Furthermore, women who began both of these underarm hygiene habits before 16 years of age were diagnosed with breast cancer at an earlier age than those who began these habits later⁵.
4. One study in 2002 did not show any increased risk for breast cancer in women who reported using an underarm antiperspirant or deodorant. The results also showed no increased breast cancer risk for women who reported using a blade (nonelectric). These conclusions were based on interviews with 813 women with breast cancer and 793 women with no history of breast cancer⁶.

CONCLUSION

The influence of medical rumors is high among breast cancer patients compared to oncology nurses or physicians. In the end stage cancer disease the influence of medical rumors may be even worse. Why oncology nurses are influenced by the breast cancer risk rumors because the nurse group contain more women than the physician group who are naturally at higher risk of breast cancer. Medical rumors have the potential to spread faster in lack of valid scientific knowledge. And it spreads faster than the evidence, as a part of marketing strategy of its inventors.

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CONSEQUENCES OF MENOPAUSE-“THE CHANGE OF LIFE”: A SURVEY IN HADOTI RAJASTHAN

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ABSTRACT

Talking about ailments, today women are the most vulnerable towards several disease & health disorders. Amongst these disorders are the once caused by menopause. These days, *menostasis* has become one of the world's most common causes for health problem in women. According to the physicians we concerned it is the condition when a women permanently stop having menstrual periods. This stage is often called the change of life as this stage signal the end of women ability to reproduce. The aim of this study is to know the symptoms, problems & causes for the premature menopause. A systematic study was done by approaching the local government hospital & clinics & collecting the data by giving questionnaires to about 10 physicians & 80 volunteers from rural & urban areas of *hadoti region*. After the study made by consulting them, the symptoms observed are hot flashes where about 75% of women experiences sudden brief periodic increase in their body temperature, which lasts for 2years or less in about 80% of them. Cardiac palpitation & dizziness is accompanied by vaginal atrophy, relaxation of pelvic muscle & abnormal hair growth. Various reasons we came across for premature menopause are ovarian failure before the age of 40, smoking habits, radiation exposure & adverse drug reaction. While coming to the drug therapy, despite the wide range of hormone replacement therapy using estrogen & progesterone in combination, estrogen replacement therapy is less prescribed in the form of pills, transdermal skin patches & vaginal creams because of their high expenses. Non hormonal therapy, synthetic estrogen such as raloxifene is nowadays recommended frequently. Before prescribing any treatment the physicians evaluates the risk verces benefit ratio based on the individuals' medical history. Homeopathy & herbal treatments may offer some relief from some symptoms of *menopausia*.

Key words: - Menopause, Cardiac palpitation, Vaginal atrophy, Dizziness.

INTRODUCTION

Menopause is the permanent cessation of reproductive fertility occurring some time before the end of the natural lifespan. The term was originally coined to describe this reproductive change in human females, where the end of fertility is traditionally indicated by the permanent stopping of monthly menstruation or "menses". The word "menopause" literally means the "end of monthly cycles" from the Greek words pausis (cessation) and the word root men from mensis meaning (month).

Menopause is the absence of menstrual periods for 12 months. The menopausal transition starts with varying menstrual cycle length and ends with the final menstrual period.

Menopause is the time in a woman's life when the function of the ovaries ceases. The ovary, or female gonad, is one of a pair of reproductive glands in women. They are located in the pelvis, one on each side of the uterus. Each ovary is about the size and shape of an almond. The ovaries produce eggs (ova) and female hormones such as estrogen. During each monthly menstrual cycle, an egg is released from one ovary. The egg travels from the ovary through a Fallopian tube to the uterus.¹

The ovaries are the main source of female hormones, which control the development of female body characteristics such as the breasts, body shape, and body hair. The hormones also regulate the menstrual cycle and pregnancy. Estrogens also protect the bone. Therefore, a woman can develop osteoporosis (thinning of bone) later in life when her ovaries do not produce adequate estrogen.

Clinically speaking, menopause is a date. For those women who still have a uterus, menopause is defined as the day after a woman's final period finishes. This date is fixed retrospectively, once 12 months have gone by with no menstrual flow at all. At this point a woman is considered to be a year into postmenopause, is considered to be infertile, and no longer needs to take into consideration the possibility of pregnancy.

Perimenopause (premenopause)

Perimenopause is the phase before menopause actually takes place, when ovarian hormone production is declining and fluctuating, causing a host of symptoms.

Some clinicians maintain that perimenopause can last for as long as 5 to 15 years, while others refer to perimenopause as that period which is a 3 to 4 year span just before menopause. Either way, many women experience more symptoms during perimenopause than after menopause. Because this often happens at an age between 35 and 45, many women's symptoms are overlooked or ignored by their healthcare providers.

Most premenopausal women experience changes in their menstrual cycle. When estrogen levels begin to drop, the follicular phase of the cycle may be shortened, and this can shorten the total cycle from 28–30 days to 24–26 days, resulting in more frequent periods. On the other hand, some women begin having longer cycles because they are not ovulating as frequently. These changes can be quite different on an individual basis. Additionally, this declining/fluctuating estrogen level can produce a host of disturbing symptoms: hot flashes, increasing vaginal dryness, sleep problems, mood swings, breast tenderness and many other complications.²

Postmenopause

Postmenopause is a time when most of the distress of the menopausal changes have faded. Hot flashes may seem milder or less frequent; energy and emotional levels may seem to have stabilized.

It is generally believed by most clinicians that the postmenopausal phase begins when 12 full months have passed since the last menstrual period. Another typical guideline is to measure the level of the follicle stimulating hormone (FSH). A rising FSH level indicates to the clinician that the pituitary is working overtime in a futile effort to stimulate the ovaries to produce eggs which no longer exist. Most researchers use a 35-50 FSH level as the gauge whether a woman has reached postmenopause. This high FSH level continues for the rest of a woman's life unless HRT is started, but this continuing high level is not harmful.

Another major change that occurs after menopause is that estrogen production shifts from the ovaries to the fat cells in a woman's body. The chief estrogen of postmenopause is estrone (E1) which is converted from androgens (i.e., androstenedione) produced mainly by the adrenal glands. Some estrogen continues to be produced by the adrenals but in a lesser amount. The ovaries have now begun to shrink in size, although they never disappear and, in fact, they still have quite an important role in postmenopause since some hormones (ie. testosterone) continue to be produced there.

Postmenopausal measures for good health should be a continuation of premenopausal strategies, i.e. a nutritious diet containing calcium-rich foods, weight-bearing exercise, seeking hormone replacement or herbal aids for menopausal symptoms if necessary, and getting regular medical checkups, including bone density scans (DEXA).

Menopause in humans

In human females, menopause usually happens more or less in midlife, signaling the end of the fertile phase of a woman's life. Menopause is perhaps most easily understood as the opposite process to menarche, the start of the monthly periods. However, menopause in women cannot satisfactorily be defined simply as the permanent "stopping of the monthly periods", because in reality what is happening to the uterus is quite secondary to the process; it is what is happening to the ovaries that is the crucial factor.

As an illustration of this point: for medical reasons, the uterus must sometimes be surgically removed (hysterectomy) in a younger woman; her periods will cease permanently, and the woman will technically be infertile, but as long as at least one of her ovaries is still functioning, the woman will not have reached menopause. Even without the presence of the uterus, ovulation and the release of the sequence of reproductive hormones will continue to cycle on, until menopause is reached. But in circumstances where a woman's ovaries are removed (oophorectomy), even if the uterus were to be left intact, the woman will immediately be in "surgical menopause".

Thus menopause is based on the natural or surgical cessation of hormone production by the ovaries, which are a part of the body's endocrine system of hormone production, in this case the hormones which make reproduction possible and can influence sexual behavior. The resultant decreased levels of circulating estrogen impacts the entire cascade of a woman's reproductive functioning, from brain to skin.

The menopause transition, and post-menopause itself, is a natural life change, not a disease state or a disorder. The transition itself can be challenging for a number of women, but for others it is not difficult.

The average age of menopause is 51 years old. But there is no way to predict when an individual woman will enter menopause. The age at which a woman starts having menstrual periods is also not related to the age of menopause onset. Most women reach menopause between the ages of 45 and 55, but menopause may occur as earlier as the 30s or 40s or may not occur until a woman reaches her 60s.

Symptoms

Some women may experience few or no symptoms of menopause, while others experience multiple physical and psychological symptoms. The extent and severity of symptoms varies significantly among women. These symptoms of menopause and perimenopause are discussed in detail below-

Irregular vaginal bleeding

Irregular vaginal bleeding may occur during menopause. Some women have minimal problems with abnormal bleeding during perimenopause whereas others have unpredictable, excessive bleeding. Menstrual periods (menses) may occur more frequently (meaning the cycle shortens in duration), or they may get farther and farther apart (meaning the cycle lengthens in duration) before stopping.

Hot flashes & night sweats

Hot flashes are common among women undergoing menopause. A hot flash is a feeling of warmth that spreads over the body and is often most pronounced in the head and chest. A hot flash is sometimes associated with flushing and is sometimes followed by perspiration. Hot flashes usually last from 30 seconds to several minutes. Although the exact cause of hot flashes is not fully understood, hot flashes are likely due to a combination of hormonal and biochemical fluctuations brought on by declining estrogen levels.³

Sometimes hot flashes are accompanied by night sweats (episodes of drenching sweats at nighttime). This may lead to awakening and difficulty falling asleep again, resulting in unrefreshing sleep and daytime tiredness.

Vaginal symptoms

Vaginal symptoms occur as a result of the lining tissues of the vagina becoming thinner, drier, and less elastic as estrogen levels fall. Symptoms may include vaginal dryness, itching, or irritation and/or pain with sexual intercourse (dyspareunia). The vaginal changes also lead to an increased risk of vaginal infections.

Urinary symptoms

The lining of the urethra (the transport tube leading from the bladder to discharge urine outside the body) also undergoes changes similar to the tissues of the vagina, and becomes dryer, thinner, and less elastic with declining estrogen levels. This can lead to an increased risk of urinary tract infection, feeling the need to urinate more frequently, or leakage of urine (urinary

incontinence). The incontinence can result from a strong, sudden urge to urinate or may occur during straining when coughing, laughing, or lifting heavy objects.

Emotional and cognitive symptoms

Women in perimenopause often report a variety of thinking (cognitive) and/or emotional symptoms, including fatigue, memory problems, irritability, and rapid changes in mood. It is difficult to precisely determine exactly which behavioral symptoms are due directly to the hormonal changes of menopause. The night sweats that may occur during perimenopause can also contribute to feelings of tiredness and many women may be experiencing other life changes during the time of perimenopause or after menopause, such as stressful life events, that may also cause emotional symptoms.⁴

Other physical changes

Many women report some degree of weight gain along with menopause. The distribution of body fat may change, with body fat being deposited more in the waist and abdominal area than in the hips and thighs. Changes in skin texture, including wrinkles, may develop along with worsening of adult acne in those affected by this condition. Since the body continues to produce small levels of the male hormone testosterone, some women may experience some hair growth on the chin, upper lip, chest, or abdomen.

Causes

Natural or physiological menopause occurs as a part of a woman's normal aging process. It is the result of the eventual atresia of almost all oocytes in the ovaries, causing an increase in circulating follicle stimulating hormone (FSH) and luteinizing hormone (LH) levels as there are a decreased number of oocytes responding to these hormones and producing estrogen. This decrease in the production of estrogen leads to the perimenopausal symptoms of hot flashes, insomnia and mood changes. Long term effects may include osteoporosis and vaginal atrophy.

Menopause can be surgically induced by bilateral oophorectomy (removal of ovaries), which is often, but not always, done in conjunction with removal of the Fallopian tubes (salpingo-oophorectomy) and uterus (hysterectomy). Cessation of menses as a result of removal of the ovaries is called "surgical menopause". The sudden and complete drop in hormone levels usually produces extreme withdrawal symptoms such as hot flashes, etc. Removal of the uterus, hysterectomy, does not cause menopause, although pelvic surgery can often precipitate a somewhat earlier menopause, perhaps because of a compromised blood supply to the ovaries.⁵

Diagnosis

For the most part women are simply adequately attuned to their bodies to know when signs of menopause begin to appear. If irregular periods or hot flashes get out of hand, talk to your doctor to calm your concerns and to investigate some of the therapies available to alleviate the extremes of your symptoms. In some cases doctors will perform blood tests. Mainly they are checking levels of follicle-stimulating hormone additionally; a thyroid test may be in order as

hypothyroidism can cause some of the same symptoms as menopause and estrogen. FSH increases and estrogen decreases at the onset of menopause.⁶

Symptomatic treatment

Menopause itself is a normal part of life and not a disease that requires treatment. Treatment on the basis of three categories-

1. Allopathic
2. Ayurvedic
3. Homeopathic

1. Allopathic treatment -

A) Hormone therapy-

Estrogen and progesterone therapy

Hormone therapy (HT) , also referred to as hormone replacement therapy (HRT) or postmenopausal hormone therapy (PHT), consists of estrogens or a combination of estrogens and progesterone (progestin). Hormone therapy has been used to control the symptoms of menopause related to declining estrogen levels such as hot flashes and vaginal dryness, and HT is still the most effective way to treat these symptoms. But long-term studies (the NIH-sponsored Women's Health Initiative, or WHI) of women receiving combined hormone therapy with both estrogen and progesterone were halted when it was discovered that these women had an increased risk for heart attack, stroke, and breast cancer when compared with women who did not receive HT. Later studies of women taking estrogen therapy alone showed that estrogen was associated with an increased risk for stroke, but not for heart attack or breast cancer. Estrogen therapy alone, however, is associated with an increased risk of developing endometrial cancer (cancer of the lining of the uterus) in postmenopausal women who have not had their uterus surgically removed.⁸

Oral contraceptive pills

Oral contraceptive pills are another form of hormone therapy often prescribed for women in perimenopauses to treat irregular vaginal bleeding.

Prior to treatment, a doctor must exclude other causes of erratic vaginal bleeding. Women in the menopausal transition tend to have considerable breakthrough bleeding when given estrogen therapy. Therefore, oral contraceptives are often given to women in the menopause transition to regulate menstrual periods, relieve hot flashes, as well as to provide contraception. The list of contraindications for oral contraceptives in women going through the menopause transition is the same as that for premenopausal women.

Local (vaginal) hormone treatments

There are also local (meaning applied directly to the vagina) hormonal treatments for the symptoms of vaginal estrogen deficiency. Local treatments include the vaginal estrogen ring, vaginal estrogen cream, or vaginal estrogen tablets. Local and oral estrogen treatments are sometimes combined for this purpose.

Bioidentical hormone therapy

There has been increasing interest in recent years in the use of so-called "bioidentical" hormone therapy for perimenopausal women. Bioidentical hormone preparations are medications that contain hormones that have the same chemical formula as those made naturally in the body. The hormones are created in a laboratory by altering compounds derived from naturally-occurring plant products. Some of these so-called bioidentical hormone preparations are U.S. FDA-approved and manufactured by drug companies, while others are made at special pharmacies called compounding pharmacies, which make the preparations on a case-by-case basis for each patient. These individual preparations are not regulated by the FDA, because compounded products are not standardized.

B) Alternative medical therapy

Plant estrogens (phytoestrogens, isoflavones)

Isoflavones are chemical compounds found in soy and other plants that are phytoestrogens, or plant-derived estrogens. They have a chemical structure that is similar to the estrogens naturally produced by the body, but their effectiveness as an estrogen has been estimated to be much lower than true estrogens. These compounds may help relieve hot flashes and other symptoms of menopause. In particular, women who have had breast cancer and do not want to take hormone therapy (HT) with estrogen sometimes use soy products for relief of menopausal symptoms.

C) Other pharmaceutical therapies-

Antidepressant medications: The class of drugs known as selective serotonin reuptake inhibitors (SSRIs) and related medications has been shown to be effective in controlling the symptoms of hot flashes in up to 60% of women. Specifically, venlafaxine (Effexor), a drug related to the SSRIs, and the SSRIs fluoxetine (Prozac), sertraline (Zoloft), paroxetine (Paxil), and citalopram (Celexa) have all been shown to decrease the severity of hot flashes in some women. However, antidepressant medications may be associated with side effects, including decreased libido or sexual dysfunction.

2. Ayurvedic treatment-

The Maharishi Ayurveda Natural Approach to Women's Symptoms of Menopause

The Raj Ayurveda Health Spa offers women a natural menopause treatment as well as relief from menopausal symptoms. Menopause is a natural life transition that need not have any negative side effects or symptoms. Prevention is the best policy when it comes to having an easy transition period during menopause. If a woman already has unwanted symptoms of menopause,

then Maharishi Ayurveda provides many natural treatments to reverse the imbalances which are due to the buildup of toxins and impurities in tissues, among others. The Raj program for menopause is conducted under the supervision of an Ayurveda Health Consultant, and draws on knowledge from Maharishi Ayurveda, the world's oldest and most complete system of natural health care. Maharishi Ayurveda provides the most comprehensive approach for menopausal symptoms available in natural health care today.⁹

A) Understanding the Root Causes of Menopausal Symptoms

Maharishi Ayurveda contains a wealth of information on how a woman can live her life before menopause to prevent the occurrence of negative menopausal symptoms. According to Ayurveda theory, it is not the loss of the menstrual period and change in levels of estrogen that cause unwanted symptoms. Rather, it is a variety of imbalances due to years of lifestyle mistakes.

B) Ayurveda Assessment of Balance and Imbalance

Ayurveda describes three major types of biological intelligence (called Vata, Pitta and Kapha) within the body that control all physical processes. These principles can become imbalanced and create the various symptoms of menopause.

Imbalances in Vata, Pitta or Kapha create very different symptoms. Learning where the imbalance is located can help women understand their condition more clearly and treat it more effectively. For example:

- 1. Pitta** imbalance can create hot flashes as Pitta controls the level of digestion, metabolism and heat production in the body.
- 2. Vata** imbalance leads to more anxiety, sleep disturbance and an increased drying up of the physiology because Vata imbalance disturbs the nervous system and dries up bodily tissues.
- 3. Kapha** imbalance creates symptoms of heaviness in the body, depression if a woman already has unwanted symptoms of menopause and then Maharishi Ayurveda provides many natural methods to reverse the imbalances.

C) Cleansing the Body of Toxins and Impurities

According to Ayurveda, the menstrual cycle not only helps maintain the reproductive system but also acts as an important internal cleansing process for the entire female physiology. When menstruation stops, the body loses a valuable natural cleansing mechanism. If there has been a build-up of toxins in the physiology when menstruation ends, impurities quickly accumulate in greater quantity and start to create many of the negative symptoms of menopause.

Accumulation of toxins and impurities creates unwanted symptoms by:

- i) Localizing in tissues and disrupting their delicate biochemistry, and

ii) Localizing in channels of circulation blocking the natural nourishment and elimination processes throughout the body. According to ayurveda these two therapies generally effective in treatment of menopause.

- **In-residence Maharishi Rejuvenation Therapy**

The in-residence Maharishi Rejuvenation therapy treatments that women receive each day of their stay at The Raj are the most powerful programs available in Maharishi Ayurveda for preventing and treating the symptoms of menopause. Each day of your in-residence stay our highly trained Ayurveda technicians take you through a series of cleansing therapies that take two to three hours to complete. Our Ayurveda Health Consultants will prescribe a special combination of herbalized oil massages, heat treatments and mild herbal enema suited to your individual needs.

The treatments systematically:

1. Loosen impurities that have become embedded in tissues and help liquefy them through massage and the penetration of herbalized oils.
2. Soften and open the channels of circulation and elimination so proper nourishment can reach the tissues and impurities can be more easily eliminated.
3. Activate the elimination process for the most thorough cleansing of the entire physiology.

These In-residence cleansing regimens are the foundation of our approach to preventing and treating symptoms of menopause.

- **Herbalized Oil Application and Massage**

The herbalized oil massage plays a very important role in our home and In-residence cleansing therapy and deserves special mention.

Daily use of this herbalized oil massage provides a deeply soothing and balancing effect for the entire physiology. The motion of massage creates heat and friction which enhance circulation and help cleanse the areas of chemical impurities that could be causing symptoms of menopause. The oil and herbs often nourish the tissues, thereby hastening any needed tissue development and repair.

D) Exercise and Flexibility Education Classes

Ayurveda considers proper stretching and flexibility exercises to have a very positive effect on the body's healing response. During your in-residence stay at The Raj, we offer Yoga classes every day to give you a simple but profound set of postures that you can practice daily to create a healthy flexibility throughout the body.

We also instruct you in individualized Yoga breathing practices that create a state of restful alertness in mind and body. Our in-residence courses give you knowledge that you can continue to apply after you leave The Raj to maintain your progress in alleviating the symptoms of menopause.¹⁰

3. Homeopathic treatment-

Remedy Indications for Menopause

The Homeopathic remedy FOLLICULINUM in LM potency, is the most beneficial remedy for general use in any woman during peri-menopause, menopause, post menopause, and after a hysterectomy or ovary removal (which causes premature menopause). It stimulates the continuing natural production of estrogen by the ovaries and by the other organs which also make small amounts of estrogen including the adrenal glands, liver, and kidneys.

A) FOLLICULINUM-

Folliculinum for hormonal symptoms during menopause of - Cystitis, Hot flashes, Vaginal dryness, Menstrual cycle irregularities, Fibroids. Candida, Hair loss, Cardio-vascular problems, Dizziness, Skin rashes (itching; dry and chapping eczema; easy bruising), Weight gain without over eating, both obesity and water retention; and can gain up to seven pounds before periods, Abdominal swelling and heaviness; bloating, Cravings for sugar and wheat allergies of all sorts, hay-fever, allergic reaction.

B) ACONITUM NAPELLUS-

Hot flashes in the evening, anxiety, panic attacks and over-excitability during menopause. Other symptoms during menopause: faintness during peri-menopausal period, and fast pulse; insomnia.

C) AMYLENUM NITROSUM-

Symptoms during menopause: throbbing headaches with burning sensation in head and ears, with surging of blood to head and face, face is fiery red, migraine worse left side; congestion of female organs.

D) ARGENTUM NITRICUM-

Heat flushing during peri-menopause. Flooding; hemorrhage of non-menstrual bleeding (metrorrhagia) during menopause; involuntary urination.

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Hot flashes especially in the afternoon, sweaty face and the face is red and burning; with profuse perspiration of female genital. Other symptoms during menopause of: vaginal dryness; non menstrual bleeding; headaches with pain in temples, left-sided migraines; tinnitus; yeast infections; ovarian cysts; involuntary urination; boils; fast pulse; palpitations; intolerance of pressure and touch; weakness; insomnia; weight gain with fluid retention; arthritis; osteoporosis; worse for sudden jarring or unexpected motion.

Need for more education about menopause

Many women arrive at their menopause years without knowing anything about what they might expect, or when or how the process might happen, and how long it might take. Very often a woman has not been informed in any way about this stage of life; at least in the US, it may often be the case that she has received no information from her physician, or from her older female family members, or from her social group. In the US, there appears to be a lingering taboo which hangs over this subject.

As a result, a woman who happens to undergo a strong perimenopause with a large number of different effects may become confused and anxious, fearing that something abnormal is happening to her. There is a strong need for more information and more education on this subject.

Future prospects for hormone replacement therapy

To avoid the complication of osteoporosis, hormone replacement therapy (HRT) is now standard therapy in women with premature ovarian failure. The indications for HRT after the age of 50 are more controversial. There are strong indications from case-control studies that in N. America and Europe HRT protects against osteoporotic fracture, myocardial infarction and stroke; yet the evidence from case control studies is insufficiently precise to quantitate accurately the potential benefits that would accrue from its more widespread use. Clear guidelines also need to be established on the potential usefulness of selective prescribing of HRT using one or more screening procedures. The only effective way of achieving this and of quantization the potential benefits of HRT with sufficient accuracy is by means of one or more randomized controlled trials. Future research will also address concerns such as the possible increase in the risk of breast cancer after 10 or more years of therapy. Critical to the more widespread acceptance of HRT may be the development of safe regimes which do not promote uterine bleeding as well as minimizing other unwanted side-effects.

OBJECTIVE:-

The prime objective behind the survey on consequences of menopause- change of life is:

- What percentage of women takes this seriously to consult physician & how much take natural?
- What percentage of women experiences premature menopause?
- What are the major symptoms faced by the patients?
- Have they observed any physical/ mental change in their sexually married life?
- What is the frequently recommended drug therapy by physician?

METHODOLOGY:-

The work is done in two phases-

1. Preparation of questionnaire-

A model questionnaire both for hospitals/ nursing home & patients were prepared. The information on different aspects was obtained from physician as well as patients.

2. For getting our objective fulfilled we came across to 10 physician & 80 volunteers of Kota district of Rajasthan conducted in clinics, hospital & nursing home Patient's data {name, age, personal pat history of patient }& drug therapy were recorded on customized data collection sheet.

We put up the following queries regarding the treatment to physician.

- Q.1 Most of patients approaches you for what type of symptoms?
- Q.2 which is the major age group visiting you for consultancy?
- Q.3 Do they get rid of these symptoms after treatment?
- Q.4 which is the most convenient treatment according to you which could be prescribed?

We put up the following questions to volunteers.

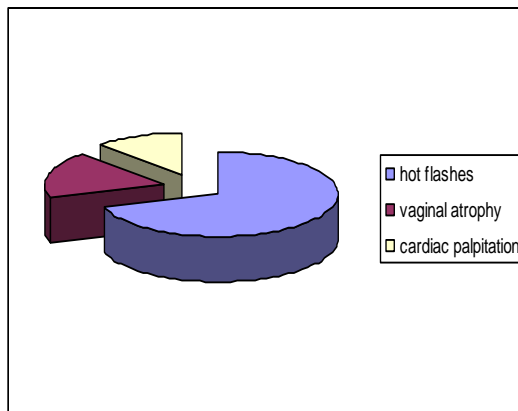
- Q: 1 At what age your mensuration ceased?
- Q.2 Have you observed any physical / mental change in yourself?
- Q.3 Does it affected your sexually married life?
- Q.4 What types of symptoms were observed in the following years of the menopause?
- Q.5 Which treatment did you refer to- allopathy / homeopathy/ ayurvedic?

DATA ANALYSIS

PHYSICIANS-

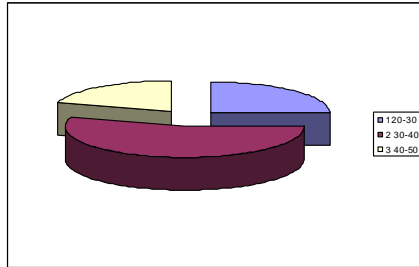
Q.1 Most of patients approaches you for what type of symptoms?

S.N o.	Symptoms	%
1.	Hot flashes	70
2	Vaginal atrophy	18
3	Cardiac palpitation	12



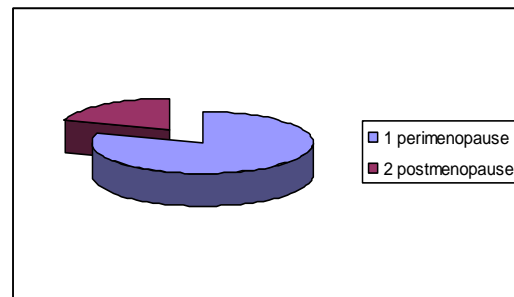
Q.2 which is the major age group visiting you for consultancy?

S.NO.	Age Group	%
1	20-30	25%
2	30-40	55%
3	40-50	20%



Q.3 Do they get rid of these symptoms after treatment?

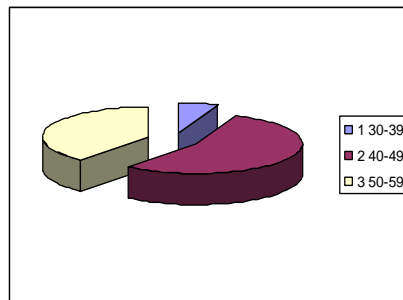
S.No.	Patients	%
1	Perimenopause	80%
2	Postmenopause	20%



Female volunteers-

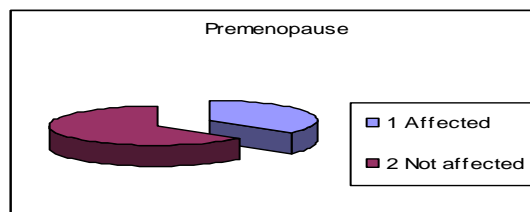
Q: 1 At what age your mensuration ceased?

S. No.	Age group	%
1	30-39	6
2	40-49	55
3	50-59	39

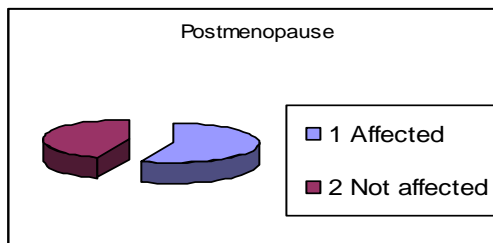


Q.2 Does it affected your sexually married life?

S.No.	Patients	Premenopause
1	Affected	36%
2	Not affected	64%

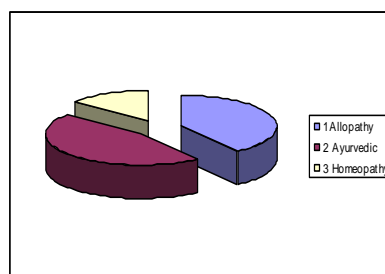


S.No.	Patients	Postmenopause
1	Affected	56%
2	Not affected	44%



Q.3 which treatment did you refer to- allopathy/ homeopathy/ ayurvedic?

S.No.	Treatment	%
1	Allopathy	40
2	Ayurvedic	46
3	Homeopathy	14



RESULT:- The data analysis of various answers comes out from the physician desk according to them the most common symptoms were find out hot flashes(70%). The physician told the most common age group comes for visiting & for consultancy regarding the menopause in between the 30-40(55%), because this is the most common age group suffering from fever. The physician told per menopause patients (80%) get rid of these symptoms.

A survey of 80 female volunteers the results comes out after the survey was in the age group of between 40-49 (55%) of the women experiences the cessation of menstrual flow. The women told that the sexually married life mainly affected in the postmenopausal patients (56%). The most common treatment preferred by the female volunteer after the survey was ayurvedic therapy atleast 46%.

CONCLUSION- A survey on 10 physician and 80 female volunteers of kota city and after analysis the servay data. It was found that our servay analysis generates the awareness regarding this phase of life in womens. It creates / refelects the Conclusion of our survey shows that to take menopause stage carefully & understand the problem associated with menopause phase.

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COUNTERFEIT DRUGS: A CHALLENGE TO PHARMA INDUSTRY

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Abstract

World Health Organization (WHO) has sounded an alarming increase in counterfeit medicines and it has been estimated that by 2010 the global sales of counterfeit drugs will reach US\$75 billion, which constitutes a 90% increase from 2005. Developing countries are at higher risk of counterfeits because of inadequate regulation and enforcement. Counterfeiting has significant social and economic impact as patients may not get safe and effective products and consequently may be at significant risk. Patients who unknowingly purchase counterfeit medicines realize that therapeutic effect is not achieved. Counterfeit drugs are commonly compared with substandard drugs but substandard medicines are genuine medicines produced by legitimate manufacturers that do not meet the quality specifications that the producer says they meet. For example, they may contain less (or more) active ingredient than written on the package. Counterfeits pose a further risk because they may contain ingredients that are actually harmful. On the economic side, legitimate manufacturers of pharmaceutical products suffer from patent and copyright infringement as counterfeiting, in reality, 'hijacks' the brand. Even the Government is affected through loss of taxation revenue and undermining of the national healthcare system. Hence there is no other priority rather than ensuring that consumers should have safe and effective medicines. To realize this goal, both industry and regulators must work cooperatively around the globe to fight counterfeiting and secure the integrity of the pharmaceutical supply chain.

Key Words: - Counterfeit, hijacks, substandard drugs

Introduction

The production of substandard and fake drugs is a vast and underreported problem, particularly affecting poorer countries. It is an important cause of unnecessary morbidity, mortality, and loss of public confidence in medicines and health structures. The prevalence of counterfeit drugs appears to be rising and has not been opposed by close cooperation between drug companies, governments, or international organizations concerned with trade, health, customs and excise, and counterfeiting¹.

In this article we focus on different divisions of some pharmaceutical companies and governments that are involved in this competitive business. These companies are responsible for preventing the patients to take the genuine medicines as they believe that the publicity will harm the sales of brand-name products. This secrecy, and the subsequent lack of public health warnings, is harming patients and that it is also not in the long-term interests of the legitimate pharmaceutical industry. It is necessary to have mandatory reporting to governmental authorities, which should also have a legal duty to investigate, issue appropriate public warnings, and share

information across borders. This is not a role for the pharmaceutical industry, which has a serious divergence of interest¹.

While some drug companies have given public warnings to protect patients, others have been criticized for custody information and, in a recent development in the United States, taken to court for failing to act. The industry is addressing the problem. In 2003, US pharmaceutical companies made an agreement with the US Food and Drug Administration (FDA) that they would report invented counterfeit drugs to the FDA within five days of discovery although this remains an unpaid agreement. In many poorer countries, where the problem is at its worst, there are no similar governmental and industry initiatives².

Factors Contributing To Counterfeiting Of Pharmaceuticals³⁻⁴

- ❖ Continuous deterioration of economic conditions makes pharmaceutical products, especially new molecules, unaffordable to most consumers. This lack of access makes low – priced counterfeit products quite attractive.
- ❖ Counterfeiting is enhanced by the lack of compliance to regulations that prohibit the selling of drugs out of pharmacies and authorized outlets.
- ❖ The lack of public awareness (consumers buy drugs in the illegal market) .
- ❖ The lack of compliance to regulations that require Rx products to be sold with a prescription contributes to counterfeiting, as this activity is mainly focused on Rx products.
- ❖ The lack of identification of counterfeiting as a specific crime makes judicial, police and health authorities take more time than necessary to seize counterfeit products and/ or proceed against counterfeiters.
- ❖ The imposition of mild or inadequate penalties facilitates the development of counterfeiting (Max fine US\$ 40 and 6 months imprisonment).
- ❖ Differences in pharmaceutical product's prices open the door to cheap – counterfeit products.
- ❖ Access to medicines through the Internet increase cross – border trade and represent another opportunity for counterfeiting.

Challenges Faced By Pharmaceutical Industry

Though Pharmaceutical industries are facing various challenges whether it is related to quality of the drug products or quantity of the products but the most imperative and common predicament faced by the industries is counterfeiting. The counterfeit drugs can cause serious illness and even death⁵⁻⁸. In the entire supplier chain, manufacturers and distributors are considered as the major criminals of counterfeiting activity. Both patients and conscientious manufacturers are victims of counterfeiting and the present environment of secrecy, while explicable, helps to protect the criminals. This is an activity involving production and distribution by people who know what they are doing. While this is part of the illegal drug trade, the lesser intensity of enforcement and the smaller degree of punishment for being caught make this a less dangerous part of the illegal drug trade for the criminal than selling opiates or other hard drugs⁹⁻¹⁰.

The medical consequences of counterfeit drugs can be illustrated by many published examples of counterfeit antibiotics being marketed with no antibiotic content in the tablet. The criminals who make and distribute counterfeit drugs without lifesaving medication in them should be considered as if they have attempted murder or even committed murder, and enforcement and punishment should be appropriate for the enormity of their crimes¹¹⁻¹³. In allowing for counterfeit drugs, we usually ignore the second victim of these crimes, the legitimate manufacturers whose products are counterfeited. Manufacturers keep secret the information about their products' being counterfeited because they fear, rightly, that public information for a particular product being counterfeited will lead to loss of sales of their product and purchase of a competitor's product. Hence public ignorance about a counterfeit product is beneficial to the legitimate manufacturer. Informing the public about a counterfeit to protect patients hurts the manufacturer who does this civic duty¹⁴⁻¹⁷. This problem of the other victim, the legitimate manufacturer, must be addressed because privacy protects the criminals. Lastly, the tribulations that concern doctors the most are that the product does not contain the labeled amount of the drug or the product is not bioequivalent or the product differs in some other way from the FDA approved product, such as with different excipients or contaminants, so that unexpected bad effects occur. Drug content can be checked by laboratory analysis (challenges are summarized in the table 1.1).

Table1.1 showing the challenges faced by Pharmaceutical industries in different domains¹⁸

The Supply Chain	Counterfeiting Activities
<p>Suppliers are responsible for providing raw materials, excipients (the inert substances found in a drug); active pharmaceutical ingredients and other components which manufacturers use to create medical products.</p> <p>Manufacturers oversee drug formation and production and responsible for quality assurance and proper dosage and formulations.</p> <p>Warehousing & delivery Vendors act as the intermediaries between the manufacturers and the drug acquisition sites.</p> <p>Drug acquirement Sites are the businesses and places where customers and patients can obtain the medications, such as traditional, mail order and online pharmacy stores, hospitals, physicians' offices, hospice sites, retail outlets and long-term care providers</p> <p>Patients & Consumers</p>	<p>It is during this step that counterfeit ingredients can infiltrate a legitimate manufacturing facility</p> <p>It is during this step that counterfeit ingredients can infiltrate a legitimate manufacturing facility.</p> <p>It is during this step that counterfeiting process takes place in one or more of the following forms: Product diversion ,Theft/diversion, Fraudulent labeling, Label switching, Illegal repackaging Cutting legitimate products with counterfeit products</p> <p>If the product provided by the vendor is counterfeit, then the pharmacist becomes one part of the chain in this harmful distribution. Healthcare practitioners, including</p>

<p>Prices</p> <p>Donations</p>	<p>pharmacists and physicians have been involved in drug diversion schemes and counterfeiting</p> <p>Counterfeit drugs often find their way into homes via foreign online drug sellers, most of which are rogue. Consumers may purchase the counterfeit drugs directly from these overseas “online pharmacies” or from an affiliate operating domestically.</p> <p>-Vary between countries -Artificially inflated in some cases</p> <p>WHO guidelines not always respected</p>
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- ❖ Approximately one-third to one-half of packets of artesunate tablets, the pivotal, life-saving anti-malarial drug, recently bought in Southeast Asia were fakes, containing no active ingredient at all. A nongovernmental organization in a Southeast Asian country bought 100,000 inexpensive “artesunate” tablets only to find that they were counterfeit.
- ❖ A total of 192,000 Chinese patients are reported to have died in 2001 from fake drugs and in the same year Chinese authorities “closed 1,300 factories while investigating 480,000 cases of counterfeit drugs worth 57 million USD”. In 2004, Chinese authorities arrested 22 manufacturers of grossly substandard infant milk powder and closed three factories after the death of over 50 infants.
- ❖ In North America, counterfeit atorvastatin, erythropoietin, growth hormone, filgrastim, gemcitabine, and paclitaxel have been reported recently.
- ❖ Nigeria recently threatened to ban the import of all drugs from India, a major supplier, because of the high prevalence of counterfeits amongst the imports.
- ❖ In Haiti, Nigeria, Bangladesh, India, and Argentina, more than 500 patients, predominantly children, are known to have died from the use of the toxin diethylene glycol in the manufacture of fake paracetamol syrup.
- ❖ During the 1995 meningitis epidemic in Niger, the authorities received a donation of 88,000 Pasteur Merieux and SmithKline Beecham vaccines from neighbouring Nigeria. The drugs were found to be counterfeit, with no traces of active product. Some 60,000 people were inoculated with the fake vaccines.
- ❖ The recent discovery of counterfeit antiretrovirals (stavudine-lamivudine-nevirapine and lamivudine-zidovudine) in central Africa raises the prospect of a disastrous setback in the treatment of AIDS in sub-Saharan Africa, unless vigorous action is taken now.

This assessment, that the dangers of causing alarm amongst the general public could outweigh the benefits of disclosure, remains widespread in public statements. A spokesperson for the Association of British Pharmaceutical Industries, Marjorie Syddall, wrote (E-mail letter, 20 October 2003), “A company should be completely satisfied that a medicine is counterfeit before informing the authorities, but more importantly still, before it makes this information known to the public so that no unnecessary alarm is caused.” Following are some of the examples of counterfeit drugs (Table 1.2)

Table1.2- Examples of counterfeit drugs

S.NO.	NAME OF PRODUCT	NAME OF ACTIVE INGREDIENT	TEST RESULT (By NQCL)
1.	Apisate tablet	Diethylpropion HCl 75 mg	0%
2.	Amoxan 500 Capsule	Amoxicillin 500 mg	0%
3.	Binotal 500 Caplet	Ampicillin 500 mg	36,48 %
4.	Clacef injection	Cefotaxime	0%
5.	Daonil tablet	Glibenklamide	Negative

Fighting the Peril (Anti Counterfeiting Activities):

The fight against the counterfeit medicines is a global challenge and calls for a unified strategic approach across participant countries worldwide. The problem of counterfeit medicines was first addressed at the international level in 1985 at the Conference of Experts on the Rational Use of Drugs in Nairobi²³.

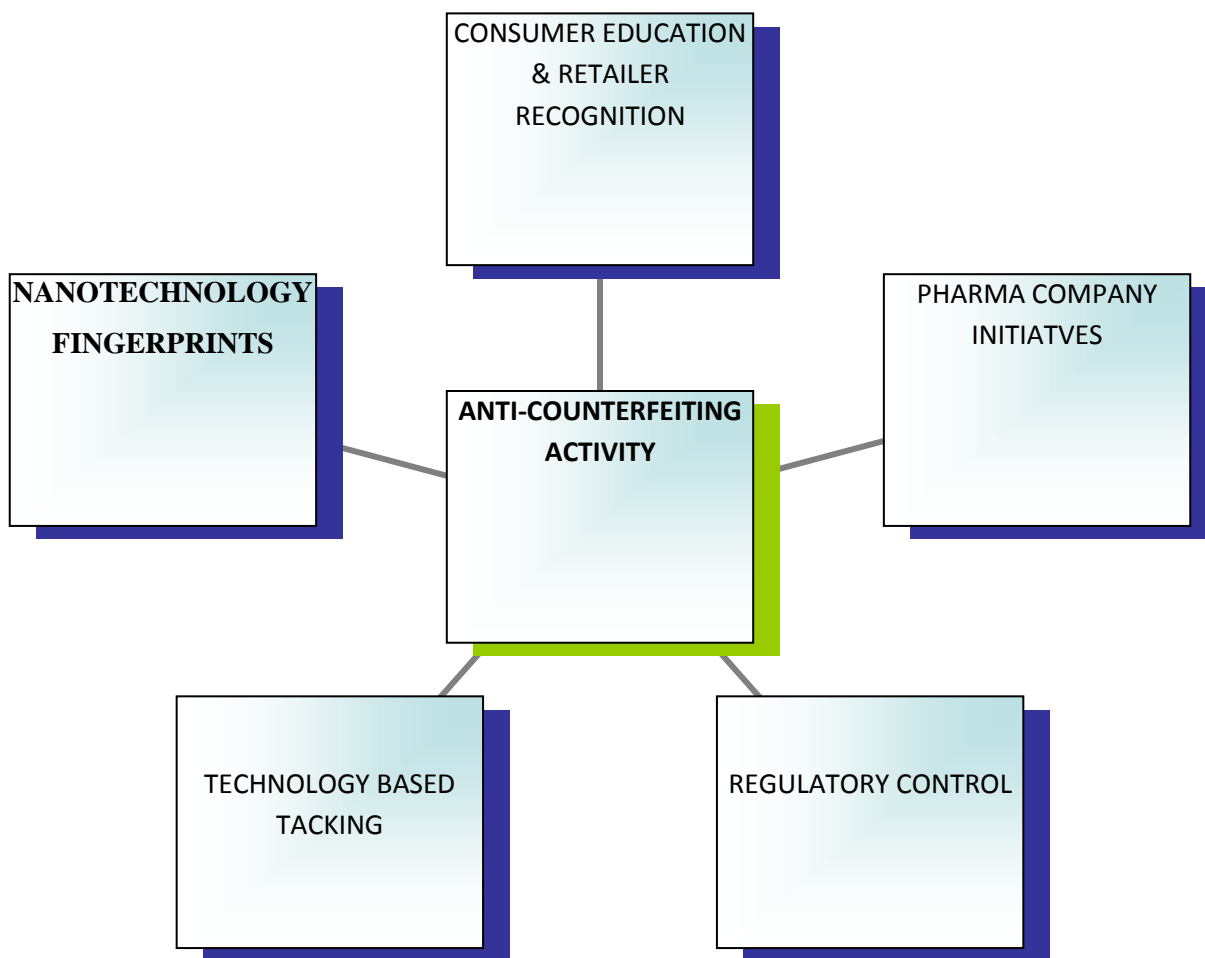
In order to rally awareness and action in the fight against fake drugs in 2006, the first global partnership was created by WHO, known as the International Medicinal Products Anti-Counterfeiting Taskforce (IMPACT). IMPACT comprises all 193 WHO member states on a voluntary basis and includes international organizations, enforcement agencies, national drug regulatory authorities, customs and police organizations, non-governmental organizations, associations representing pharmaceutical manufacturers and wholesalers, health professionals and patients' groups²⁴. These groups have joined to improve coordination and synchronization across and between countries so that the production, trading and selling of fake medicines will cease. To achieve this directive, IMPACT has been focusing on the following five key areas: legislative and regulatory infrastructure, regulatory implementation, enforcement, and technology and risk communication²⁵⁻²⁶.

An agreement was reached with a mission to stop the manufacture and trade of counterfeit medical products and contribute to make medicines of assured quality accessible to all those who need them²⁷.

Other than the regulatory bodies, pharmaceutical companies are in the process to espouse various technologies such as inventive packaging designs, bar coding and radio frequency identification (RFID) chips to arrest the menace of counterfeit drugs. But out of these, RFID hardware and software is thought to be most useful throughout the pharmaceutical industry to

combat sales of counterfeit drugs²⁸⁻³⁰. The US Food and Drug Administration (USFDA) and other drug regulators are pushing for the adoption of same.

Although some initiatives are still controversial at the regulatory side, the tenacity to kill this menace is still lacking among pharmaceutical companies who have focused more of their attention on newer drug research, patent protection and maintaining higher drug prices. Coupled with the inclusion of strategies to combat the counterfeit in the business plan of pharmaceutical companies, a strong political will of all participating countries, an efficient regulatory environment and enforcement of rules and laws and international cooperation is the need of the hour (Fig. 1.)³¹⁻³³.



(Fig.1) Steps taken by industries to overcome counterfeiting

Conclusion:

Counterfeit drug often is distributed across national boundaries. The problem of counterfeit drug has important international dimensions. The Indian government is touting a new survey showing a low percentage of drugs within the country are counterfeit. But the reality is that India still has a major problem with poor-quality drugs. There is a need for intercountry, sub regional, regional and interregional cooperation in the fight against counterfeiting. Therefore combating counterfeit medicine requires collaboration and coordination among relevant stakeholders in each country and between member countries and relevant partner organizations.

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Pharmacist Initiated Intervention for Prevention of Acquired Immunity Deficiency Syndrome (AIDS)

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ABSTRACT

In the present circulation, a collaborating relationship needs to be build up between the pharmacist and patient and the success of this relationship is only when patient become knowledgeable that the pharmacist is competent, trust worthy and empathetic. An effort has been made with the aim to focus and appraise the significance of pharmacist's role in counseling patients for AIDS. Pharmacists are dynamic, patient oriented professionals committed to fulfilling the health care needs of the patients by enhancing patient care and outcomes through medication management, patient education and counseling. Important queries like *Why do you need to know about AIDS?*, *How does someone get infected with HIV?* and *How do you prevent infection with HIV?* can be properly answered and the disease can be prevented if proper precautions are taken and greater awareness meted out to those who are ignorant of the virus and its repercussions on the human body. They should consider AIDS patients differently. Pharmacists need to understand and adopt different approaches while interacting with AIDS patients as their problems are unique. To manage the patients with AIDS, demand fundamentally different approaches to ensure medication adherence. One of the barriers to successfully challenging AIDS in the developing world remains the lack of a trained workforce. Pharmacists are increasingly being recognized in the developing world for their workforce potential. Pharmacists working in various settings have to effectively utilize their knowledge and communication skills to meet the needs of individuals to help them to comply with prevention of AIDS.

Keywords: Pharmacist, Prevention, AIDS, HIV infection

INTRODUCTION

As we all know very well about Acquired Immunity Deficiency Syndrome (AIDS), its prevention and its treatment, unfortunately this knowledge and current interventions have not been able to stop the global rise in the number of people infected. Pharmacists, as healthcare professionals with close contacts to the community, have the potential to further promote AIDS prevention messages and to assist patients in accessing and in taking antiretroviral therapies. In order to increase the number and impact of pharmacists taking part in the fight against AIDS, pharmacist interventions must be evaluated through a systematic review and effective strategies disseminated throughout the global pharmacy community¹.

This essay focuses on identifying and assessing the effectiveness of pharmacist or pharmacy-based interventions related to improving the prevention of AIDS. This will be used to build a good practice resource of methodologies and experiences of pharmacists combating AIDS, which is openly available through the National and International Network for Pharmacists on AIDS.

What is Acquired immune deficiency syndrome (AIDS)?

Acquired immune deficiency syndrome (AIDS) is a collection of symptoms and infections resulting from the specific damage to the immune system caused by the human immunodeficiency virus (HIV) in humans. The late stage of the condition leaves individuals susceptible to opportunistic infections and tumors. Although treatments for AIDS and HIV exist to slow the virus' progression, there is no known cure. AIDS (Acquired Immune Deficiency Syndrome) was first reported in 1981 in homosexual man. AIDS is a retroviral disease caused by human immune deficiency virus (HIV). The disease is characterized by immunosuppression, secondary neoplasm and neurological manifestation. AIDS is invariably fatal since there is no cure^{2,3,4}. Among the special features of HIV infection are that once infected, it is probable that a person will be infected for life. Strictly speaking, the term AIDS refers only to the last stage of the HIV infection⁵.

Preventions for AIDS: Pharmacist Interventions

Pharmacist who had been previously known for compounding and dispensing of medicines at counters of medical shops and hospitals had gone through a change. In present scenario he is the most important link not only between patients and doctor but as an educator, who tells about serial preventive measures in masses at different levels of platforms on diseases like AIDS, tuberculosis, malaria, dengue etc.

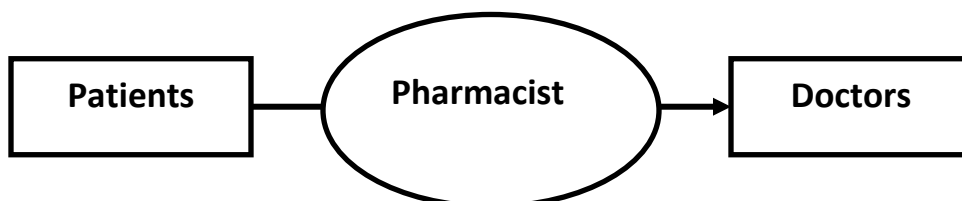


Figure: 1 Showing pharmacist as a connecting link between patient and doctor

A collaboration relationship needs to be build up between the pharmacist and patient and the success of this relationship is only when patient become knowledgeable that the pharmacist is competent, trust worthy and empathetic. Practicing his role as connecting link between patient and doctor, the pharmacist should introduce his role in helping patient to help himself. Patient should also be encouraged to contact the pharmacist if he has any doubts, additional questions or concerns. If the interpersonal relation is healthy, then the patient tends to accept the pharmacist advice positively¹⁴.

Interventions initiated by pharmacist for control of AIDS itself suggest importance of pharmacist as a key role in guiding individuals the do & don'ts about incurable diseases like AIDS. HIV-positive patients required more pharmacist interventions than HIV-negative patients with otherwise similar health status, and pharmacist intervention resulted in decreased medication costs.

Strategies to prevention of AIDS by Pharmacist: “Prevention is still the best bet.”

While AIDS is a high-risk disease it can be prevented if proper precautions are taken and greater awareness meted out to those who are ignorant of the virus and its repercussions on the human body. Here I have listed a few measures which can be adopted by everyone in order to stave off the insidious entry of HIV/ AIDS.

1. Education^{9,10,11}:

- Until a vaccine or cure for AIDS is found, the only means at present available is health education by pharmacist to enable people to make life-saving choices (e.g., avoiding indiscriminate sex, using condoms etc.)
- Pharmacists played an excellent role in distributing AIDS -related information to the public and promoting the understanding of members of the public of the disease HIV/AIDS⁹.
- Pharmacists communicate more effectively and compassionately with public. Many factors affect the effectiveness of a successful educational effort that affects patient compliance. Pharmacists provided high quality information to motivate public to appreciate the importance of safety measures of AIDS¹³.
- Reasons behind ‘*Why do you need to know about AIDS?*’ cleared by pharmacist to increase awareness in common men for prevention from AIDS. People infected with HIV are our friends and neighbors; they are people in our offices and schools, temples, churches and mosques. They are our children, our parents, our brothers and sisters. They live in every state and community in our nation. Everyone needs to know about AIDS because it waits at everyone’s door. Each of us must learn how to prevent infection with HIV, how to support the people around us who are HIV-infected. Hiding behind the veils of cultural superiority or karma is not an option; AIDS is a sexually transmitted disease and has to be tackled accordingly.
- Reasons ‘*How does someone get infected with HIV?*’ also informed by pharmacist for safety purpose. For someone to get infected with HIV, the virus must get past the skin into the body. A person can let that happen in one of four ways:
 1. By having sex without a condom with someone who is infected;
 2. By injecting drugs with needles you are sharing with someone who is infected
 3. By having a blood transfusion with blood from an infected donor. However, blood donated for trans-fusions in is now tested for HIV, so people are almost never infected through blood transfusions.
 4. By passing from an infected woman to her baby in the womb, during birth, or during breast feeding.
- Pharmacist also guided that no one has ever been infected by a shared coffee cup, spoon, or fork, or by the use of a water fountain or a toilet seat. No one has ever been infected by a mosquito or another insect. No one has ever been infected by hugging people with AIDS or by eating dinner with them or by dancing with them or by keeping them company and listening when they need to talk to

someone. The AIDS virus is not contracted through touching, kissing, massage, drinking or eating from utensils used by an infected person or any other mode of casual contact. Nor does working, socializing and living with infected people cause the disease.

- Pharmacist answered that *'How do you prevent infection with HIV?'* HIV in sufficient amounts to cause infection exists in blood, semen, vaginal fluid, and breast milk. You can prevent infection with HIV by making sure that these fluids from an HIV-infected man or woman don't have a chance to enter your body. The best ways to be sure are to practice safer sex by using condoms and to refuse to share drug-injection equipment with anyone. If you have vaginal or anal sex, use a latex condom. Use a condom or a dental dam (a square of latex) if you have oral sex. A condom will keep the virus, which can be found in semen or vaginal fluids, from getting into your body. Always use a latex condom; lambskin condoms don't protect you from HIV. Always use a water-based lubricant, such as K-Y Jelly or Foreplay. Oil-based lubricants, like vegetable oil, hand lotion, or petroleum jelly (Vaseline), can make the condom break. For additional protection, choose a lubricant that contains the spermicide nonoxynol-9, which seems to kill HIV. But always use a condom with nonoxynol-9 foam or lubricant: the chemical alone is not enough to protect you. Also, remember that many kinds of sex won't put you at risk for HIV infection. Try massage, masturbation (with a partner or alone), foreplay, phone sex, or necking.
- Pharmacists also played a role in the distribution of condoms to the general public along with information on the safe and better use and to destroy the same, to avoid recycling. There is, however, no guarantee that the use of condoms will give full protection.
- Intravenous drug users also informed by pharmacist that the sharing of needles and syringes involve special risk and one should also avoid the use of shared razors and toothbrushes.
- Pharmacist give suggestions to find out that you are infected by HIV infection. When HIV infects you, your body tries to fight the infection in the same way it fights all viruses and bacteria: It produces antibodies against the virus. You can find out if you have been infected with HIV by getting a blood test for the HIV antibody. If you have the HIV antibody in your blood, you are HIV-positive. Being HIV-positive does not mean that you have AIDS, but it does mean that you have become infected with HIV and that you can pass the infection to someone else. If you are thinking about having a child, you should ask to be tested before you become pregnant, especially since passing the virus from mother to child can now be prevented. If the test does not find the HIV antibody in your blood, you are HIV-negative. However, if you have had unprotected sex or have shared needles with someone not long ago, you may have become infected too recently for the antibody to be detected. To make sure that you aren't infected, it's a good idea to have yourself tested again in six months. Be sure to practice safer sex and to use only clean needles in the time between tests. If you are pregnant, enroll in a

prenatal care pro-gram and be tested again. If you test negative again, then the challenge for you is to stay negative for the rest of your life.

- Women suffering from AIDS or who are at high risk of infection should avoid becoming pregnant, since infection can be transmitted to the unborn or newborn.
- Medical shops can act as centre for exposing people to HIV/AIDS information through the display of Information Education and Communication (IEC) material as well as by keeping leaflet on the counter for the people to pick up for themselves.
- The pharmacist, besides giving information and clearing doubts of those people who seek clarification on disseminated information on a product related in some way to HIV/AIDS and its related issue, and also serve as a focal person for providing information on care of those infected as well as on how to take care of affected family.
- Pharmacist also informed to avoid alcohol or drugs during sex; you might lose control of your senses and engage in unsafe sex. Stick to safer sex practices at all times and avoid having multiple partners. Practice monogamy. If this is a tall order, serial relationships are a lesser evil than multiple ones.
- Information given by pharmacist regarding prevention from AIDS also include: avoid oral genital sex involving contact with semen or vaginal fluids, oral anal sex, vaginal sex without a condom, anal sex sans a condom (active or passive), fisting or manual anal intercourse, the sharing of sex toys, using saliva for lubrication and blood contact of any kind during performance. If unable to resist oral sex, use a dental dam. If a woman is infected, avoid sex during the menses as menstrual blood is infectious.
- People in high-risk groups should be urged to refrain from donating blood, body organs, sperms or other tissues. All blood should be screened for HIV 1 & HIV 2 before transfusion.
- Pharmacists see a lot of people from different walks of life and therefore could be distributors of informative material to the public at large. Educating the public in this way could assist in reducing the stigma often associated with AIDS.
- The initiative by pharmacists emphasizes the use of proven public health approaches to reduce the incidence and spread of disease and capitalizes on new rapid test technologies, interventions that bring persons unaware of their HIV status to HIV testing, and behavioral interventions that provide prevention skills to persons living with HIV.
- Pharmacist can inform, educate and communicate using a combination of prevention strategies of AIDS:

List of combination of prevention strategies of AIDS

1. Posters in pharmacies- designed to target specific groups, e.g., orphans, women, adolescents, mobile populations, intravenous drug users and breast-feeding mothers.
2. Easy-to-read leaflets in local languages to increase awareness amongst at-risk groups as well as the general populations.
3. Videos and talks to schools, community organizations, religious organizations, clubs, health fairs, women's groups.

4. Pharmacist-operated hotlines.
5. Media presentations, e.g., television, radio (phone-in programmes, newspapers question-and-answer features).
6. “Ask your pharmacist” campaigns.
7. Promotion of safer sex messages through peer group presentations.

2. Community Pharmacy:

- The community pharmacists’ network played a key role in controlling AIDS epidemic in the country. At the same time, involving them in the programme is probably one of the most difficult activities. Considering the scenario of HIV/AIDS in India, and efforts put in by various organizations and professional bodies in the areas of HIV/AIDS, every additional effort will help. Community pharmacy is a potential area that can be deployed highly effectively as the community pharmacists are in close contact with the people^{6,7,8}.
- A potential model uses the pharmacy, now termed a community care centre, as the focal point for care delivery. A new healthcare team, including a doctor/physician, pharmacist and nutritionist would coordinate treatment selection and delivery. The pharmacist act as a community resource for information on HIV/AIDS to help dispel myths and misinformation about the AIDS. They are a provider of testing services and counseling, as well as preventative methods and information.
- Living in the community, the pharmacist initiated a social support group for those infected, reducing stigma related to the HIV/ AIDS infection. Further, he/she become a trainer for people in a community for home based care, which reduces the financial burden on the community.

3. Hospital Pharmacy:

- Most hospital pharmacists-seeking a relevant professional role in health care-would enthusiastically play a pro-active role in prevention and awareness about AIDS and provide counseling if properly trained for the job.
- In the hospital pharmacy, the pharmacist can double up as a pre and post-test counselor for HIV/ AIDS. He/she can also be a counselor for out-patient and in-patients, as well as source of information for visitors.
- Strategic places of the premises of the hospital can be used to educate the public about HIV/AIDS, and also announce that further information, answering of queries related to HIV/AIDS is available at the pharmacy, where pharmacists are available round the clock

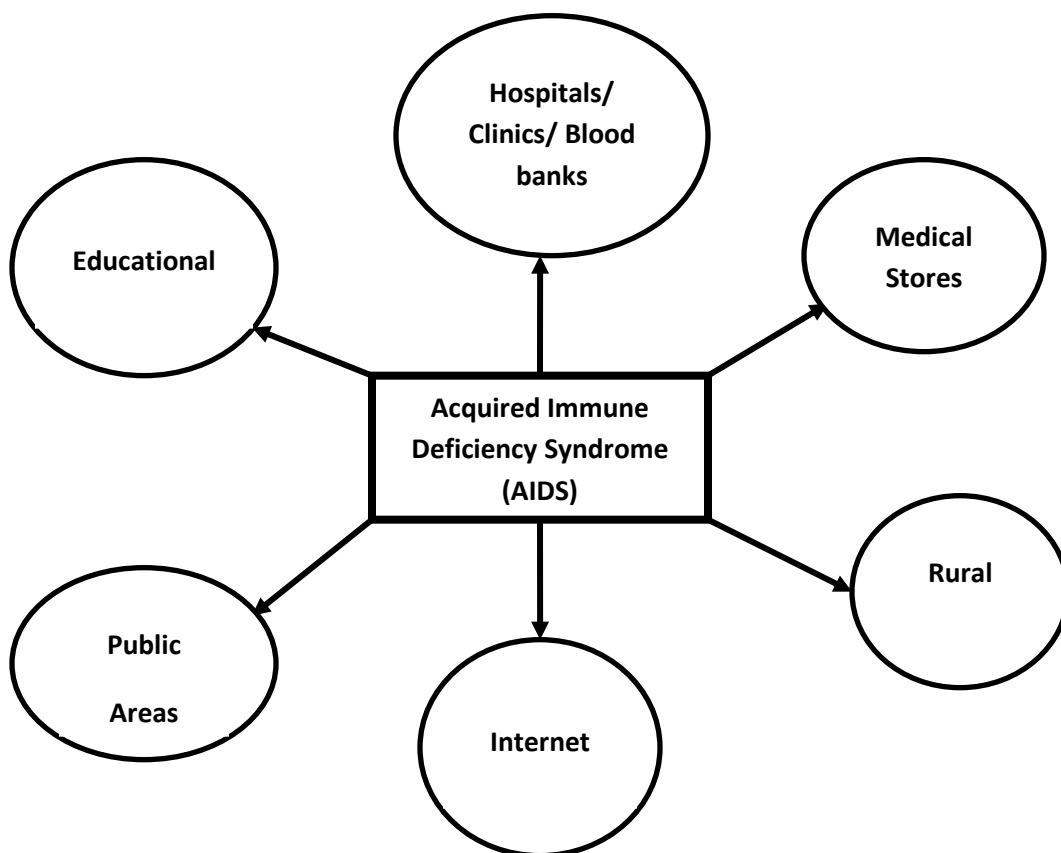


Figure: 2 Showing areas of interventions where the pharmacist can fight against AIDS

Areas of Attention⁵

While by and large the system works, there are certain areas that need immediate attention.

- Pharmacists should be educated to create awareness in general public and the media for dangers associated with AIDS.
- Strict sterilization practices should be ensured in hospitals and clinics. Presterilized disposable syringes and needles should be used as far as possible. One should avoid injections unless they are absolutely necessary.
- Educational material and guidelines for prevention from AIDS should be made widely available at different places like hospitals, clinics, medical shops and public places also.
- Pharmacies/ medical stores should be utilized as places where the general public could access friendly and supportive counseling services surrounding HIV/AIDS.
- The pharmacy services in most hospitals with the exception of a few here and there are still in a primitive stage.^{6,7} Besides the need for acquiring adequate knowledge pertaining to HIV/AIDS a hospital pharmacist should have additional training to be able to take part in the various activities like generating awareness in the hospital staff about a proper handling of AIDS patients, handling biological fluids, monitoring the therapy given to patients, drug interactions, etc.

- In collaboration with ministry of health and family welfare, a program can be designed, where hospital pharmacist is assigned the responsibility of distributing the pamphlets, posters, stickers etc. to the patients, at least to those attending the AIDS, obstetrics/gynecology clinics
- Pharmacists can improve access to HIV testing and counseling. Pharmacies should be utilized as places where comprehensive reproductive health services can be provided for HIV positive women.
- Pharmacies may be utilized as centers to improve access to voluntary testing and counseling, and therefore improve access to this service, which must be conducted according to the '*Guidelines for performance of HIV tests*'.
- Although pharmacy is practiced throughout the world, the potential of clinical pharmacy practice is assuming global significance, especially when applied to AIDS. The reasons are many, including these¹²:
 1. The potential of clinical pharmacy is becoming known in the developing world. The Internet has proved a powerful communications tool.
 2. One of the barriers to successfully challenging AIDS in the developing world remains the lack of a trained workforce. Pharmacists are increasingly being recognized in the developing world for their workforce potential.
 - Internet pharmacies should be involved in educating the people on AIDS, its nature, transmission and prevention; this includes international travelers.
 - Co-ordinated activities with other established HIV/ AIDS group at national, regional, rural areas and community levels should be performed for awareness and prevention of AIDS.
 - The major infrastructure that rural people have is the mosque, the temple or the church, which makes pharmacists good places to focus anti-AIDS efforts. The particular difficulties of battling AIDS in an environment of severe poverty because there are no doctors, no pharmacists, and nurses are practically running the hospitals. Lack of an adequate health care workforce is only the beginning of the problem. People focus on health care and drugs, but the problem is so much bigger than that. Even if you can provide drugs, people often sell them to get food or pay for their children's education. It is difficult for people to take medication on a regular basis for HIV/AIDS, if they have no food to eat so pharmacist can play a good role in providing HIV/AIDS education and care to patients with HIV/AIDS in their homes and to orphans¹².
 - Because of its wide-ranging health implications, AIDS touches all aspects of primary health care, including mother and child health, family planning and education. It is important, therefore, that AIDS control programmes are not developed in isolation. Integration into country's primary health care system is essential.

All said and done this is not going to be easy task. However once the wheel of change are set into motion nothing will seem impossible. Imagine what we could achieve if like minded people with genuine intentions like Government, health care regulatory bodies, doctors and pharmacists were to get together and pledge to make India a name to reckon with in terms of AIDS free country.

All our philosophy is dry as dust, if it is not immediately translated into some act of living services.

(M. K. Gandhi)

Conclusion

Pharmacists do have an important role to play in promoting prevention in their communities as well as in providing adequate treatment and support to patients with AIDS. However to achieving success in the fight against AIDS will require substantial adjustments in pharmacists' practice, good communication skills between pharmacists and their customers, and considerable goodwill among pharmacists on the ground. Pharmacists working in various settings have to effectively utilize their knowledge and communication skills to meet the needs of individuals to help them to comply with prevention of AIDS.

Greater support is necessary, at all levels, to increase effective pharmacist involvement in the fight against AIDS as well as to properly evaluate, and disseminate the successes, of these pharmacist-lead interventions. To be successful in same, all pharmacists have to be proactive on many fronts and should always remember, "*Coming together is a beginning; keeping together is progress; working together is success*".

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