

**EFFECTIVE PATIENT COUNSELING ON DIETARY SUPPLEMENTS**B. Akshaya Srikanth^{*1}, G. Praveen Kumar² and S. K. Jain³¹Department of Pharmacy Practice, P.R.R.M.College of Pharmacy, Kadapa, A.P, India²Department of Pharmaceutics, SRM College of Pharmacy, Chennai, India³Chief Pharmacist, AIIMS, New Delhi, India***Corresponding author e-mail:** akshaypharmd@gmail.com**ABSTRACT**

The role of the healthcare provider should consist of educating patients and their relatives about the drugs and supplements and ensuring the patients without harming themselves by self medications. Pharmacists can assist them in this by playing a role although some dietary supplements are used while in treating diseases and have some scientific research to support their use. There are many dietary supplements like valerian, melatonin used for the treatment of mild to moderate insomnia, omega-3-fatty acid, niacin in reducing the triglycerides levels and lycopene in reducing the HMG-CoA reductase by enhancing the LDL reductase which are safe and more effective. Current supplements and how they should be effectively useful in different condition and counseling to the patient. Information to assist the healthcare providers about the dietary supplements use in different conditions and counseling the patients is also provided.

Keywords: Dietary supplements, Patient counseling, Lycopene, Kadapa, India**INTRODUCTION**

The availability of rational use of medicines for a successful therapeutic outcome, though rapid development in science and technology may led to easy understanding the etiology and pathophysiology basis of various diseases and development of new molecules, many times clinicians fail to achieve the desired therapeutic goals due to patient non-compliance or partial compliance towards the prescribed treatment.^[1] Patient compliance is defined as the adherence of the patient towards the prescriber's instructions.

It implies as understanding of how the medicines are to be used, as well as the patient positive behavior in which manner the patient motivated sufficiently for use the prescribed treatment intended for positive outcome? Non-compliance includes faulty-gap in communication, underuse, overuse, misuse, abuse etc.^[2] The most common factors associated with non-compliance includes nature of the disease, multiple drug therapy, frequency of drug

administration, duration of drug therapy, adverse events, cost of medication, administration technique, taste of medicine etc.^[3] With significant growth and development, the profession of pharmacy had evolved a new concept called Pharmaceutical care; with respect to and under supervision a responsible provision of drug therapy for the improving the patients quality of life.

These outcomes are preventable and curable of disease, elimination or reduction of symptoms and in preventing to the disease,^[4] the most important aspect pharmaceutical care for the better proper use of medication one of the most important aspects of pharmaceutical care is counseling patient concerning medications. It is the responsibility of the pharmacists to counsel the patients before or at the time of dispensing the medication. Counseling not only enhances compliance, but also reduces complications resulting from non adherence to treatment. Patient counseling may be defined as providing medication information orally or in written form to the patients or their representatives or

providing proper direction to use, advise on side effects, storage, diet and life style modification, it involves a one-to-one, face-to-face, eye-to-eye interaction between a pharmacist and a patient or a care giver. The effective counseling should encompass all the parameters to make the patient understanding about the disease, medications and life style as well as, and time to time modifications.^[5] The role of the healthcare provider should consists of educating patient, monitoring interaction between supplements and drugs and ensuring that patient are not harming themselves while treating a self-diagnosed health condition. Although some supplements have specific research to support their use, as well as many do not. In this article we are discussing, the dietary supplements and how these are more safe and effective. Current information may assist healthcare providers when counseling patients is also provided.

DIETARY SUPPLIMENTS

Dietary supplements are products that contain 1 or more dietary ingredients, including vitamins, minerals, herbs and other substances such as amino acids. Products are to be taken by pill, capsules, tablets or liquids and labeled as dietary supplements. Research has shown that some uses of dietary supplements are effective in preventing or treating diseases. For example, scientists have found that folic acid (a B-Complex group vitamin) prevents certain birth defects, and a regimen of vitamins and zinc can slow the progression of the age- related eye disease macular degeneration.

Also, calcium and with vitamin D supplements can be helpful in preventing and treating degeneration of bone and osteoporosis. Research has also produced some promising results suggesting that other dietary supplements may be helpful for other health conditions (e.g., omega-3 fatty acids for coronary disease), but in most cases, additional research is need of the hour before firm conclusions can be drawn. Discussion in this article focuses on the dietary supplements that are used in various conditions.

PAIN

Counterirritants: Two topical counterirritants are being used to relieve pain, camphor and capsaicin, in the medicament form of liniments and creams.^[6] Camphor in concentration from 3% to 11% is used to treat pain associated with musculoskeletal injuries, osteoarthritis, and lower back pain and even in insect bites. Camphor has an aromatic odor and produces a

cooling effect on the skin. Camphor is commonly found in combination with menthol and methyl salicylate. Capsaicin is derived from capsicum peppers, a natural medicine supplement and is to eliminate a pain by producing substance known as substance P on nerve endings by producing warm and burning sensation in couple of days. In 3 to 7 days, pain when substance P has been depleted from the nerve endings, Patient should be counseled for use capsaicin-containing patch and advised to avoid contact with eyes and mucous membrane.

Glucosamine: Glucosamine is indicated when the pain associated with osteoarthritis, it has been found to be effective in uncomplicated osteoarthritis but not for the chronic low back pain with degenerative lumbar osteoporosis.^[7] Glucosamine is also a good analgesic alternative for a nonsteroidal agent. The sulfate salt has been studied instead of N-acetyl glucosamine or hydrochloric acid. The sulfate salt is responsible for strengthening cartilage and aiding glycosaminoglycan synthesis. In the dose of 1.5gms daily or 500 mg 3 times daily usually recommended. Glucosamine is commonly found in combination with chondroitin or soybean unsaponifiables, but the combinations had not shown to provide any additional benefits. Patients should be advised to use glucosamine for 8 to 12 weeks for the best results.^[8]

Hyaluronic acid: Hyaluronic acid is available as intra-articular injection and is indicated for the stiffness and joint pains with knee osteoarthritis. Hyaluronic acid is a viscous substance that lubricates and protects the joint. The agents are injected directly into the intra articular knee space 1 time for every 6 months. It takes few weeks to show its effectiveness.

INSOMNIA

Melatonin: Melatonin is used in the treatment of insomnia and is safe when used for short-term use. Melatonin is a hormone that is secreted by the pineal gland and cycles with circadian rhythm.^[9] Melatonin secretion sets the sleep/wake cycle and can be used as a hypnotic. Light inhibits its secretion, so greatest endogenous concentration is in the evening before bedtime. Melatonin seems to work best on the elderly, who are most likely deficient in endogenous melatonin.^[10] The dose of melatonin is 0.3 to 5mg/day on short acting. Short-acting formulations should be used by patients who have trouble falling sleep and sustained-acting formulations should be used for those who have difficult remaining asleep.

Valerian: Valerian is a sedative-hypnotic agent used for the mild-to-moderate insomnia and has been

found to be effective. The extract is derived from the rhizome and roots, the active compounds of the herb and is the formulation on which most research is based. The valerian extracts are available in dose of 400 mg and even more should be taken 1 to 2 hours before bedtime. As the valerian extracts has a pungent odor, shall be advised to the patients to store the product in refrigerator in order to disguise the natural odor. The cap of the bottle should be kept tight and to take capsule quickly with a glass of water.^[11]

DYSLIPIDEMIA

Fish Oil: Supplemental and dietary sources of fish oil containing omega-3-fatty acids, most commonly eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are effective in reducing the triglyceride levels, thereby reducing the risk of cardiovascular disease. When used with garlic powder, when used with garlic powder to lower total cholesterol, LDL, and the ratios of total cholesterol to HDL, and LDL to HDL, along with triglycerides. Fish oil lowers the triglycerides levels by decreasing the synthesis and its absorption, secretion of very-low-density-lipids (VLDL) cholesterol, increasing secretion of VLDL apolipoprotein B, and increases the clearance of VLDL cholesterol and reduces triglycerides transport. Fish oil decreases the cholesterol synthesis and cholesterol absorption from the GI tract.^[12] Flax-seed oil, soy, and walnuts containing alpha-linolenic acids do not have the same properties as fish oil and don't lower the triglycerides. Fish oil in doses greater than 1g/day may reduce the triglycerides level by 20% to 50%, the dose to lower high triglycerides being 1 to 4 g daily. Fish oils are well tolerated and cause a fishy aftertaste, heartburn, dyspepsia, nausea, diarrhea, or rash. To help decreasing side effects, patients should be advised to try freezing the supplement, taking fish oil with meals.

Niacin: Niacin is the effective in reducing LDL, cholesterol and triglyceride levels as well as increasing the HDL cholesterol levels.^[10] Niacin can reduce the LDL cholesterol by 5% to 25% and triglycerides by 20% to 50% while increasing HDL cholesterol by 15% to 35%. The greatest increase in HDL and decrease in triglycerides occurs at 1.2 to 1.5 g/day. The most pronounced benefits for LDL occur at 2 to 3 g/day.^[13] Niacin's role in treating hyperlipidemia is to inhibit the rate of chylomicron triglyceride removal from plasma and to inhibit free fatty acid release from adipose tissue. Niacin is well tolerated in low-dose dietary supplements. At the larger doses necessary to treat hyperlipidemia, however, the most common side effects include

burning, itching, pain, and erythema of the face, arms and chest. To reduce the side effects patients should counseled to take an aspirin 30 to 60 minutes before taking niacin, take with food and to avoid alcohol.^[14]

Lycopene: Lycopene belongs to the class of carotenoids, which are yellow, orange and red pigments synthesized in plants. The five principle carotenoids found in human plasma, as ingesting plants includes alpha and beta-carotene, beta cryptoxanthin, lutein and lycopene. Lycopene rich in tomatoes, pink grapefruit, watermelon and guava their red colour.^[15] Dietary intake of tomatoes and tomato products containing lycopene intake have been shown in cell culture, animal and epidemiological investigations to be associated with a decrease risk of cardiovascular diseases.^[16] Lycopene has the capacity to lower as well as to prevent free radical damage to cells caused by reactive oxygen species. Lycopene may reduce lipids by inhibiting the enzyme macrophage 3-hydroxy-3-methyl glutaryl coenzyme A (HMG-CoA) reductase and by enhancing the LDL degradation. In addition, available evidence suggests intimal wall thickness and risk of myocardial infarction (MI) are reduced in person with higher adipose tissue concentrations of lycopene, and has an inverse relationship.^[17] In a study the lycopene shown an inverse relationship between tissue and serum levels of lycopene and mortality from coronary heart disease (CHD), cerebrovascular disease, and MI.^[18] The estimated daily intake of the lycopene has been difficult due to variability of reported values in the food source. Based on the results of the recent study the where absorption of lycopene from tomato ketchup and supplement at the intake levels of 5, 10 and 20mg daily for one week evaluated, the recommended daily intake of lycopene in 60mg for reducing LDL cholesterol.^[19] Lycopene is generally considered safe, non-toxic, and consumption is usually without side effects. Scientific evidence use in pregnancy is not available; however, no adverse events have been reported so far in association with consumption of lycopene-containing food during pregnancy.

DEPRESSION

S-Adenosylmethione (SAME): S-Adenosylmethione (SAME) is used for the treatment of the mild to moderate depression but not for bipolar depression thought is not a herb but it is commercially made from the yeast cell cultures. It acts as a substrate in many biological reactions, initiates several metabolic pathways, and is the precursor of certain essential amino acids. The mechanism of action if SAME is

believed to facilitate the synthesis of neurotransmitter such as norepinephrine and serotonin. Common oral dosage for depression are 200mg to 1,600mg/day in treatment-resistant patients along with conventional antidepressant agents.^[20]

St. John's Wort: St. John's wort has been used to treat mild to moderate depression. It appears to inhibit serotonin, norepinephrine, and dopamine reuptake. Patients should be counseled to take the supplements for 2 to 4 weeks to achieve the results.^[21] St. John's wort is an enzyme inducer via CYP3A4 and decreases the efficacy of many medications like alprazolam, digoxin, antiretroviral drugs, antifungal drugs, calcium channel blockers, oral contraceptives, serotonergics and simvastatin.^[22]

CONCLUSION

Dietary supplements may be proved to be fruitful and be safe and effective; Pharmacists need to assist healthcare providers in promoting the safe use of dietary supplements. Pharmacists must focus on counseling and educating the patient on drug supplement interactions and safe use of dietary supplements. Alternative therapies have opened new opportunities for pharmacists to expand their role by providing education and counseling to the patients for the use of these supplements whenever required. Educating patients about these supplements is crucial for their safe and appropriate use.

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