USE OF AYURVED MEDICINE AND ANESTHESIA-REVIEW ARTICLE

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ABSTRCT-

The most significant concern for the anesthesiologist during the perioperative period is the altered baseline physiological functions due to the practice of polypharmacy by this surgical subset of patients, and the associated co-morbidities that can greatly increase the mortality and morbidity. [1] The clinical consequences and complications can affect any organ system and may lead to myocardial infarction, stroke, bleeding, higher anesthetic consumption, delayed recovery from anesthesia, respiratory complications, renal disturbances, nullification of the therapeutic effect of other medications, and even transplant rejection. Drug interactions of these medicines in the surgical population are of utmost importance and warrant complete knowledge on the part of the anesthesiologists, of the pharmacokinetic and pharmacodynamic properties of these medicines. [2] The lack of information further makes it virtually impossible for physicians to assess the possible concentration of the drug, its active ingredients, dose requirement during surgical procedures, metabolism, and metabolite formation of these agents, as also their possible excretory pathway from the body.[3] The use of plants as medicines goes back to ancient times. The Egyptians believed aloe vera prolonged life. The Bushmen of the Kalahari in Africa have used the flowering cactus, hoodia, for centuries to ward off hunger. In India and China, herbal medicines are important parts of medical practice.

KEYWORDS-*AYURVEDA MEDICINE,ANESTHESIA,TURMARIC,GARLIC,ASHWAGANDHA GINGER*

INTRODUCTION-

"A potent poison becomes the best drug on proper administration. On the contrary, even the best drug becomes a potent poison if used badly".

[Charakacharya in Charak Samhita]

The practice of complementary and alternative medicine has gained tremendous popularity due to their claimed beneficial effects in cardiac, respiratory, and chronic diseases, as also other disorders. [4] The most threatening aspect related to these practices pertains to the self-administration of herbal medicines even by the highly educated and intellectual strata of society. [5] The rising consumption pattern among the general public is based on false misconceptions that such products are safe for use as they are completely natural. The marketing of these products through media is another factor for their popularity and widespread use. Ironically, a majority of these drugs never undergo any stringent testing and moreover there is hardly any description or proper documentation of the various ingredients contained in these products. [6] As such, a majority of the users are totally unaware of the side effects associated with these medicines. Also there are significant potential risks of drug interaction because of these medicines, as they can prove to be catastrophic and devastating in various clinical settings. [7]

Turmeric –*[Curumalonga]*

Turmeric has been used since ancient times as both a food spice and medicinal agent. It is the most commonly used herbal product in almost every household of the Indian subcontinent as a dye and food component. The beneficial effects of turmeric are believed to be due to its anti-infective, analgesic, anti-inflammatory, and anti-oxidant actions. [8] The ability to inhibit microsomal enzyme P_{450} causes the prolonged duration of many drugs like fentanyl, midazolam, warfarin, theophylline, bupivacaine, ropivacaine, and lignocaine. Neurocognitive effects are utilized for the treatment of depression, and stress protection from active metabolites of paracetamol, in toxic doses, has also been observed by few researchers. [9] Curcumin, the yellow coloring principle in turmeric, is polyphenolic and the major active constituent. Curcumin possesses potent antioxidant and anti-inflammatory effects as well as thrombolytic and anticarcinogenic properties. Studies in mice demonstrated a neuroprotective effect following cerebral ischemia. Additional studies noted that chronic dietary curcumin use lowered amyloid-$ protein deposition, a finding that may have favorable implications in Alzheimer's disease. According to the National Institutes of Health, turmeric acts as a free radical scavenger and is also a potent inhibitor of

CYP450 and can decrease the metabolism of many drugs used in the perioperative period (Table 5). Interference with antacid medications is a possible side effect of turmeric, and may result in increased stomach acid if taken with antacid drugs such as H-2 blockers or PPIs. Curcumin also has described immunosuppressant activity as an mTOR (mechanistic target of rapamycin) inhibitor.

Garlic-[Alliumsativum]

Garlic (*Allium sativum*) has been used for several thousand years to flavour food and for its medicinal properties. Garlic has been claimed to be beneficial in infection, tumours, diabetes, hypertension, hyperlipidaemia and atherosclerosis . Garlic is considered to be a natural antibiotic. It has also been observed to exert anti-tussive, expectorant, and diuretic activities and is a cholesterol lowering agent. The lipid and cholesterol lowering effects significantly reduce the risk of atherosclerosis and subsequently lower the blood pressure and incidence of thrombus formation. [10] These effects are largely attributed to an active metabolite allicin, which contains sulfur and gives garlic its characteristic smell. A decrease in pulmonary and systemic resistance has been observed in the laboratory animals with allicin. The platelet aggregation is inhibited in a dose-dependent manner. Another active compound of garlic, ajoene, is responsible for the irreversible inhibition of platelets, by potentiating the effects of platelet inhibitors. [11],[12] It is believed to possess immunomodulator and anticancer properties. [13] It is associated with few side effects like bad breath, bad odour from skin, gastrointestinal upsets, and skin rashes. On the basis of insufficient data about the pharmacokinetics of its constituents and its effect on platelet function, it should be stopped at least seven days prior to surgery, especially when there is a possibility of epidural hematoma formation and postoperative bleeding. Garlic has beneficial cardiovascular effects but, by inhibiting platelet aggregation, can potentiate the antiplatelet effects of aspirin and NSAIDs.

There is increasing interest in its antihypertensive and antihypercholesterolaemic activity [19]. Its medicinal properties are mediated by the sulphur-rich compounds in garlic that contain cysteine.

It is observed that Allicin, a thiosulphate formed when the garlic bulb is crushed, inhibits 3-hydroxy-3-methylglutaryl co-enzyme A reductase (HMG-CoA), an enzyme important in cholesterol biosynthesis, in *in vitro* studies.

GINGER-Zingiberofficinale.

NAME OF DRUG	LATIN NAME	WESTERN USE	CHINESES USE	ADVERSE EFFECT
GINGER	Zingiber officinale	Food component• Respiratory ailments • Congestion • Sore throats • Body aches• Motion sickness• PONV*	• Food component • 'Evils': expel 'cold', • and 'damp'	Possible mutagenesis• Bleeding complications with warfarin• Antiplatelet (decrease aggregation) • Risk of hyperglycaemia
Garlic	***Alliu msati***	Food component• Natural antibiotic•	• • Food component•	• Antiplatelet• Anti•

	vum	Promotor of leukocytosis•	Diuret• Expectora• Strengthen stomach and spleennt ic • Re-establish blood flow and 'Qi'• 'Evils': break 'cold'; remove 'damp' • Antitussive • • Antimicrobial, • Diarrhoea	Expectorant t Potentiation of warfarin hrombolytic Risk of interaction with cardiovascular medications lipid-lowering effects MAOI†, hypoglycaemics
ASHWAGANDHA	Withania somnifera	Arthritis, anxiety, bipolar disorder, ADHD, balance, trouble sleeping (insomnia), tumors, tuberculosis, asthma, a skin condition marked by white patchiness (leukoderma), bronchitis, backache, fibromyalgia,		cause blood pressure to go to low in people with low blood pressure; or interfere with medications used to treat high blood pressure.

		menstrual problems		

Zingiber officinale (Ginger) Ginger is commonly used by patients preoperatively for the prevention of nausea. Gingerol is the main bioactive compound in ginger. It's responsible for much of ginger's medicinal properties. It may help relieve nausea and vomiting for people undergoing certain types of surgery. Ginger may also help chemotherapy-related nausea, but larger human studies are needed

Gingerol has powerful anti-inflammatory and antioxidant effects, according to research. For instance, it may help reduce oxidative stress, which is the result of having an excess amount of free radicals in the body Ginger appears to speed up emptying of the stomach, which can be beneficial for people with indigestion and related stomach discomfort. Ginger contains the substance gingerol, which appears to have protective effects against cancer. However, more studies are needed.

. A study comparing the effects of ginger versus metoclopramide found that there were statistically significant lower incidences of nausea in the group that received ginger. Ginger has been found to cause hyperglycemia. It has also been found to be a potent inhibitor of thromboxane synthetase and can prolong bleeding time. Study reports indicated that some ginger compounds and derivatives are more potent antiplatelet agents than aspirin. Large quantities of ginger may also cause cardiac arrhythmias, central nervous system depression, and potentiation of the effect of calcium channel blockers. Animal studies suggest that ginger can protect against age-related damage to the brain. It can also help improve brain function in middle-aged women. Ginger may help fight harmful bacteria and viruses, which could reduce your risk for infections. Gingerols, in particular 6-gingerol, are the active components of ginger. However, the precise mechanism of ginger's anti-emetic activity is unknown [**16,17**]. Proposed mechanisms include direct stimulation of the gastro-intestinal tract, or serotonin antagonism in the gut or central nervous system [**18]**

ASHWAGANDHA-

Ajagandha, Amangura, Amukkirag, Asan, Asana, Asgand, Asgandh, Asgandha, Ashagandha, Ashvagandha, Ashwaganda, Ashwanga, Asoda, Asundha, Asvagandha, Aswagandha, Avarada, Ayurvedic Ginseng, Cerise d'Hiver, Clustered Wintercherry, Ghoda Asoda, Ginseng Ayurvédique, Ginseng Indien, Hayahvaya, Indian Ginseng, Kanaje Hindi, Kuthmithi, Orovale, Peyette, Physalis somnifera.

Ashwagandha is a plant. The root and berry are used to make medicine.

Ashwagandha has a lot of uses. But so far, there isn't enough information to judge whether it is effective for any of them.

Ashwagandha is used for arthritis, anxiety, bipolar disorder, attention deficit hyperactivity disorder (ADHD), balance, trouble sleeping (insomnia), tumors, tuberculosis, asthma, a skin condition marked by white patchiness (leukoderma), bronchitis, backache, fibromyalgia, menstrual problems, hiccups, Parkinson's disease, and chronic liver disease. It is also used to reduce side effects of medications used to treat cancer and schizophrenia. Ashwagandha is used to reduce levels of fat and sugar in the blood. Ashwagandha might decrease blood pressure. This could cause blood pressure to go to low in people with low blood pressure; or interfere with medications used to treat high blood pressure. Ashwagandha should be used cautiously if you have low blood pressure or take medications for your blood pressure.

There is some evidence that ashwagandha might reduce cholesterol levels in patients with high cholesterol.

Early research suggests taking a specific ashwagandha extract 2,000 mg (Himalaya Drug Co, New Delhi, India) during chemotherapy treatment might reduce feelings of tiredness.

Some clinical research shows that a combination herbal product containing ashwagandha may improve attention and impulse control in children with ADHD.

Some people also use ashwagandha for improving thinking ability, decreasing pain and swelling (inflammation), and preventing the effects of aging.

Surgery: Ashwagandha may slow down the central nervous system. Healthcare providers worry that anesthesia and other medications during and after surgery might increase this effect. Stop taking ashwagandha at least 2 weeks before a scheduled surgery.

Discussion- The history of modern medicine and herbal medicine is inextricably intertwined. The word "drug" is derived from an ancient word for "root" and, thus, by definition, herbs are drugs. According to the World Health Organization (WHO), 121 prescription medicines are produced directly from plant extracts. Seventy per cent of the patients do not reveal their use of herbal medicines to treating physicians considering "Natural means safe".[19,20] Historically, herbs have also been used to produce anaesthesia. Dioscorides (AD 40-90), the Greek military physician, described the drinking of mandrake by patients to cause insensibility during surgery . He used the word anaesthesia for the first time. Hua Tao (AD 190-265), the Chinese physician and surgeon, prescribed the herbal anaesthetic mafesian with wine to render patients unconscious before performing operations. Some of these early herbalhealing arts were lost through time and many gave way to scientific medicine.

CONCLUSION-

In this article an attempt has been made to mention all the properties that can show interaction with the anesthetic drugs and procedures. Yet there is a wide scope to study actions from allopathic sciences retrospectively in an Ayurvedic manner. Further studies can be carried out to expand the specialty of anesthesia in Ayurveda and enrich the knowledge base. The measures discussed can be of immense clinical benefit if they are applied in a judicious and timely manner, thus providing a smooth and safe surgical atmosphere.

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