

The Eye Clinical patients' usage of healthcare food in a religion hospital in Taiwan

I-Yuen¹, Hui-Ling Jung¹, Mei-Fang¹, Li-Chai Chen², Chi-Ting Horng^{2,*}

¹Department of Pharmacy, Kaohsiung Armed Forces General Hospital, Kaohsiung City, Taiwan, ROC.

²Department of Pharmacy, Tajen University, Pintung City, Taiwan, ROC.

³Department of Ophthalmology, Fooying University Hospital, Donggang Township, Pintung City, Taiwan, ROC.

*Corresponding authors: Chi-Ting Horng; E-mail: h56041@gamil.com

Postal address: Fooyin University Hospital, No. 3. Zhongshan rd. Donggang Township, Pintung City, Taiwan, ROC.

Abstract: Objective: This study aimed to discuss the effects of several health food supplements on various surgeries in one regional hospital from Jan 2017 to Sep 2017 in southern Taiwan. **Methods:** This study conducted a retrospective medical chart survey. We analyzed the apparent bleeding tendency during cataract surgery from January 2017 to October 2017 records. During this period, 150 patients (75 male and 75 female subjects) which were randomized selected underwent various ocular surgeries in our hospital. The mean age of the patients was 64.8 ± 5.6 years. If known, patients taking anti-coagulant and anti-platelet prescription drugs were rigorous and required to discontinue intake two weeks prior to operation. We also checked any findings, especially the massive bleeding during various operations and noted the use of health food supplements in surgical patients after surgery. The overall results were analyzed. **Results:** In our survey, 41.33 % (62/150) of patients took aspirin or warfarin, because the peoples who are indicated to receive various surgeries are all older groups with poor physiological function. Moreover, the incidence of severe hemorrhage significantly during operation observed by the operators was 26.67 % (40/150). We inquired whether the patients forgot to discontinue taking health food supplements. Surprisingly, 85% of patients (34/40) took these food supplements without consulting doctors. The most common over-the-counter drug is ginkgo extract in Taiwan. Besides, fish oil, *Monascus purpureus*, and natto was other supplement which may induce moderate and massive hemorrhage. However, the four components could be combined together and we must pay attention to the OTC supplements. **Conclusion:** A considerable number of clinicians checked the prescriptive medications of surgical patients; however, they failed to inquire the health food supplements. A number of non-prescriptive drugs may induce bleeding, which could interfere with the processes of surgery. We highlight the significance of eliciting any history of nutritional supplements, or herbal medication use, particularly when patients are scheduled for various surgeries.

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Introduction

Anticoagulant medications are the cornerstone of the prevention and treatment of thromboembolism. However, anti-coagulants have well-documented bleeding complications and in clinical practice, navigating between competing thrombosis and bleeding risk is the central management decision. This is very important that estimate the risk of bleeding with long-term oral anti-coagulants for indications such as atrial fibrillation (AF) and venous thromboembolism (VTE). Separate bleeding risk scores have also been developed for other distinct clinical situations, for example, to help estimate percutaneous coronary intervention when patients receiving anti-platelet and anti-coagulant medications⁽¹⁾.

In human, many diseases could be cured by conservative treatment; however, some disorders should be treated by surgery. Therefore, the change in any medical management may affect hemo-dynamic

stability in the operation and alter the risk of postoperative recall of intraoperative events. How to monitor the amount of hemorrhage and alarm the patients about the issue of hemodynamics becomes very important nowadays. Decreased blood loss may be an important factor to the patients scheduled for various surgeries, even tooth extraction. AZAD S.C. et al and his co-workers revealed that the critical hemo-stasis in intraoperative monitoring and postoperative re-evaluation of hemostasis in orthotopic liver transplantation^(2,3). Spiezia et al. reported that they had found many predictors of operative bleeding in children undergoing cardiopulmonary bypass⁽²⁴⁾. Prosst R.L. et al demonstrated that they made the pre-operative assessment of hemodynamics of living kidney donor by MR-angiography⁽²⁵⁾. Therefore, it is believe that blood conservation in various surgeries is the key-point. Even the blood loss in relatively little in cataract operation, many ophthalmologists all pay

attention to it. For example, cataract is the primary cause of blindness in human in the world. However, it can be successfully addressed and better visual acuity can be easily regained after surgery. Cataract surgery has become the most effective method in restoring patients' vision within a very short time. Thus, how to improve the safety and better techniques of cataract operation have been the goals of ophthalmological study recently. However, many factors may impact the prognosis including pre-operation evaluation, the procedures during surgery, and post-operative care. These associated topics have been well studied for a long time. At present, the influences of various medications, such as aspirin, warfarin, and clopidogrel (a potent inhibitor of platelet aggregation that works by irreversible blockage of adenosine diphosphate mediated platelet activation) with the anti-platelet and anti-coagulant effects are valued⁽²⁾. The pharmacological interaction and associated effects pose a severe challenge and the incidence arises during cataract extraction. Moreover, the increasing use of antiplatelet agents for the primary prevention of cardiovascular and cerebro-vascular events poses a dilemma for physicians in the perioperative period⁽³⁾. For example, the prevalence of aspirin and warfarin use in cataract population are 28% and 5% in USA and Canada, respectively⁽⁴⁾. Furthermore, Clopidogrel has been demonstrated to reduce early stent failure, improve outcome in acute coronary syndrome and decrease all cause cardiovascular mortality^(21,22,26).

Recently, concerns have been raised about several unexpected effects such as bleeding tendency and thrombolytic activities from some health food supplements and herbal medications. Many physicians are worry about the formation of hemostasis and also recommend discontinuing the use of the prescriptive drugs which induce bleeding before an invasive or surgical procedure in spite of minimal oozing⁽⁵⁾. Some reports showed that maintaining the anti-platelet and anti-coagulant regimen during the perioperative period does not significantly increase the potentially sight-threatening complications in eye surgeries^(6,7). Most of the problems are subconjunctival hemorrhage and hyphema⁽⁸⁾. Even the minimal oozing may also interfere with the processes during the subtle ophthalmic surgeries, especially under the microscopy. Massive bleeding of course may block the operators' view which is a nightmare to every ophthalmologist. Besides, bleeding during cataract surgery may sometimes induce corneal edema and elevated intraocular pressure (IOP), which require more monitoring and treatment if hyphema persisted. Gainey et al. investigated the patients who underwent ocular surgery and reported the complications of two groups, namely, those who continued and

discontinued warfarin use. Surprisingly, 12 % of patients experienced peri-operative hemorrhage in the non-stop warfarin-treated group. Although the incidence is relatively low, any oozing during ocular surgery could affect the surgical procedure⁽⁹⁾. Thus, most ophthalmologists agree that patients who are scheduled for cataract surgery should discontinue the use of medications (aspirin, clopidogrel, and warfarin) at least 7 to 14 days^(10,11,12). Barequet and his associates demonstrated that microhyphema, minimal iris hemorrhage and mild retinal hemorrhage are few cases with discontinuation of the combined oral warfarin and aspirin during phacoemulsification (phaco.)⁽¹³⁾. More in-depth studies are needed to improve surgical decision-making regarding active bleeding and clotting in operation.

Why the patients stopped taking the above prescriptive drugs may also own the ability of bleeding tendency during surgery? Older people are usually the victims of systemic diseases such as diabetes mellitus (DM), hypertension, and other cardiovascular disorders which needed medical control. Furthermore, the consuming the herbal medications, natural or healthy supplements is very popular for patients and non-patients in Chinese society. They are used to take the Chinese medicines and other natural products to prevent and treat illness. Collins analyzed that the constituents of traditional Chinese medicine and other natural products are from plant materials (74.4%), animals (10.3%), fungi (3.4%), minerals (1.7%) and mixed compositions (10.3%). Panax ginseng was the most commonly investigated, followed by Astragalus membranaceus, Coptis chinensis/Berberis spp. and Rheum spp. Four health categories accounted for the traditional Chinese medicine (cancer, 20.9%; cardiovascular, 19.2%; oral/gastrointestinal, 9.8%; and inflammatory/immune, 9.0%)⁽¹⁴⁾. Gurib-Fakim also proposed that plants and the associated extracts have provided man with many needs including food and even medicine⁽¹⁵⁾. In Taiwan, the common health supplements included Ginkgo biloba extract (GBE), fermented soybeans (Natto), monascus purpureus (red yeast), deep-sea fish oil, astaxanthin, Arctium lapp L. and Rhodiola rosa. These so called "health" food supplements provide numerous benefits including helping to lower blood pressure, enhancing nutrition and oxygen supply, and reducing the triglycerides, low density lipo-protein (LDL), very low density lipo-protein (VLDL), and cholesterol levels in serum. These supplements and some herbal medications may prevent from various diseases such as Alzheimer's dementia, myocardial infarction, stroke and cardiovascular disorders, regulate glucose metabolism, attenuate osteoporosis and motor impairments, promote integrated human immune response, increased anti-atherogenicity,

decrease inflammatory reactions and body fatigue, enhance antioxidant abilities against several disorders and tumors, alleviate body weight and even improve the renal and sexual function^(15,16,17,18,19,20).

However, the pharmacological effects from supplements that lead to deleterious outcomes during various surgeries are often neglected by doctors worldwide. Patients may remember to discontinue oral aspirin or warfarin but failed to inform their doctors before pre-operative medical consultation. In this study, we will discuss the effect of some health food supplements on various surgeries which had never been evaluated or reported in the world.

Methods

This study involved a retrospective medical chart survey and was in accordance with the Declaration of Helsinki. Ethical approval for the simple medical chart review was obtained from the Institution Review Board of Kaohsiung Armed Forces General Hospital (Kaohsiung, Taiwan, ROC.). We analyzed the apparent intra-ocular bleeding during cataract surgery based on previous chart records from Jan 2017 to Sep 2017. During this period, 150 volunteer patients (75 male and 75 female subjects) underwent various surgeries in the protocols including main cataract surgeries.

Any abnormal findings, in particularly, the un-expected massive or moderate hemorrhage were found in the charts during peri-operative periods. Each patient was asked to return to our out-patient clinics for further evaluation, the next day, a week, and two week after operation for wound check-up. If remarkable bleeding or oozing was observed during operation, we re-assessed that they did dis-continue the anticoagulation and antiplatelet drugs or any natural food supplements whether the patients had taken. What was the percent about that the patients did not tell the truth? Besides, we excluded bleeding from intragenic trauma and then attempted to establish the association between the effects of medications and bleeding tendency.

Results

Therefore, we analyzed the apparent bleeding tendency during cataract surgery from January 2017 to September 2017 records. During this period, 150 patients (75 male and 75 female subjects) which were randomized choose in undergoing various surgeries in our hospital. The mean age of the patients was 64.8 ± 5.6 years. Patients taking anti-coagulant and anti-platelet prescription drugs were required to discontinue intake two weeks prior to operation. The important instructions were performed by their one-to-one doctors and nurses. If remarkable bleeding or oozing was observed during operation, we

re-assessed that they did dis-continue the anticoagulation and antiplatelet drugs or any natural food supplements whether the patients had taken at all.

Moreover, in this survey, 41.33 % (62/150) of patients took aspirin or warfarin, because the peoples who are indicated to receive various surgeries are all older groups with poor physiological function. Moreover, in the group of receiving operation, we found that the incidence of severe hemorrhage significantly during operation was 26.67% (40/150). We inquired whether the patients forgot to discontinue taking health food supplements. Surprisingly, 85% (30/40) of these patients with massive bleeding took these food supplements without talking to the medical team. In our analysis, the most common over-the-counter drug is ginkgo extract in Taiwan. Besides, fish oil, *Monascus purpureus*, and natto was other supplement which may induce moderate and massive hemorrhage. However, the four components could be combined together and we must pay attention to the OTC supplements. In the 40 patients who taking healthy supplement, we found that 60% of the OTC own at least two components (gingko, fish oil, *Monascus purpureus*, and natto). Therefore, if we did not stop taking the healthy supplement, the massive hemorrhage will occur during the operation and impact the surgical procedure.

According to the scoring systems for estimating bleeding, we found that the incidence of apparent bleeding during operation was 17.33 % (26/150)⁽⁸⁸⁾. We asked the patients in detail whether they forgot to discontinue taking any health food supplements. Surprisingly, 87.5 % of patients (35 /40) had taken the over-the-counter (OTC) non-prescribed medicines without consulting and even forgetting to talk to their physicians. In Taiwan, the popularly natural food supplements are extracts of ginkgo biloba, extracts of marigold with lutein, extracts of cassia seed, extracts of blueberry, natto, *monascus purpureus*, burdock and deep-sea oils for preventing and even combining with prescribed drugs to treat various diseases. However, they did not talk to their doctors and hence did not stop taking natural herbs which sometime may interfere with the procedure of operation.

Discussion

The most common indication for chronic anticoagulation is stroke, venous thromboembolism (systemic embolism) in patients with arterial fibrillation (AF). The bulk of the evidence on bleeding complications in AF comes from patients treated with vitamin K antagonists, primarily warfarin, and best estimates are that anti-coagulants approximately double an individual's bleeding risk. Bleeding complication from the dis-continuation or partial

cessation of the anti-coagulation agents before operation is very serious. An increased risk of hemorrhage is well established complication of anti-coagulation therapy. Hemorrhage, however, can present in many different forms and ranges from "nuisance bleeds"-event that-to life-or limb-threatening bleeds that results in hospitalization, physical disability, or even death. Several studies showed that many patients' factors for anticoagulant-associated hemorrhage including advanced age, history of bleeding, diabetes, anemia, hypertension, congestive heart failure, renal disease, liver disease, alcohol abuse, cancer, genetic polymorphisms, elevations in biomarkers (hemoglobin, growth differentiation factor-15 and high-sensitivity cardiac troponin T), history of stroke, history of cerebral amyloid angiopathy, medication interaction, dietary change, anticoagulation control, antiplatelet medications (aspirin and clopidogrel), non-steroid anti-inflammatory drugs (NSAIDs), selective serotonin re-uptake, and various antibiotics. (48,49,50,85,86,87)

Besides, the above risk factors may result in bleeding tendency. There are many alternative health care products (defined as OTC non-prescribed herbal medicines) taken by patients for a plethora of reasons. The most extensive surveys on the use of complementary and alternative medicine use in USA revealed that approximately 12% of the population used herbal medications in 1997, representing a 380% increase from 1990 (27,28). Besides, women are found to more likely to take complementary medicine than men. The motives for health food and medicine use of peoples were personal autonomy on health (26%), dis-satisfaction with conventional health care (17%), ease of availability (14%), religious and beliefs (5%) and chronic medical problems (38%) such as weight problems; improving concentration, energy, memory, and general health; resolving stress and sleeping problems; and preventing the aging process and cancers (29). They also found that prevalence of use of herbal medicine with type of surgical procedure were Gynecology (52%), Urology (45%), Neurosurgery (41%) and General operation including all eye surgery (37%) in USA. However, the rate of patients took the OTC health supplements in the cataract group was about 66.8% in our study. It may reveal the fact that the peoples in Taiwan more got used to take these OTC drugs than in USA. Larkin demonstrated that the patients undergoing surgery appeared to use herbal medications significantly more frequently than the general population (30). Other studies showed a prevalence of 22% to 60 % use of among select surgical population (31,32). Besides, Kaye et al. found that 32% of patients in an ambulatory operation setting admitted to using herbal medications (33). To

date, the use of alternative pharmacotherapy, such as vitamins, herbal remedies and other dietary supplements in managing various diseases are very common in the world. For example, consumers spent about US\$ 5.1 billion in 1997 and US\$ 12 billion in 2000 on health products in USA. Recent estimates suggest that more than 15 million Americans take herbs (including Chinese traditional herbs and medicinal plants), vitamins, or both, along with their prescription medications in 2005 (34). Several surveys estimate dietary supplement usage by 12 % to 24 % of the general population. In addition, supplements usage from 1999 to 2002 doubled in individuals aged 65 ages years and older (15,35). The similar situation was also noted in Taiwan. For example, ginkgo is speculated to prevent from stroke, myocardial infarction and peripheral occlusive disorders. Moreover, more health food supplements have been recently developed in Taiwan. The most famous health food supplements are ginkgo, deep-sea fish oil, astaxanthin, ginseng and more extracts for various medicinal plants such as *Rhodiola rosea*, *Polygonatum alatum* Hayata, *Arctium lappa* L. (Burdock), *Astragalus membranaceus*, *Cassia tora* L., *Elutherococcus senticosus*, *Anredera cordifolia*, *Cymbopogon citratus* in our past series of studies (36,37,38,39,40,41,42,43).

These food supplements and herbal medications; nevertheless, are seldom considered by the patients to be medications upon inquiry during a routine history and physical examination. Coincidentally, this area is rarely examined by many surgeons including ophthalmologists. For example, Kaye et al showed that more than 70% of the patients were not to disclose their herbal medicine use during the routine pre-operative evaluation (33). Some patients may believe that the physicians don't know about the herbal medications or prejudice against these OTC medications (44). Some patients may fear admitting to doctor's their use of unconventional treatment (45). Others may neglect or forget to mention that they are taking herbal medications when they are using them for reasons perceived as unrelated to their medical care (46). Trapskin et al. had ever investigated the effects of common herbal medications on coagulation (40.5%), blood pressure (32.7%), cardiovascular system (20%), sedation (16.7%) and electrolytes or diuresis (8.9%) (47). According to this study, the change of hemodynamics from the health food supplements may impact on the procedures of surgeries.

Majority of patients underlying ophthalmic are elderly and are taking regular systemic medications, including anti-platelet and anticoagulant treatments. According to several reports, more than 28% of these patients take aspirin, 2 % take clopidogrel and more

than 5 % take anticoagulants⁽⁸⁾. Many patients with cardiovascular diseases need these drugs to control their general condition. Aspirin (Borkey) is the most common used anticoagulant drug in the prevention of myocardial infarction, ischemic stroke and cardiovascular events. Besides, Warfarin (Coumadin) is an oral anticoagulant used for the prevention and treatment of various venous thromboembolism, pulmonary embolism, and atrial fibrillation with risk of embolism. Recently, the deep-sea fish oil, one of the OTC medications, is popular among the above patients. Many reports confirmed that fish oil may lower the triglycerides in blood and prevent from cardiovascular events in patients with coronary artery diseases. In general, deep-sea fish oil contains the important polyunsaturated fats: omega-3 fatty acid which include eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), as well as nuts, seeds, and vegetable oils containing α -linolenic acid (ALA). Omega-3 fatty acid in deep-sea fish oil exerts many cardio-protective effects through multiple physiologic mechanisms including diminishing arrhythmias, lowering blood pressure, decreasing hyperlipidemia and altering production of prostaglandins, which reduced inflammation and improved the platelet and endothelial function⁽⁵³⁾. In addition, higher omega-3 intake will decrease the function of thrombosis-promoting thromboxane A2 which is a major stimulant of platelets activation and athero-thrombosis⁽⁵⁴⁾. Lev et al. proposed that omega-3 fatty acid reduces the incidence of aspirin resistance by 80% in the population⁽⁵⁵⁾. Nevertheless, the deep-sea fish oil can also increase the risk of bleeding which is similar side effect of aspirin. Many physicians concerned about bleeding during any surgical processes. The potential risk of bleeding is commonly associated with the use of fish oil, and surgeons always recommend discontinuing the use of fish oil before an invasive or surgical procedure⁽⁴⁾. In our case 2, we further verified the importance of discontinuing deep-sea fish oil supplementation prior to cataract surgery at least 2 weeks for avoiding the massive hemorrhage.

Most of the OTC drugs were extracts from medicinal plants. One of the famous of the health food supplements is ginkgo (Egb761), which is standardized from the leaves of ginkgo biloba trees. GBE is one of the most widely used botanicals in the world. Now the researches about GBE included at least 300 published reports and studies. It is proven to have the stronger antioxidant ability, decrease alcohol-induced liver injury and various inflammation, control metabolic syndrome and DM, enhance the cognitive function, nerve regeneration and physical performance in human, induce apoptosis in cancers and protect hearing loss and tinnitus^(56,57). Because of

GBE may inhibit platelet-activating factor-induced platelet aggregation, many peoples may get the benefit to cure and prevent from the cardiovascular and peripheral vascular disease (eg. myocardial infarction and intermittent claudication)^(58,59,60,61). However, recently some reports about its side effects about bleeding tendency were valued. Kim et al. reported that the apparent side effect from the ginkgo is bleeding which increased the bleeding time by 150 % and had inhibitory effects on ADP-induced platelet aggregation⁽⁶²⁾. Di Lorenzo et al. also collected the adverse effects observed in human from the intake of plant food supplements and found that the incidence of side effect for ginkgo was just mild lower than 8.6 %⁽⁶³⁾. In clinics, few case about ginkgo induced bleeding were ever reported in surgery, for instance, laparoscopic cholecystectomy, liver transplantation, dermatologic surgery and even spontaneous^(64,65,66,67,68,69). Besides, Rosenblatt, et al. also found that spontaneous hyphema may happen in the patient with ingestion of GBE⁽⁷⁰⁾. A total of 27% of surgical patients took alternative medicines that may affect coagulation. The use of aspirin and warfarin may increase PTT, and similar sign was also found in some OTC drugs. Several health food supplements should prolong the bleeding time, however, many clinic doctors did not know. It deserved further investigation.

Now combined use of the OTC medicines and prescription drug is becoming increasingly popular. For example, omega-3 from sea oil plus low dose aspirin demonstrates reduction of gingival inflammation and modulation of cytokines in the gingival crevicular fluid⁽⁷¹⁾. The synergist effects of ginkgo and aspirin can attenuate oxidative stress of coronary artery endothelial cells stimulated by activated platelets, which may correlate with the inhibition of ROS production, LOX-1 expression, and p38MAPK phosphorylation⁽⁷²⁾. An increasing trend exists in co-prescription of aspirin and ginkgo for Taiwan's elderly population in the last few years⁽⁷³⁾. Recently, aspirin is found to confer substantial protection from cancer mortality, and the combined use of astaxanthin may aid cox-2 down-regulation, which induces oxidative stress and various cancers. At present, even some alternative medications can be used together for the same diseases. For example, ginkgo and astaxanthin may be combined to treat the human seasonal allergic rhinitis and asthma, as well as enhance the immune abilities of children⁽⁷⁴⁾.

However, some OTC drugs may be harmful, if combined with prescriptive medications. The interaction of herbal medication and western medicines is an increasing important issue, and drugs with anticoagulant or anti-platelet activities have implicated in herb-drug interaction. For example, the

anticoagulant and anti-platelet agents combined with various health foods have similar pharmacological constituents. The vascular system of these patients is vulnerable to unstable body fluid shift, and the changes in blood pressure may result in many abnormal physiological reactions in human ⁽⁷⁵⁾. For example, ginkgo combined with aspirin increases the risk of hyphema. Therefore, more communication, knowledge, pharmacokinetics, and scientific research are needed to safely integrate health food supplement and prescription drugs in the future management of the surgical patients.

In USA, about 51% of patients took alternative medicines such as herb and dietary supplement. The commonly used herbs are ginkgo, fish oil, and astragalus membranaceus. In Taiwan, ginkgo, deep-sea fish oil and astaxanthin are popular. However, the stronger bleeding tendency from OTC drugs is always neglected by doctors and patients. Recently, the associated problems became more valued. For instance, adjustment of doses or reducing anticoagulant medication prior to dental treatment was suggested by dentists ^(74,75). Base on the pharmacokinetic data and the risk, Ang-Lee, et al. suggested that the patients should discontinue taking ginkgo at least 36 hours prior to surgery ⁽⁷⁶⁾. However, Row et al. demonstrated that the patient's bleeding time was prolonged while taking ginkgo and subsequently normalized when checked at 35 days after discontinuation ⁽⁶⁸⁾. Hence, the time to stop using the prescriptive and OTC drugs is still discussed. However, other researchers have different thinking processes. They found that a brief peri-procedural interruption of the prescriptive drugs (aspirin and warfarin) which is associated with low risk of thromboembolism and death ^(13,77). Therefore, several studies questioned the need for discounting oral anticoagulation prior to ocular surgery ^(78,79). The issues of whether to stop aspirin or warfarin before surgery remain controversial and necessitate decisions of the surgeons. Recently, several articles proposed that the non-stop use of the oral anti-platelet or anti-coagulation may not affect the surgery. Several studies revealed that some doctors do not discontinue aspirin or warfarin use during cataract surgery ⁽⁸⁰⁾.

However, the American Society of Anesthesiologists suggests the cessation of all herbal medicines at least 2 weeks before surgery ⁽⁸¹⁾. In our option and clinical observation, the continuous use of aspirin, warfarin and even some OTC drugs (eg. ginkgo, deep-sea fish oil and astaxanthin) may induce bleeding and become some trouble problems during operation. The suggestions from other authors revealed that little blood may not impact the major surgery, for instance abdominal and orthopedic surgery. Nevertheless, even mild oozing during

cataract surgery may lead to the inconvenience within the operative field and make the surgery become more difficult. McMahan found that 52% of ophthalmologists routinely discontinue anticoagulation 3-5 days before surgery because uncertain condition, beyond the control of massive bleeding may occur ⁽⁸²⁾. Hence, doctors prefer to discontinue medicine use temporarily outweighing the danger of active oozing in ophthalmic surgery. Furthermore, it is vital for surgeons to be apprised of all substances ingested by patients to be cognizant of their potential adverse effects and drug interactions, and to be familiar with their therapeutic modality, all of which will help to optimize therapeutic approaches and improve patient outcome.

Conclusion

Furthermore, even when a history of health food supplements use is obtained, 20% patients is unable to properly identify the preparation they are taking ⁽⁹¹⁾. The clinicians may inquire for the detailed prescription medication, and health food supplements among surgical patients. In our study, ginkgo, astaxanthin and deep-sea fish oil exhibited bleeding tendency which could influence the tiny eye surgery. The potential adverse reactions and health hazards of some health food supplements should not be overlooked. We highlight the significance of eliciting any history of nutritional supplement, health food, or herbal medication use, particularly when patients are scheduled for surgery.

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