

Antioxidant and Functional Nutraceutical Treatments Following Minimally Invasive (Robotical) Surgery

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Abstract

In this proceeding, minimally invasive surgery (robotic assisted surgery) in novel health system practices have been described as briefly. Antioxidant and functional nutritional strategies following minimally invasive surgery (robotic assisted surgery) have been dealt.

Keywords: Minimal Invasive Surgery, Robotic Assisted Surgery, Nutrition, Antioxidant, Nutraceutical, Functional Foods

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Introduction

Healthcare innovation, containing ones in the field of Minimally Invasive Surgery (MIS) can be described as a dynamic and continuous process covering the introduction of a novel technology or technique which initiates an alteration in practice (Siddaiah-Subramanya et.al.,2017; Trajtenberg,1990). There have been constant innovations to improve MIS since its formation in the early 80s, although the principal notions have altered little. These subsume technological innovations in instruments utilized like laparoscopic instruments and sutures or the clinical oncomings and MIS-associated technology including surgical robotics, image guidance systems, Single Incision Laparoscopic Surgery (SILS) and also Natural Orifice Transluminal Endoscopic Surgery (NOTES) (Siddaiah-Subramanya et.al.,2017). Robotic surgery is a innovative and exciting emerging technology which is taking the surgical trade by storm. Up to this point, however, the race to achieve and adjoined this emerging technology has principally been driven by the market. Besides, surgical robots have happen the entry fee for centers wanting to be known for superior in minimally invasive surgery despite the recent lack of convenient implementations. Whence, robotic devices seem to have more of a marketing act than a practical act (Lanfranco et.al.,2004) (Figure 1).

Regarding Minimally Invasive Surgery (Robotic Assisted Surgery)

The advantages for the patient may include shorter hospitalization, less pain and scarring, less risk of infection, less blood loss and fewer transfusions, faster recovery, and a quicker return to normal activities.

From a purely surgical point of view, the advantages of robotic surgeries over open and even laparoscopic surgeries are quite substantial and include : (1)A three-dimensional surgical view as opposed to the old laparoscopic two-dimensional view, (2) The ability to reduce to zero the effect of a surgeon's tremor, adding to the precision and finesse of surgery, (3)The seven degrees of freedom of the robotic arms allow finer suturing and dissection of tissue with poor anatomic accessibility, (4) The ability to control three surgical instruments in addition to a camera enables the surgeon to operate with very little assistance, not having to rely on the assistant's expertise (Anonymous,2017). There are only a few disadvantages of the robotic system, the most significant one being the high cost of equipment and maintenance.



Figure 1. Da Vinci System for Minimal Invasive Surgery

Robotic surgery is a type of minimally invasive surgery. Minimal invasive means that instead of operating on patients through large incisions, it has been used miniaturized surgical instruments which fit through a series of quarter-inch incisions. When performing surgery with the Da Vinci Si- the world's most advanced surgical robot—these miniaturized instruments are mounted on four separate robotic arms, allowing the surgeon maximum range of motion and precision and has 3-D camera (Tokusoglu, 2019).

Robotic surgery provide less trauma on the body, minimal scarring, faster recovery time. Medical nutrition therapy comprehends oral nutritional supplements, enteral or parenteral nutrition after surgery. To acquire convenient healing and functional recovery, a metabolic response is indispensable, but this needs nutritional therapy especially when the patient is malnourished and the stress/inflammatory reply is prolonged. Nutrition therapy is the verdict of nutrition or nutrients either orally including regular diet, therapeutic diet, fortified food, oral nutritional supplements or by enteral nutrition (EN) or parenteral nutrition (PN) to cure or treat malnutrition (Tokusoglu, 2019).

Briefly Nutrition Strategies After MIS

In order to reduce perioperative discomfort including anxiety oral preoperative carbohydrate treatment (instead of overnight fasting) the night before and two hours before surgery should be administered. After operation, especially for gastrointestinal system, the intake of a hypo-osmolar 12.5% carbohydrate rich drink has been shown to reduce postoperative insulin resistance (Weimann et. al., 2017).

After minimal invasive surgery, oral preconditioning with glutamine, antioxidants, and green tea extract versus placebo elevated plasma vitamin C concentrations significantly and improved total endogenous antioxidant capacity without reducing oxidative stress and inflammatory response. It can be difficult to bounce back after an operation, but a number of vitamins, minerals and antioxidant nutrients can support the recovery of patient after minimal invasive surgery operations (Tokusoglu, 2019).

Studies have shown that long used vitamin K, which promotes blood clotting, to help heal incisions in patients after surgery and also aids in building strong bones. Vitamin K1 is present in many foods, especially leafy green vegetables including cabbage and spinach, broccoli, brussels sprouts, spring onions and is also present in liver, cows' milk, egg yolk and some cereals (Tokusoglu, 2019).

With antioxidant properties many times more powerful than those found in better-known nutrients (including vitamin C and vitamin E), grape seed extract is a heart-smart and cancer-smart botanical. It also has the power to improve vascular health, protect brain cells and increase your overall well-being in many ways, making it an ideal supplement after surgery (Tokusoglu, 2019).

The primary function of coenzyme Q10 is as a catalyst for metabolism--the complex chain of chemical reactions during which food is broken down into packets of energy that the body can use. Coenzyme Q10 may play a role in preventing cancer, heart attacks and other diseases linked to free radical damage. The fat in fish contains a form of polyunsaturated fatty acids called omega-3. These differ from the polyunsaturated fatty acids found in vegetable oils (called omega-6), and they have different effects on the body. The two most potent forms of omega-3, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), are found in abundance in cold-water fish such as salmon, trout, mackerel and tuna. The body loses iron when bleeding, it may be recommended in supplemental doses after surgery but in the minimal invasive surgery, needing as less. Iron-rich foods include liver, beef and lamb. Oysters, mussels and clams also contain iron. Vegetarians can get plenty of iron from beans and peas, leafy greens, dried fruits (raisins, apricots), seeds (pumpkin, squash, sunflower) and fortified breakfast cereals. Brewer's yeast, blackstrap molasses and wheat bran are also good sources after minimal invasive surgery. Iron helps the body immune system functions, provides energy, gives to mind an supremacy (Tokusoglu, 2019).

Deeply colored fruits like blueberries, strawberries, raspberries, blackberries, cherries and pomegranates consuming after minimal surgery boost the antioxidant intake owing to these fruits contain anthocyanidin compounds which are not only enhance the Vitamin C effect, but also improve capillary integrity and stabilize collagen matrix (Tokusoglu, 2019).

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