General Anesthesia Type and Cancer Prognosis: Comment

To the Editor:

We read the article "Volatile *versus* Total Intravenous Anesthesia for Cancer Prognosis in Patients Having Digestive Cancer Surgery" by Makito *et al.*[1] with great interest. This study is a large clinical retrospective study of more than 190,000 surgical patients with cancer. For further statistical analysis, the authors did a score-matching analysis to compensate for the huge difference in the number of patients who received volatile or intravenous anesthesia. They concluded that there were no significant differences between anesthetic choices on cancer recurrence/survival after surgery. However, we found several limitations in this study which may distort the data analysis. First, various cancer types and surgeries were included in the same analysis; however, it is well known that cancer aggressiveness and malignancy largely differ between cancer types and their origins.[2] Second, the subgroup analysis for each type of surgery (presented in table 2 of Makito *et al.*) did not specify open surgery or laparoscopic surgery. Previous studies have demonstrated in preclinical and clinical settings that surgical trauma/stress and associated systemic inflammation, which often occurs in major open surgeries, promoted cancer progression and malignancy, leading to worse outcomes.[3,4] Lastly, there were no data about perioperative steroid and/or nonsteroidal anti-inflammatory drug use; those medications, which are often used during the perioperative period, have been found to improve the clinical outcome in several types of cancers.[5] The crosslink between the inflammation and cancer progression after surgery would affect cancer surgical outcomes. It would be great if the authors could elaborate on our concerns for future refined studies wherever possible.

Competing Interests

The authors declare no competing interests.

Masae Iwasaki, M.D., Ph.D., Daqing Ma, M.D., Ph.D., F.R.C.A. Nippon Medical School, Tokyo, Japan (D.M.). d.ma@imperial.ac.uk

DOI: 10.1097/ALN.0000000000003804

References

1. Makito K, Matsui H, Fushimi K, Yasunaga H: Volatile *versus* total intravenous anesthesia for cancer prognosis in patients having digestive cancer surgery. Anesthesiology 2020; 133:764–73
2. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A: Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin 2018; 68:394–424
3. Krall JA, Reinhardt F, Mercury OA, Pattabiraman DR, Brooks MW, Dougan M, Lambert AW, Bierie B, Ploegh HL, Dougan SK, Weinberg RA: The systemic response to surgery triggers the outgrowth of distant immune-controlled tumors in mouse models of dormancy. Sci Transl Med 2018; 10:eaan3464
4. Wu TC, Xu K, Martinek J, Young RR, Banchereau R, George J, Turner J, Kim KI, Zurawski S, Wang X, Blankenship D, Brookes HM, Marches F, Obermoser G, Lavecchio E, Levin MK, Bae S, Chung CH, Smith JL, Cepika AM, Oxley KL, Snipes GJ, Banchereau J, Pascual V, O'Shaughnessy J, Palucka AK: IL1 receptor antagonist controls transcriptional signature of inflammation in patients with metastatic breast cancer. Cancer Res 2018; 78:5243–58
5. Huang WW, Zhu WZ, Mu DL, Ji XQ, Nie XL, Li XY, Wang DX, Ma D: Perioperative management may improve long-term survival in patients after lung cancer surgery: A retrospective cohort study. Anesth Analg 2018; 126:1666–74

(Accepted for publication April 5, 2021. Published online first on April 30, 2021.)

This letter was sent to the author of the original article referenced above, who declined to respond.—Evan D. Kharasch, M.D., Ph.D., Editor-in-Chief.

Placental Veins Catheterization: A Realistic Simulation Model for Medical Students

To the Editor:

Classical teaching has been based on "see one—do one." More recently, a stepwise teaching approach has been described that has four steps: demonstration, deconstruction, comprehension, and performance.[1,2] The process of

achieving competence includes structured skill training, not just doing the technique.[3]

Medical students have to learn to perform several procedures before the end of their medical school training. One of the competences that they need to acquire is the peripheral vein catheterization, which is the most common procedure performed in the emergency department and in the operating room. Many students have not placed even one intravenous cannula during their medical training because of lack of opportunity to practice. On the other hand, students rapidly improve their proficiency after only five attempts.[4] Guidelines have been published regarding this skill acquisition, showing that the process of learning is complex, and simulators may be helpful.[5]

To try to help in this skill performance acquirement, simulators have been developed. Simulators for peripheral vein catheterization have limitations, and even the most complex are far from providing a sensation that mimics the real experience. For medical students, the transfer of procedural skills acquired in a laboratory into clinical practice has not been clearly established.[6]

We propose a cheap and realistic strategy: the human placenta as a model for vein catheterization. During a cesarean delivery, once the placenta is delivered and out of the surgical field, after the umbilical vessels have been clamped, the medical student is allowed several attempts at placental venous catheterization with intravenous 20-gauge or 18-gauge cannulas. As the umbilical vessels are clamped, some supra-atmospheric pressure is maintained inside the placental vascular bed. As soon as the cannula is inserted into the vein, the blood reflux is seen in the catheter, and the venous blood flows freely when the catheter is placed, as happens during routine peripheral vein catheterization in a real patient. It allows the student and the observer/supervisor (the staff) to confirm a successful venous cannulation.

One limitation of this model is that once a vein has been catheterized, the blood amount inside the placental field decreases, and sometimes big hematomas can develop in very few seconds, which decreases the availability of the same placental specimen for a new training attempt. This model has also strengths, and the main one is the high number of available placental specimens in a university hospital. Another advantage is that the placental simulator is a cheap model, and also it is safe for students, patients, and staff. We believe that this model can be one more helpful tool for training medical students and even nurses in this basic skill.

Competing Interests

The authors declare no competing interests.

Emilia Guasch, Ph.D., Nicolas Brogly, Ph.D., Fernando Gilsanz, Ph.D. University Hospital La Paz, Madrid, Spain (E.G.).
emiguasch@hotmail.com

DOI: 10.1097/ALN.0000000000003802

References

1. Giacomino K, Caliesch R, Sattelmayer KM: The effectiveness of the Peyton's 4-step teaching approach on skill acquisition of procedures in health professions education: A systematic review and meta-analysis with integrated meta-regression. PeerJ 2020; 8:e10129
2. Jeffree RL, Clarke RM: Ten tips for teaching in the theatre tearoom: Shifting the focus from teaching to learning. World J Surg 2010; 34:2518–23
3. Vogel D, Harendza S: Basic practical skills teaching and learning in undergraduate medical education - A review on methodological evidence. GMS J Med Educ 2016; 33:Doc64
4. Woelfel IA, Takabe K: Successful intravenous catheterization by medical students. J Surg Res 2016; 204:351–60
5. Torossian K, Benayoun S, Ottenio M, Brulez AC: Guidelines for designing a realistic peripheral venous catheter insertion simulator: A literature review. Proc Inst Mech Eng H 2019; 233:963–78
6. Lund F, Schultz JH, Maatouk I, Krautter M, Möltner A, Werner A, Weyrich P, Jünger J, Nikendei C: Effectiveness of IV cannulation skills laboratory training and its transfer into clinical practice: A randomized, controlled trial. PLoS One 2012; 7:e32831

(Accepted for publication April 2, 2021. Published online first on May 3, 2021.)