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Ushering in a new era in wound care to manage influx of patient cases

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"Abiding by ERAS principles has the potential to deliver a win-win situation by improving both clinical outcomes and patient experience", says Professor Pascal-André Vendittoli, M.D.

Approximately 313 million surgeries are undertaken globally every year[1] – a number that was previously unheard of – as advancements in medical technology and improvements made to surgical care have allowed healthcare professionals to better diagnose and treat their patients more efficiently.

Such changes have enabled productivity gains as we are able to optimize limited healthcare resources and reduce the length of stay for patients. In recent years, patients who undergo elective surgeries that improve comfort, movement, and overall quality of life, such as total hip arthroplasty (THA) and total knee arthroplasty (TKA), experience shorter hospital stays than before in certain countries.

The improvements are also in response to pressure to reduce healthcare costs. In many shorter-stay protocols, the focus has shifted away from aiming to reduce complications and improved recuperation to using length of stay as the main measure of success. Keeping in mind that success for patients is determined by improved wellbeing and function as well as reduced complication rates, it is crucial that protocols introduced are able to address both objectives.

Growing backlog of elective surgeries

Today, hospitals continue to look for ways to improve surgical efficiencies and manage bottlenecks. This has become even timelier, amid the COVID-19 outbreak, as healthcare resources and manpower across the globe are now under immense pressure.

Furthermore, with the rise in COVID-19 cases, most candidates either chose to put these surgeries on hold, or hospitals have suspended non-essential procedures to keep patients safe and to avoid overburdening the healthcare system[2]. A global study that looked at surgeons in 359 hospitals across 71 hospitals estimated that COVID-19 will lead to the cancellation or postponement of 28.4 million elective surgeries during the peak 12 weeks of disruption[3].

While the fundamental question of when COVID-19 will come to an end is still up in the air, industries have begun to prepare for the next normal and gear up for recovery. Similarly, hospitals have started to map out their schedules for elective surgeries in the coming months. However, if effective procedures aren't implemented to optimise and reduce patient recovery time while ensuring surgery quality, they will continue to experience a backlog of cases that could tax hospital resources and surgeons in an unprecedented manner.

What could the situation look like if strategies aren't implemented? As hospitals grapple with a mounting backlog of patient cases, healthcare systems will naturally suffer from increased financial burden, but this is not all – there is a risk that patients' health will deteriorate due to the delay in receiving treatment, which will ultimately lead to substantial societal costs.

Urgent need for ERAS-Outpatient protocols

To minimise backlog, hospitals have proposed extending working hours and the adoption of new technologies. Along with these tactics, it is also essential that hospitals consider implementing practices that can facilitate patient recovery to a level where they are able to leave the hospital sooner.

The most appropriate way to implement a successful outpatient surgical programme would be to apply the principles of Enhanced Recovery After Surgery (ERAS)[4], which require the involvement of a multidisciplinary team, including surgeons, anaesthetists, nurses, and physiotherapists. Through the incorporation of evidence-based practices, perioperative care is standardised and kept to the highest standards, ensuring that patients' surgical experience and recovery is not compromised in any way.

The application of ERAS principles has benefits for both the patient and the hospital. The patient experiences less pain, shorter bed rest periods, fewer complications, and an earlier return to daily activities. The hospital observes improved organizational efficiency, cost reduction, procedure standardization, and greater bed availability.

In 2016, my team and I successfully implemented and did the first cases of THA and TKA replacements in a combined ERAS-Outpatient programme. This was a first in Canada and required seamless coordination across the continuum of surgical care – pre-op, intra-op, and post-op.

Assessing the outcomes of the ERAS-Outpatient protocol in a scientific study, we reduced the complication rate by more than 50%, including pain, nausea, vomiting, dizziness, headache, constipation, hypotension, anemia, oedema, lameness, and urinary retention. The mean hospital length of stay decreased by 2.8 days for THAs and 3.9 days for TKAs. The mean estimated direct health care costs reduction was CA$1,489 for each THA and CA$4,158 for each TKA. Applied broadly and systematically, these benefits would have a major impact on any healthcare system[5].

Optimizing recovery through wound closure

An area that is often not given significant attention and priority across the surgical continuum is optimized wound management. In fact, simplified wound management is a major factor that determines the success of a shorter length of hospital stay or outpatient surgery and ultimately, the effectiveness of ERAS-Outpatient pathways.

A wound closure technique that I have adopted with great success includes a watertight skin subcuticular closure with a barbed suture and sealing the skin edges with the DERMABOND PRINEO System, which consists of a mesh and liquid skin adhesive. Doing so, we reduce the need for nursing care including dressing changes and staples/sutures removal. In addition, it allows the patients to resume showering, which is well appreciated.

Moreover, in light of the current COVID-19 situation, the International Consensus Group (ICM) recently released a new set of protocols aimed at reducing pathogen transfer during elective orthopedic surgeries. One of the recommendations includes minimizing the use of suture materials such as staples for wound closure and to opt for occlusive dressing instead. This would minimize the patient's need to return to the office or a visit by a nurse for removal[6]. As mentioned, an optimized

wound closure method including products like DERMABOND PRINEO System would be ideal to follow these recommendations[7].

All in all, abiding by ERAS principles has the potential to deliver a win-win situation by improving both clinical outcomes and patient experience. Particularly as healthcare systems continue to adapt to the new normal, reducing hospitalization through the use of ERAS-Outpatient protocols will be necessary to free up resources and also minimize infection risk among patients

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[7] DERMABOND PRINEO System Instructions for Use. Ethicon, Inc.

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Professor Vendittoli currently serves as a surgeon and clinical researcher in orthopaedic surgery at Maisonneuve-Rosemont Hospital, and Professor of Surgery at the University of Montreal, Quebec, Canada. His principal research activities are the evaluation of new surgical techniques, technologies, and orthopedic implants. In partnership with Ethicon, part of Johnson & Johnson Medical Devices Companies, Professor Vendittoli most recently developed a new method to optimise wound closure for an ERAS-Outpatient protocol[4].

Professor Vendittoli's work has been published in 125 scientific papers in peer-reviewed journals and presented at over 300 peer-reviewed congresses. He was invited on more than 200 occasions as guest speaker and received the John Charnley Award from the American Hip and Knee Society in 2009. He will join Ethicon in a webinar on 21 July to share his research and expertise on ERAS and effective wound closure technology. To register for the webinar, visit https://www.ethiconlive-apac.com/orthopedics/.