

Guest Editorial

The links between Day Surgery, Fast Track Surgery, ERAS and Perioperative Medicine

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When James Henderson Nicoll (1863 – 1921) started to follow up the results of the outpatient surgical treatment he undertook on children at the Dispensary of the Sick Children's Hospital, in Glasgow, Scotland [1], he never had any idea that a 100 years later, the IAAS would be founded to promote his concept of day surgery worldwide.

In the meantime, and especially during the last decades, other concepts developed that joined the rationale of performing surgery without an overnight stay. These ideas are the new principles of performing surgery, based on new techniques: surgical and anaesthetic, but also with new management strategies. Basically, all these concepts are following a better knowledge of the normal natural processes of human life, or of life itself.

The questions are:

- What is the link between Fast-track Surgery and Day Surgery?
- What is the link between ERAS and Day Surgery?
- What is the link between Perioperative Medicine and Day Surgery?

All these concepts are inseparable and a Centre for Perioperative Medicine should focus on optimising the combination of fast track surgery concepts, enhanced recovery after surgery (ERAS) principles and the concept of performing surgery without overnight stay.

The “**Day Surgery**” concept begins when the patient has his first contact with the GP with establishment of a diagnosis and beginning the organisation of surgical treatment. At this time the concept of Ambulatory Surgery (AS) or Day Surgery (DS) starts functioning and finishes only when the patient's problem is resolved and they are back at work.

The “**Fast Track Surgery**” process covers the period from the entry of the patient on the day of surgery until he leaves the facility. To achieve a successful fast track surgery pathway, we need assessment of preoperative organ dysfunction and subsequent optimization. The principles of Fast Track Surgery are also usable for short stay and even for in-patient situations.

The “**Enhanced Recovery after Surgery (ERAS)**” principle is the combination of handling, techniques and use of drugs to optimise recovery after surgery with or without anaesthesia. The ERAS starts before the surgical intervention and ends when the patient is back to his daily situation (back to work). This principle is also useful for short stay and in-patient situations.

The function “**Perioperative medicine**” begins when the patient enters the Centre for the first time, namely for their preoperative assessment and ends when they, after leaving the facility, have either returned for postoperative control or after postoperative telephone call control.

A Business Dictionary defines Fast Tracking as follows:

FASTTRACKING = to do more things in the same time in order to finish a job earlier than normal or planned . . . it is the process of reducing the number of sequential relationships and replacing them with parallel relationships.

For medical purposes this definition seems not to be a good one, because doing different things at the same time could be dangerous in surgery. This definition focuses on “Fast” and not on the “Quality” of the tracking or on the “Safety” of the tracking.

For use in medical or surgical treatment, comparison with the Formula One racing is more preferable:

- an engine, specially built (with protective constructions, with special tyres for rainy or dry weather) passes around a certain “track”
- the track is constructed (special pavement, with banked bends, special S curves, with safety system) to allow the fluent passage of the special build engines

A well-prepared patient goes through a certain “pathway”. This “pathway” is constructed around a surgical or medical problem that can be solved by performing an operation (or a medical treatment) and allows a fluent passage through the procedure by strictly following the described rules.

The patient has to go through this track in a safe way, with no or minimal damage and if possible, in a rapid way.

FAST TRACK SURGERY (FTS)

Kehlet definition: “Fast track focuses on enhancing recovery and reducing morbidity by implementing evidence in the fields of anaesthesia, analgesia, reduction of surgical stress, fluid management, minimal invasive surgery, nutrition and ambulation” [2].

So, FTS focuses on what is going on, in and around the operation room, or by extension in the Day Surgery (DS) facility just before, during and immediately after the operation.

During the last 50 years, there has been a change in our behaviour because of better knowledge of human physiology and pathophysiology: medicine is still an empirical science, where you only can learn by observation of the normal situation and especially what we see as the abnormal situation, from which the replacement of traditional approaches by evidence based practices has demonstrated an acceleration of recovery.

So, why shouldn't we search for methods that gives the needed care but also provides quality and safety and is even cheaper?

The “Fast Track Surgery” model is a multimodal approach, incorporating not only surgeons, but everyone involved in the care team of an OR and with the following basic components:

- Applying the traditional care principles (prevention of infections, use of drains and tubes)
- Using appropriated surgical and anaesthetic techniques
- Reduction of surgical stress (hydration, minimally invasive techniques, anti-ileus interventions)

- Pain relief

For every procedure there are specific recovery issues:

- From the surgical view: for example, a knee operation demands other postoperative care compared with an abdominal procedure;
- Post-operative mobilisation is not the same for hip surgery as for abdominal surgery; minimally invasive (depending on the length of the incision used) means faster recovery because of less pain in mobilizing postoperatively;
- Postoperative mobility is in connection with the damage on the muscular abdominal wall: therefore minimal abdominal wall access or remote access is used
- From the anaesthetist's view: depending from the kind of narcotics used, recovery will be faster: in combination with local or loco regional anaesthesia, recovery time is shortened and the total amount of drugs used is lowered. Short acting drugs and techniques will allow early awakening and faster recovery. If necessary local implanted devices for continuing pain relief can be used.

The principle of **“FastTrack Surgery”** studies the way it works:

- the way of functioning of the human body.
- the way how to act, following as well as possible the natural way of reaction of the human body
- the way of giving support to the natural reaction process, after the body has been damaged by an intervention (operation) from outside
- this process can be accelerated (enhanced).

Enhanced Recovery after Surgery (ERAS)

The use of the principle of “Enhanced Recovery After Surgery (ERAS)” started following the introduction of a clinical pathway to accelerate recovery after colonic resection [3].

Since then, multiple articles have been written and many studies have been published about this issue. Many protocols have shown improvement of recovery, the decrease of the complications and the reduction of length of stay after surgical interventions.

The initial intention was to implement this principle of ERAS only to colonic resection, but it has now still spread to other operations.

One Day Surgery

Current one day surgery started with the principles of James Nicoll, i.e. “...to recover after the operation, children were sent to their familiar environment with the visit of a nurse...”.

His statement was “for enhanced recovery, young children are better at home with their mother”. Day Surgery is an organisational concept: it is trying to organize a pathway for a certain procedure in such a way, that, normally done in three days, with growing experience, can be done in two days or even in one day.

Preparation and organisation are needed, and the patient has to understand the pathway they will follow. Start with planned and well described simple procedures, and only with such procedures to avoid destabilisation of the OR surgery programme. Together with the

experience, you develop the ability to use the basic elements for more sophisticated operations.

The one day concept organises the ideal pathway, with in mind a minimal disruption of normal, natural processes and thinking about a return home without overnight stay.

Perioperative Medicine

Perioperative Medicine bundles all the acts that are to be done in the peri-operative period and uses the principles of fast track surgery (FTS) and ERAS and day surgery (DS). Perioperative medicine should be called: how to perform modern surgery in an evidence based way. Put together all the knowledge about the normal functioning of the human body with the knowledge about new interventional techniques: thus, perioperative medicine will teach how to use all these principles to reach an enhanced postoperative result.

Fast track surgery is faster than what surgery is used to be, but in fact it is only following the natural way that the body reacts in normal, natural situation. The track is passed quicker (faster) through; not that the surgery is faster but the way to do the surgical intervention or treatment is done at a more optimised speed. And this is due to better construction of the Formula One car and the more adapted race track, namely the better prepared patient and the better constructed and organised surgical and anaesthetic pathway.

Day surgery is performed without overnight stay, because the damage caused by the operation is treated with techniques that mimic the natural restoring processes.

Put all this in a good organised concept, specialised concept, a niche concept, a day surgery concept and together with your staff, you will become more and more experienced in handling that way.

And, perhaps in the future, we should use these basic principles even for emergency situations. This is only a question of transposing the basic principles of structured day surgery concept in a more flexible way of working.

Conclusion

- Fast track surgery is performing surgery in an optimised way;
- The Day Surgery (DS) concept is organising planned surgical acts in a structured pathway, if possible, without overnight stay;
- Perioperative Medicine is the study of the medical acts allowing the two previous concepts.

Finally, we cannot perform day surgery without the use of fast track principles and the application of enhanced recovery methods. Everything that has to do with perioperative medicine is necessary to implement the day surgery concept.

The concept of Day Surgery developed because of the better knowledge of human nature. The concept of Day Surgery came along and is stimulated because of the lack of hospital beds and some practical and financial issues. The concept of Day Surgery follows the economic principles of focused factory and focuses in the first place on surgical acts to be performed without overnight stay.

In this sense the Day Surgery concept is renewing, but not without Fast track Surgery (FTS), Enhanced Recovery After Surgery (ERAS) and Perioperative Medicine.

References

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