Doctors think they deal with pain well. That this is a delusory idea is well documented but still not accepted by most physicians. Since beliefs are not subject to normal rules of scientific persuasion, simple explanation of the self-evident does not alter medical practice; only social pressure or consumer demand seem effective. The first has driven the development of terminal care and the second has altered obstetric analgesia. Attention has now turned to postoperative pain. During the first 24 hours after surgery recorded pain levels were 60% of the maximum. The median interval between the return of pain and a further injection of analgesic was 2 hours. Expectations of pain relief were low, and for 70% of the patients the pain was at least as bad as they had expected. Only half of the medical and nursing staff questioned that post-operative analgesia should relieve pain completely; drugs were prescribed and administered with too little attention to the patient’s response and too much concern about adverse effects and opioid dependence.

This was the common experience in British hospitals that led the Colleges of Surgery and Anaesthesia to commission the report “Pain after Surgery” in 1990. There is no reason to believe that during the same time period the situation was dramatically better in Belgium than in England. Identical problems have been described in many places as in the USA, Australia, England, France, Switzerland, and Germany. Although LB Ready published in 1988 their experience in developing an anaesthesiology-based Pain Management Service, the plan outlined in the English recommendations of the report on pain after surgery can certainly be considered as the fundamental recommendations that can and should be implemented in European hospitals.

Faced with this grim reality, a natural tendency developed trying to resolve these problems by using the newly aspects of pain treatments, as patient-controlled analgesia (PCA) and epidural analgesia in its various forms (epidural opiate analgesia, local anaesthetics) whether by continuous infusion or patient-controlled epidural administration (PCEA).

We have followed this path since 1996. And, over the years, the use of peripheral plexus blocks, for the various forms of joint surgery, was added to our armamentarium.

The “technological” approach was further encouraged by the Belgian health authorities after
the introduction in 2003 of a reimbursement scheme covering the use of PCA or epidural analgesia for 3 days after surgery, under daily supervision of a medical doctor.

It must be emphasised that the aim of the creation of an APS, dealing specifically with post-operative pain, must be clearly stated. The original aim was to improve pain control and general comfort during the post-operative period. In this period of financial constrains, cost-effectiveness became an important part of medical decision-making especially when facing the demand of creation of new entities, nation-wide, in all hospitals.

The efficacy of an APS in improving the original endpoint, improvement of pain, has been showed, as well abroad (25) as in Belgium (4), but the cost effectiveness must be clearly divided in costs of pain management, and total social costs of the system (26). While the added costs of pain management, from the hospital point of view, are certainly manageable (26), especially since the introduction of the reimbursement scheme, total social effectiveness is difficult to demonstrate, examples of no impact (26), or positive impact having been published (25).

It is our impression that we should concentrate the initial end-points of the APS to patient comfort and purely medical end-points without trying to reach global social cost-effectiveness that is probably highly dependent of local (different national, regional etc...) financial rules and social habits. Surgeons faced the same problems when trying to demonstrate the cost-effectiveness of laparoscopic compared to traditional surgery using the same arguments : less pain, shorter hospital stay, but difficult to show a decrease in total social costs (27, 28).

Ten years after

Successful APS programs have been implemented in Belgium (4), but it is our impression that neither the US style, high cost anaesthesiology based APS, nor the low cost nurse based model, is perfectly suited to the Belgian situation. The low cost model was originally implemented in Sweden (29), where during this era nursing staff in the surgical wards was very large, and absolutely not comparable to the Belgian staffing. This low cost model was highly dependent of what could be called “Patient Controlled Nurse Administered Analgesia”, with small doses of intra-venous analgesics frequently given by a nurse, who was not left alone a whole night to supervise 30 rooms. Most Belgian hospitals do not have sufficiently staffed anaesthesia departments that would allow to totally control and manage analgesic treatments, not only of a few selected patients, but in the majority of the patients.

On the other hand we also learned that technology alone would not solve all our problems (30). Intravenous PCA, epidural or plexus blocks analgesia, have several problems; to begin with only about 10% of all the patients anesthetized in our institution benefit of these techniques, but obviously only a small minority undergo an intervention under anaesthesia that will be painless during the post anaesthesia period. Moreover, we have learned the hard way that the more sophisticated the technique, the more possible that it will brake down (31, 32, 33) at two o’clock in the morning (but never at two o’clock in the afternoon), leaving the less experienced personnel (nurses and doctors) to perform the most difficult task of switching an analgesic technique in a patient having undergone painful surgery (as otherwise, he would not ‘benefit’ from the latest and most efficient technique described in one of the thousands of articles dealing with pain control in the literature).

This finally brought us around the circle, and prompted us to look back at the 8 original suggestions of the English Colleges (3) (Fig. 1), and incited us to write these few suggestions that we feel could be helpful to anybody deciding to write guidelines endorsed by Society of Anaesthesia and Resuscitation of Belgium (BVAR/SBAR).

Local needs

The aim of implementing an APS is to solve a problem. Is there a problem in your institution? You would be hard pressed to find a successful implementation in the literature that was not preceded by an internal audit (4, 34). The help of the hospital authority is mandatory if a formal audit should be performed at a hospital level, but this can be initially launched at a more local level, choosing for example one surgical ward or department. These results could serve as an argument for a more formal and larger audit.

In our experience the need to challenge the traditional attitudes should be more aimed against the doctors than against the nurses. The nurses are often the first to be aware of a major problem in controlling pain, and it is, after all, the doctors who prescribe ineffective analgesic treatments. The nurses have often been our best allies, and nothing can be
successfully implemented without their help, unless a political authoritative decision is taken at the hospital direction level.

By doing this audit you usually perform the next step: assess and record pain systematically.

This is of course the only method that will not only allow to assess the treatment efficacy (or it’s lack), but also allows the most important point in pain treatment: the individual titration of any treatment in face of the enormous individual variation that can not be solved by any ‘one recipe fits all’. The number of time per day this should be done probably depends of local factors, and we think no general rule should be given.

Up to that point, this can be implemented with a minimum number of people, only the regular nursing staff under the responsibility of the ‘Named responsible for pain control’.

**IMPLEMENTING STANDARD PROTOCOLS AND IMPROVE HOSPITAL STAFF EDUCATION**

**Immediate post anaesthesia period in the recovery room**

These points will allow to introduce the points 1, 2, 5, and 6 of the English Colleges (3) (Fig. 1) recommendations. This part of the plan is aimed at introducing an individually adapted treatment, changing the old habits of prescribing intra-muscular analgesics, and will start a program of staff (meaning as well nurses as doctors) education as you will have to introduce and explain how to use these new protocols.

This plan is also based on the fact that almost all patients go through a post-anaesthesia care unit where this plan should be introduced, and the majority of them benefited of an anaesthesia technique that will not be followed by the use of some form of regional analgesia. Example of such protocols is given in Figure 2, the flow-chart shows a protocol for intravenous opioid analgesia.

Such protocols can be produced for all major form of analgesic techniques, as well for the systemic as for the regional techniques, for adult and paediatric patients. Doing so, allows to standardize the treatments in an institution, and greatly promotes the idea of a close-loop attitude: treatment, evaluation of effect, adaptation if necessary to obtain a predetermined en-point, which can be a standardized value of pain measured on a VAS scale, but could also be an individually expressed end-point by the patient using his own words.

**Back to the ward**

The next step that appears unavoidable is the large scale education of the nursing staff in the wards. If an initial audit was conducted in the hospital, the nurses are already familiar with the idea and techniques of routine pain assessment. If not, the educational task is the real priority.

At this point, the creation of real entity (the APS) appears unavoidable, and should include as well the responsible doctor as a nurse. This last person should ideally be familiar with the various techniques that will be introduced in the wards and to the tasks that will be carry-out by the nurses in the wards. In our institution we selected an experience nurse from the posts-anaesthesia care unit. It must be also emphasized that the infamous ‘one person department’ should be avoided at all cost, as when the ‘person who knows’ is not there, the whole system stops working.

An educational program should be formally started by the institution to allow education of the nursing staff. This can ideally be done inside a program for continuous education, as this will allow to...
take into account one of the major hurdles we encountered, the frequent staffing changes in the wards of a large hospital. The details of such a program can only be worked out at an individual institutional level, but if this educational program is not implemented the whole idea of an APS will face insoluble problems in the long term.

A system of a ‘fall back nurse’ inside every ward is also progressively created; this person serves as privileged contact person for the APS, and through this person the various protocols can be more easily introduced and monitored in the wards.

**Analgesic treatments**

For many years we had the impression that the main role of the APS was to somehow supervise the technically advanced and complicated modes of administration, the words PCA and epidural frequently appearing in this setting (20). This probably occurred because we tend to select the 10 to 15% of patients undergoing the potentially most painful procedures for these techniques, and this lead to somehow sacrifice the vast majority, but also to forget the post epidural or post-PCA period in the happy few.

One of the main lessons obtained by the systematically assessment of pain in the wards, and by the increasing presence of the APS personnel in these wards, is the need to develop clear protocols for all patients, and that can only be done by using the traditional techniques much more effectively, as stated in point 5 of the English Colleges (3) (Fig. 1) recommendations.

This led, for example, to massively reintroduce the oral administration of opioids in many painful post-operative situation, a technique that was almost forgotten in our institution. This technique has the advantage of being technically very simple, not prone to technical failure, allows the easy passage from a rapid and short acting form to a long acting form, and is financially cheap.

Figure 3 shows the flow-chart of our protocol, than can be easily adapted to everybody’s favourites drugs.

One of the main tasks of the APS is to produce these protocols. We feel that the best solution is not always the latest and best from the medical literature, but the one than can be applied in the greatest number of patients for whom it is intended, in your institution. And this, following a large consensus between all the concerned participants: anaesthetists, surgeons, various concerned specialists, and nurses.

It will probably necessitate an adaptation by the responsible doctors of the APS (who quite often will be anaesthetists) to realise that this is not a situation of ‘us against them’, where anybody can impose his favourite views and techniques on the subject. The APS must often function as a counselor, and his advices are not always adopted.

It must be realised that what we accept as the superiority of one treatment over another, derives from a statistically significant difference, that quite often is not followed by the assessment of the clinical usefulness of the difference, justifying for example the use of a much more complicated treatment. The glaring example would be the meta-analysis from all randomized studies, showing a better analgesic effect obtained by the epidural techniques compared to intra-venous PCA (35). But accepting that the mean VAS score of 2.1 in the epidural patients is vastly clinically better than the 3.2 value in the PCA treatment, and justifies the massive deployment of epidural analgesia is a matter that should be a least debated, according to the APS capabilities.

On the other hand, the results that can be obtained by using peripheral nerve blockade

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appeared sufficiently promising (36, 37) that they were implemented for routine use in our institution after hip, knee, or shoulder replacement surgery, despite being at best level II studies on the scale of levels of evidence.

Educational program and administrative tasks

In our experience, much of the time of the APS activity must be devoted to the educational program, otherwise an APS in Belgium will be little more than an invoicing system for PCA and epidural fees, with little impact on the effectiveness of pain treatments. Organising the continuous education of the nursing staff and of the young doctors should be presented as one of the main end-points in the creation of an APS.

The APS should also be responsible for the selection of the pumps used for PCA and epidural treatments; ideally a single model should be selected to greatly simplify the organisational problems.

The hospital pharmacy is also a key player in the system. They will provide the drugs used in all forms of treatments, and the APS should work out all the supply lines with the pharmacy. The APS should also organize where and by whom the beginning of the more complicated forms of treatments (PCA, epidural, blocks) is done and the flow of the available pumps inside the hospital. The most obvious place to do this is the post-anaesthesia care unit, which can also centralise the paper work concerning the specific fees for these techniques, unless the APS has its own administrative system, which is unlikely at the start of the system.

Conclusions

For a successful implementation of an APS it must be realized that an APS is not necessarily a large Acute Pain Service, but an Acute Pain System Program. An APS will never be large enough to replace the ward nurses in providing and monitoring the actual treatments to the patients. The APS must be first of all an organisational unit, which serves to promote and organize high quality pain treatments, for the largest possible fraction of our post-surgical patients, and a unit intended to help the regular wards in their daily tasks.

References