PAIN OUT, an international project to improve perioperative pain management. Examples from obstetrics and gynaecology

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Poorly managed postoperative pain may prolong length of stay, cause postoperative complications, diminishes quality of life, and causes needless suffering. Severe post-operative pain is a risk factor for developing chronic pain which may increase economic costs and has a negative impact on patient and family quality of life (1). Thus, optimizing management of pain is both humane and cost effective. Nevertheless, management of post-operative pain remains unsatisfactory worldwide. Despite the availability of high-quality guidelines and advanced pain management techniques acute post-operative pain management is still not satisfactory (2). In gynaecology and obstetrics, hysterectomies and caesarean sections belong to the most frequent and rather painful surgeries (3, 4).

One reason for the described deficits is the fact that most clinicians lack of valid information on the quality of their pain management because data on processes and outcomes – if it all - are not collected in a standardized way. Moreover, even if quality deficits are identified, there is often considerable resistance towards change of daily practices.

The PAIN OUT (Improvement in Postoperative Pain Outcome) is a multi-national quality improvement and research project that provides a unique and user-friendly web-based information system. It aims to improve treatment of patients with post-operative pain by means of standardised data acquisition, analysis of quality and process indicators, and feedback and benchmarking. The project focuses on patient-reported outcomes, using the short International Pain Outcome questionnaire which is validated in more than 10 languages. From 2009-2012, it was funded by European Commission's 7th Framework Programme. Since 2013, PAIN OUT is being continued in cooperation with professional societies, e.g. the International Association for the Study of Pain (IASP). Participating hospitals have to pay a moderate annual fee for the services provided by PAIN OUT (5). The German partner project, QUIPS, is run by the societies of German anesthesiologists and surgeons. Using registries and benchmarking tools like PAIN OUT or QUIPS makes possible to improve quality of treatment for postoperative pain within a realistic and reproducible process.

The Aim of this presentation is:

- to report on a successful quality improvement initiative in the field of gynaecology
- to describe the PAIN OUT project
- to address key issues of change management

The Dep. of Gynaecology of Jena University Hospital evaluated 4 different strategies to reduce postoperative pain in three different surgeries (laparoscopic gynaecologic surgery, caesarean section and breast surgery) using the PAIN OUT questionnaire. Implementation of new strategies was performed sequentially in time after assessing a baseline of outcome quality of postoperative pain management. First of all gynaecological laparoscopies were evaluated and used a pilot procedure. The study cohort (n=168) received additionally to standard pain management a port-site (PS) infiltration with ropivacaine prior to incision and intraperitoneal (IP) ropivacaine instillation at the end of surgery.

Quality of pain management improved dramatically. Intensity of movement-related pain was significantly reduced (p=.001) from 5.3 (SD 2.2) to 4.4 (SD 2.4) in the study cohort. A similar reduction (p=.007) from 2.6 (SD 1.7) to 2.1 (SD 1.8) was registered for minimal pain after operation. These results were achieved although number of patients who required opioids decreased from 58% to 38% (p = .001). Demanded dose of rescue opioid (piritramide) in the study cohort was lower (p = .035) with 6.5 mg (SD 4.9) versus 8.7 mg (SD 6.6) and demanded later (p = .001) with 4.3 hours after surgery vs. 3.1 hours. Patients in study cohort experienced less nausea (p=.046), had less sleep disturbances and were significantly more satisfied with pain management (p < .001).

To our knowledge, this is the largest prospective study using this application of LA combining preventive PS and IP use for standardized major and minor gynecological laparoscopic surgery. Since pain after laparoscopy supposedly has a multifactorial origin combining pain-reducing techniques could achieve better results. However, although wound and portsight infiltration as well as IP instillation of LA is known and recommended since decades, it is rarely used consequently in clinical practice (6).

Using PAIN OUT for this evaluation was helpful in three aspects: convincing all stakeholders that there was a chance for improvement, demonstrating effectiveness of the implemented strategies and consolidating the new strategies as new standards. PAIN OUT turned out to be a practicable instrument for valid process and outcome data assessment in clinical practice.

However, apart from medical issues, it was challenging to get the whole team relevant for pain management (surgeons, anesthesiologists, theatre and ward nurses) convinced that processes has to be changed. Therefore, we set up a formal change management approach, consisting of education,
providing everybody with quality data, discussion of potential improvement strategies and implementation steps. Specifically, fear of work overload was taken into account by choosing a relatively simple, standardized intervention. One key step was to provide surgeons with prefilled ropivacaine syringes handed over by the theatre nurse (instead asking surgeons to fill the syringe by themselves). PAIN OUT was very helpful in this process by repeatedly providing all team members with valid, up-to-date information of achieved improvements from patients’ perspective. At the end of this project, the department members were convinced of its success, and it was consented to spread the improvement process to further surgeries as caesarean section and breast surgeries achieving similar results (reduction of pain intensity, opioid sparing, less nausea).

More information on PAIN OUT: [www.pain-out.eu](http://www.pain-out.eu)