Abstract SP34 Figure 9 On the left: Posterior sacral foramina in US probe longitudinal position. Bottom: Characteristic shape of sacral cornua at the entrance to sacral hiatus with probe in transverse position. Right: Blue arrow pointing at S2 posterior sacral foramen. Yellow arrow pointing at sacroiliac joint Probe in transverse position

Abstract SP34 Table 2 Shows SWOT analysis (Strength, Weakness, Opportunity, Threats) of ultrasound in pain medicine

<table>
<thead>
<tr>
<th>ULTRASOUND IN PAIN MEDICINE (SWOT ANALYSIS)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STRENGTHS</strong></td>
</tr>
<tr>
<td>- Aids in exposure to ionizing radiation</td>
</tr>
<tr>
<td>- Selectivity and precision</td>
</tr>
<tr>
<td>- Portability</td>
</tr>
<tr>
<td>- Economics</td>
</tr>
<tr>
<td><strong>WEAKNESS</strong></td>
</tr>
<tr>
<td>- Increased training and anatomical knowledge required</td>
</tr>
<tr>
<td>- Inter observer variation</td>
</tr>
<tr>
<td>- Obesity and arthritis</td>
</tr>
<tr>
<td>- Reduced needle visibility with increasing depth</td>
</tr>
<tr>
<td>- Difficult aseptic technique</td>
</tr>
<tr>
<td><strong>OPPORTUNITY</strong></td>
</tr>
<tr>
<td>- Less contraindications (e.g. pregnancy)</td>
</tr>
<tr>
<td>- Better understanding of pain syndromes (diagnosis and treatment)</td>
</tr>
<tr>
<td>- Imaging and interventions can be performed in the clinic setting</td>
</tr>
<tr>
<td>- Widespread availability</td>
</tr>
<tr>
<td>- Developing technology (fusion imaging)</td>
</tr>
<tr>
<td><strong>THREATS</strong></td>
</tr>
<tr>
<td>- Complications of procedure</td>
</tr>
<tr>
<td>- Poor documentation and image storage</td>
</tr>
<tr>
<td>- Misuse or misuse of techniques</td>
</tr>
<tr>
<td>- Potential infection risk</td>
</tr>
</tbody>
</table>

In summary

Introduction of the ultrasound into contemporary pain practice in the last 20 years has broadened our knowledge and understanding of many pain syndromes and has improved the management, precision, safety, and outcome of our interventions. Some procedures can be office based therefore reducing the cost, while others remain under fluoroscopy as a golden standard. Initial trend aimed at comparison of ‘new’ ultrasound guided procedures to ‘old’ fluoroscopy guided, lately embraced progressively musculoskeletal ultrasound in search of diagnosis and treatment.

Both fluoroscopy and ultrasound have their strengths and weaknesses therefore combined, hybrid techniques, especially for higher risk spinal procedures seems to be a logical choice as highlighted in each subsection.

Time will show how interventional pain practice will develop in the next 20 years.

REFERENCES

Today, we have to acknowledge that CPSP prevalence has not changed over the last past decades and its first description by Crombie in 1998 who stated that surgery contributed to pain in 22.5% of patients attending the Pain Clinics (trauma also was a cause of pain in 18.7% of patients). Since then, numerous either retrospective or prospective studies have assessed the prevalence of chronic pain after various surgical procedures. According to the study design and the definition used for chronic pain, CPSP incidence could differ. In 2008, one patient over 10 developed CPSP and one patient over 100 presented with severe CPSP The multicenter European study by Fletcher published in 2015 reported similar findings. A very recent publication (2021) assessing incisional pain at one year after non-cardiac surgery in a cohort of 14000 patients found an incidence of 3.3% with nearly half reporting moderate (35%) to severe (14%) pain. Among the patients with CPSP, 85% mentioned interference with daily activities and more than 50% were taking analgesic medications. These very recent observations are in agreement with the earlier findings mentioning that 14 to 24% of patients experience suboptimal physical and emotional recovery at 6 to 12 months after surgery. These studies highlight the fact that the measure of pain intensity shouldn’t be dissociated from its impact on the functional and emotional quality of life for the patient. Patients usually seek for medical support either at Pain Clinics or at recently developed Transitional Pain Services when pain badly interferes with their daily quality of life.

Perioperative risk factors and prediction of CPSP in patients: where is the failure?

CPSP may develop after any surgical procedure and, as a correlate, individual factors play a major role in the process of pain chronicization. Over the last decades, numerous studies have assessed the risk factors associated with CPSP development. By contrast to genetic factors, clinical risk factors have always shown better predictive value specifically the surgical procedure itself, physical health, mental health and the presence of preoperative pain in the surgical field or elsewhere (e.g. chronic pain condition like low back pain, headaches, fibromyalgia...). Besides, numerous studies have also highlighted the presence of severe acute postoperative pain.

What does it mean? On one hand, some peoples are clearly predisposed to develop severe pain after surgery or trauma (‘pain begs pain’). On the other hand, postoperative pain stands as an important factor on which some preventive actions might be directed. By consequence, the relationship between severe acute postoperative pain and CPSP development deserves our attention. The literature shows 15 to 30% of patients presenting with severe acute postoperative pain within the first 24h after surgery while CPSP prevalence remains much lower (10% or less). A recent review assessing the relationship between acute postoperative pain and CPSP found the relation to be moderate at best. Although the lack of association probably was in relation with the measurement methods used, when pain intensity was reported, the severity of acute pain during mobilization predicted the severity of CPSP.

However these results seriously question the predictive value of single pain scores as used in numerous studies. First, pain, including postoperative pain, is a dynamic process as highlighted by the concept of ‘pain trajectories’. The concept of pain trajectories has gained in interest and has now evolved to the concept of ‘trajectories of recovery’. Further, optimal versus non-optimal pain trajectories are now dichotomized, non-optimal trajectories being associated with pain persistence and CPSP. This concept fits with earlier observations which reported that the time spent in severe pain immediately after surgery either within the first 24h or within the first 5 days was associated with an increased risk of CPSP. Second, it is really important to move beyond pain scores, in other words to address the impact of pain on recovery parameters like mobilization, mood, sleep and analgesics use. Mobilization is an important factor in the process of recovery after surgery and the corner stone of ERAS programmes. However, it is mandatory to note that mobilization and pain scores do not always match, probably in relation with the subjective character of pain.

Pain after discharge from the hospital: may sub-acute postoperative pain (or transitional pain) better predict pain persistence and poor recovery?

As aforementioned, pain resolution is a dynamic and complex process. It is only recently that the role of sub-acute pain, a ‘gray zone’ extending between hospital discharge and the CPSP suggested cutoff time (usually a time period between 10-days and 3 months after the procedure) has emerged as an very important factor. The sub-acute pain period deserves all our attention as it is certainly involved in the transition from acute to persistent pain for many patients. Therapeutic actions during that period might work as preventive strategies of CPSP. Nevertheless, whether therapeutic treatments applied in the sub-acute pain period will have higher preventive effect on the development of CPSP than early perioperative treatments still remain to be demonstrated.

Some clinical studies have directly linked sub-acute pain to CPSP after different procedures. In inguinal hernia repair, patients suffering 30-days high pain intensity are significantly more prone to develop CPSP at 3 months. In orthopedic surgery, where many procedures cause severe acute postoperative pain and longlasting pain, pain intensity at day 30 correlates with pain intensity at 3 and 6 months after knee arthroplasty and sub-acute pain at 1 month appears to be a reliable predictor of 12 months CPSP. Similar observations have been made after thoracic procedures. Finally in children after major surgery, the impact of late pain recovery, including not only pain intensity but also unpleasantness, at 2 weeks has proven to have a negative impact on longterm health outcomes at 4 months and later.

These findings led us to consider the current reports (still too scarce) made by the newly developed ‘Transitional Pain Services (TPS)’. These services have been developed as humanistic projects to fill the gap between the acute pain services developed in the 1990’s and the traditional Pain Clinics. Although patients are refered to TPS from a wide range of surgical specialties for severe poorly responsive pain after hospital discharge, the majority of them have undergone either thoracic or orthopedic (limbs and spine) procedures. Furthermore, around 70% of the patients present with alldynia and hyperalgesia i.e. a neuropathic component in their sub-acute pain. It is well established that when a neuropathic component is present, pain is always more severe and has a greater negative impact on the daily quality of life (sleep, mood, social interactions, mobilization). Accordingly, in TPS reports, 32 to 54% of the patients are taking either strong or weak opioids and 71% of the patients are taking gabapentinoids, as prescribed at or after hospital discharge. Opioids prescriptions at hospital discharge have been incriminated in the development of the ‘opioids crisis’ and associated to a risk for opioid dependance. Also, longterm intake of opioid analogesics might be associated to tolerance, hyperalgesia and pain maintenance.
Abstracts

Transitional pain and the risk factors for CPSP: novel targets for CPSP preventive strategies?

Pain, specifically chronic pain, is highly complex, combining sensory and emotional dimensions as well as psychosocial aspects. The presence of a neuropathic component is frequently incriminated in severe CPSP. The negative impact of these neuropathic symptoms on recovery makes accurate diagnosis and treatment mandatory. Various therapeutic strategies both patient and symptoms specific are available. Some treatments e.g. capsaicin application seem to show better results with earlier application (within 6 months of diagnosis). It is here worth noting that neuropathic component in postoperative pain may develop as early as 48h after surgery with a high predictive value of persistence at 2 months and later. In other cases, neuropathic component may develop after a free interval as demonstrated after various surgical procedures including thoracic surgery. The later finding underlines the importance of patient’s followup. Neuropathic symptoms and pain have a negative impact on function. In orthopedic surgery main hip and knee arthroplasties, several publications have defined a critical phase in the recovery process i.e. the first 2 to 3 months at the end of which patients with poor outcome should be identified and require more intensive clinical care. Pain catastrophizing and number of painful body regions have been associated with poor pain and functional outcome trajectories after knee arthroplasty. Both pharmacologic and non-pharmacologic treatments might be appropriate to help those patients. The control of opioid analgesics intake as aforementioned is also mandatory. Finally, after hospital discharge, the psychosocial dimension of pain may increase in relation to the influence of familial and environmental factors. The management of family behaviors and cognitions may be sometimes necessary to improve the efficacy of patient’s treatment. In example, parental pain catastrophizing significantly affects child recovery trajectory after major surgical procedure whereas the child catastrophizing does not.

Conclusion Chronic postsurgical pain is now recognized as an important individual and socio-economic factor which may be difficult to relieve. A remained unchanged incidence over the past decades points out the failures of perioperative preventive strategies. Because pain is a dynamic process, current researches now focus on the progression from acute to chronic pain to better understand associative and causal risk factors. Consequently, the subacute pain period also called transitional pain is now a novel target to apply preventive treatments and to try to reduce the development of CPSP. For that reason, the concept of ‘transitional pain services’ stands a corner stone of perioperative medicine.

REFERENCES

SP36 OPIOID SPARING ANESTHESIA

P. Link University of Nebraska Medical Center, USA

10.1136/ramp-2022-ESRA.SP36

Inadequate perioperative pain control delays postoperative mobilization, and may lead to development of chronic postoperative pain, amplified cardiac and pulmonary complications, and increased morbidity and mortality. Even though opioids are still widely used, more information on their misuse, limitations and side-effects is becoming available, including risk of dependence and opioid-induced hyperalgesia (OIH). Multimodal analgesia has been defined as the use of two or more analgesics or techniques that target different mechanisms or pathways in the nociceptive system. As drugs are combined,