Methods Four patients with skin cancer underwent wide excision and reconstruction. 1- latissimus dorsi muscle flap: combined erector spinae plane, deep- serratus plane, and pecto-serratus plane blocks. 2- vastus lateralis flap: spinal anesthesia 3- superficial circumflex iliac perforator flap: spinal anesthesia These flaps were transferred to the parieto-occipital, fronto-temporal, and temporo-auricular regions, with the superficial temporal used as recipient vessels. Combination of supratrochlear, supraorbital, auriculotemporal, occipital nerves, and cervical plexus block allowed to manage the recipient site. 4- lateral arm flap: axillary brachial plexus block Transferred to the dorsum of ipsilateral hand with anastomoses to the dorsal branch of the radial artery and cephalic vein.

Results mean age was 82.8 years; mean operative time was 4h47'. No patient required transfer to the intensive care unit; no flap loss was observed. Mean time to discharge was 4.5 days.

Abstract #35834 Figure 1 Latissimus dorsi free flap harvesting planning

Conclusions Free flap transfer under RA is advisable for fragile patients, avoiding intensive care and hastening recovery and discharge. Thorough planning, tailored RA and collaboration between surgeon and anesthesiologist are crucial.

Ask the expert session

#36942 NEUROLOGICAL COMPLICATIONS AND INFECTIONS AFTER NEURAXIAL ANALGESIA DURING LABOR

Hector J Lacassie*. *Anesthesiology Department, Pontificia Universidad Católica de Chile, Santiago, Chile*

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While neuroaxial analgesia and anesthesia are generally safe, adverse events can occur. In obstetrics, the situation is even safer, mainly because it involves young women who are usually healthy and without neuroaxis abnormalities that may increase the risk of accidents or adverse events.

The most feared neurological complications associated with anesthesia in the neuroaxis are primarily epidural expansive processes (hematomas or abscesses), neuroaxial infections (epidural abscesses or intrathecal infection), and direct neural injuries. These types of events are very rare, so their risk estimation is based on small studies, case reports and indirect evidence.

It is highly desirable for anesthesiologists to have a detailed understanding of potential sources of complications, their prevention, progression, treatment, and prognosis. The objective of this article is to review the characteristics of intrinsic obstetric neuropathies, nerve injuries related to neuroaxial anesthesia, and the evaluation and management of postpartum manifestations suggesting a nerve injury.

Intrinsic obstetric neuropathies Obstetric neuropathies caused by pregnancy and childbirth are the most common cause of neurological symptoms in obstetrics and occur in up to nearly 1% of women after delivery. These are attributed to pregnancy, labor, and the delivery itself. They often manifest as sensory or motor symptoms, involve multiple lumbosacral nerve roots, and generally resolve within a short period of time (6 to 8 weeks). Risk factors identified for these neuropathies include nulliparity, prolonged labor, and the use of forceps.

The territories that are commonly injured during the childbirth process include the lumbosacral plexus, femoral nerve, obturator nerve, common fibular nerve, lateral femoral cutaneous nerve, and sciatic nerve. These injuries are usually due to neuropraxia during fetal presentation, forceps delivery, and inappropriate patient positioning.

Intrapartum lumbosacral plexopathy and common fibular neuropathy The lumbosacral plexus, originating from the L4-S4 nerve roots, can be damaged by compression of the lumbosacral trunk (L4-5) against the sacral wing. Risk factors include short stature, large fetus, prolonged labor, and the use of forceps. The typical presentation is foot drop and hypoesthesia on the lateral aspect of the leg and dorsum of the foot, symptoms that are similar to compression of the sciatic nerve in the thigh or the more distal common fibular nerve. The common fibular nerve can be compressed during patient positioning for delivery, resulting in neuropraxia against the fibular head.

Nerve conduction studies can help determine the level of the lesion; however, a thorough medical history and focused physical examination allow for a highly accurate diagnosis in most cases.

Femoral neuropathy The femoral nerve (L2-3-4) can be injured during vaginal delivery and cesarean section. Femoral nerve palsy has been attributed to strong flexion of the thighs against the abdomen with abduction and external rotation of the hips, which presumably compresses the femoral nerve against the inguinal canal. It is the second most common neuropathy in pregnancy. Symptoms of femoral nerve palsy will depend on the exact site of the injury but may include limited thigh flexion, loss of quadriceps strength, absent or reduced patellar reflex (the most reliable objective sign of femoral neuropathy, and hypoesthesia in the anteromedial aspect of the thigh. The function of the adductor muscles, which are dependent on the obturator nerve and share the same nerve roots (L2-3-4) as the femoral nerve, will be preserved. This allows for a differential diagnosis to determine whether the injury involves the nerve or the nerve roots.

Obturator neuropathy The obturator nerve (L2-4) is a mixed nerve that, along with the femoral nerve, constitutes the terminal branches of the lumbar plexus. It can be injured by the fetal head or forceps. Postpartum cases are usually unilateral and combined with femoral neuropathy, but bilateral cases have also been reported. As a symptom of nerve compression, the patient may complain of sharp pain in the groin and inner thigh. Later on, weakness in hip adduction and rotation will be found, typically accompanied by decreased perception of light touch and sharp pain in the upper and inner thigh. The function of the quadriceps, which is innervated by the femoral nerve (L2-4), should be preserved unless there is a root lesion (L2-4) where both nerves will be compromised.

Mononeuritis of the lateral femoral cutaneous nerve (Bernhardt-Roth´s meralgia paresthetica) Meralgia paresthetica is a term used to describe mononeuritis of the lateral femoral cutaneous nerve (L2 and L3), which is a purely sensory nerve. It is the most common neuropathy in pregnancy. It is usually caused by trauma or compression of the nerve, typically at its passage beneath the ligament. It causes hypoesthesia or dysesthesia in the anterolateral aspect of the thigh, without motor involvement. Meralgia paresthetica usually starts around the 30th week of gestation. Risk factors for its occurrence include obesity and increased intra-abdominal pressure during the second stage of labor. If there is pain, local anesthetic can be infiltrated in the sensitive area along the inguinal ligament. Typically, it is self-limiting and resolves within three months.

Additionally, it should be considered that patients may have preexisting conditions that predispose them to postpartum neuropathy. Hereditary neuropathies such as susceptibility to pressure paralysis (HNPP) may also manifest, which is caused by a mutation on chromosome 17 of the gene encoding for peripheral myelin protein 22 (PMP22). It is characterized by a tendency to develop mononeuropathy, commonly in anatomical locations where the nerve is more superficial and vulnerable to external compression, such as the common fibular nerve around the head of the fibula. This highlights the need for a thorough clinical history, as well as optimizing analgesic techniques by using minimal concentrations of local anesthetics sufficient to eliminate pain while preserving proprioception and motor function of the lower limbs.

Nerve injuries related to neuroaxial anesthesia. Fortunately, the incidence of nerve injuries related to neuroaxial anesthesia in obstetric patients is very rare. The low frequency of these outcomes may be due to the fact that obstetric patients are typically young and healthy.

Epidural hematoma The overall rate of epidural hematoma in pregnant women receiving epidural analgesia is 1 in 183,000 or 5 per million (95% CI 1-11). Moreover, hematomas are about 3 times more common after an epidural puncture than a spinal puncture in the general population. In pregnant women, reported cases have been associated with patients with coagulopathies secondary to significant bleeding, preeclampsia, or the syndrome that includes hemolysis, elevated liver enzymes, and low platelet count (HELLP). Importantly, 30%-50% of hematomas have occurred upon catheter removal.

The low risk of epidural hematoma in pregnant women compared to older women may be due to a younger spine tolerating volume accumulation better, as demonstrated by imaging showing the transforaminal escape of blood patches into the paravertebral space in five young patients, providing a safety margin against expansive processes such as a hematoma. Additionally, in pregnant women receiving unfractionated heparin at usual doses for a non-pregnant patient (10,000 IU subcutaneously), the pharmacokinetic and pharmacodynamic behavior will be altered, resulting in decreased peak plasma concentration and activated partial thromboplastin time, providing additional protection against potential neuroaxial intervention.

The initial symptoms of spinal hematoma include sensory and motor deficits in the lower extremities or manifestations secondary to compression of the cauda equina nerve roots (bladder and rectal dysfunction). Pain is much less common. Bilateral symptoms or those not typically characteristic of obstetric-related neuropathies require further investigation.

Immediate neuroimaging investigation is required in cases of suspected spinal hematoma. If confirmed, the treatment for complete neurological restoration is laminectomy within the first eight hours of symptom onset.

Epidural Infection Epidural abscesses resulting from a neuroaxial anesthesia puncture are very dangerous, as they can cause compression of the spinal cord, arteries, or veins, leading to spinal ischemia and eventually paralysis. The overall rate of epidural infection in pregnant women receiving epidural analgesia is 1 in 145,000 or 7 per million (95% CI 2-12). The pathogenesis of an epidural infection, in the context of an epidural puncture, involves the proliferation of germs, most commonly Staphylococcus aureus, in the form of an abscess. These germs are usually part of the skin flora and are involved in implant contamination.

Symptoms include fever and back pain. Neurological deficits occur late, with a median of five days after catheterization (range of 2 days to 5 weeks). Treatment involves empiric broad-spectrum antibiotics, followed by surgical drainage and, in most cases, decompressive surgery. The prognosis is usually good if surgical resolution occurs within eight hours of symptom onset.

Post-dural puncture meningitis (PDPM) PDPM is a severe complication that almost invariably occurs after dura-arachnoid puncture. The main causative agent is Streptococcus viridans, isolated in more than 85% of positive cultures. Most cases of PDPM are caused by droplet contamination (from medical personnel) during meningeal puncture. Other cases may be due to incomplete sterilization of the skin, leading to needle contamination. The bacterial origin of this condition has been traced back to the respiratory tract of the operator. Thus, the anesthesiologist can be one of the main suspects, making it mandatory is to observe aseptic measures when performing a neuroaxial block: sterile cap, mask, and gloves, along with appropriate skin preparation using chlorhexidine prior to puncture.

Initial signs of bacterial meningitis usually appear within 24 hours after the meningeal puncture (range of 8 hours to 8 days). The symptoms may be mild, but invariably include headache and fever. Neck stiffness, photophobia, and vomiting are signs of meningeal irritation that may accompany severe headache. In obstetric patients, it can lead to diagnostic errors, as it may be confused with post-dural puncture headache, which is much more common.

Neurological deficits associated with anesthesia.

Direct trauma A retrospective analysis found that 298 out of 4,767 (6.3%) patients experienced paresthesia during spinal needle insertion. Six patients had persistent paresthesia after the procedure. symptom resolution was at 24 months.

The most relevant factors to avoid direct trauma to the spinal cord are: 1) choosing a puncture site below L3; 2)

stopping if pain or dysesthesia occurs, and 3) injecting only if the dysesthesia disappears.

These indications implicitly include avoiding performing a neuroaxial procedure on a sedated patient.

Chemical damage Chemical injuries to the neuroaxis can cause Cauda equina syndrome or arachnoiditis. Spinal nerves in the epidural space tolerate the injection of potentially neurotoxic substances quite well, while nerves in the subarachnoid space are much more susceptible to toxic injury. Many substances are neurotoxic, including preservatives and high doses or concentrations of anesthetics.

Vascular damage Ischemic injury to the spinal cord is very rare after neuroaxial anesthesia in obstetric patients. Clinical features include paraplegia or quadriplegia, loss of pain sensation (analgesia) and temperature discrimination in the lower extremities, fecal and urinary incontinence, but intact proprioception, light touch, and vibration senses, as the posterior spinal tracts are spared. In obstetric patients, cases of anterior spinal artery syndrome have been reported in patients with spinal vascular malformation, a patient with diabetes and scleroderma, three cases of vasospasm secondary to epidural catheter use, and some others secondary to the use of epinephrine in the anesthetic mixture.

Prognosis In the case series reporting spinal cord ischemia or vertebral canal hematoma had a notably poor prognosis, while patients with meningitis, nerve injury and abscesses fully recovered. Signs that should alert the anesthesiologist for immediate attention include: reduced Glasgow Coma Scale score; pupillary changes or eyelid ptosis; any neurological sign or symptom in the presence of fever; long lasting unilateral or bilateral paresis or hypoesthesia of the lower extremities; radicular pain; sudden onset of lower back pain; headache and/or neck stiffness; bladder or bowel dysfunction; persistent saddle anesthesia; and neurological signs or symptoms that evolve after resolution of the block.

Conclusions Neurological injuries are rare clinical conditions, although potentially very serious. In many cases, complications are inherent to the pregnancy and childbirth process, while in others, they are secondary to anesthetic procedures, which motivates this review and emphasizes the importance of maintaining constant alertness for timely detection and treatment. Equally important is lowering the threshold of tolerance for an unusual clinical course, allowing for quick and effective reactions before a tragic outcome occurs.

#36889 CLOSING THE GAPS IN POSTOPERATIVE PAIN MANAGEMENT: CHALLENGES AND FUTURE PERSPECTIVES

[1]G Varrassi*, [2]MA Muzammil, [3]S Kumar, [4]M Rekatsina, [5]Eleni Moka, [6]A Paladini, [7]M Khatri. *[1]Paolo Procacci Foundation, 00193 Roma, Italy. Email: giuvarr@gmail.com; [2]Dow University of Health Sciences, Karachi, Pakistan. Email: muzammil200077@gmail.com; [3]Shaheed Mohtarma Benazir Bhutto Medical College Lyari, Karachi, Pakistan. Email: kewlanisatish@gmail.com; [4]University of Athens, Department of Anesthesia, Athens, Greece. Email: mrekatsina@gmail.com; [5]Creta InterClinic Hospital of Crete, Department of Anesthesia, Hellenic Healthcare Group (HHG), Heraklion, Greece. Email: mokaeleni@hotmail.com; [6]University of L'Aquila, Department of Anesthesia, L'Aquila, Italy. Email: antopaladini@gmail.com; [7]Dow University of Health Sciences, Karachi, Pakistan. Email: Mahimakhatri12333@gmail.com*

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Background and Aims The management of postoperative pain is a crucial component of perioperative patient care. Promoting patient comfort, easing recovery, and optimizing outcomes all depend on effective and well addressed pain management. Despite the improved pain management techniques, the problem persists , making it difficult to provide the optimal postoperative pain control. A frequent problem that still undermines perioperative management, e.g., following joint arthroplasty, is the presence of insufficient pain control. Adopting well-designed, balanced multimodal analgesic regimens that include a variety of medications targeting different pain pathways in the peripheral and central nervous systems is essential to preventing such gaps. It is well known that systemic analgesics, combined with local anesthetic methods such as periarticular injections, can help prevent pain control gaps.

Although there are evidence-based recommendations for postoperative pain treatment, standardizing practices is still difficult to apply. Underwhelming pain management is a result of inconsistent pain evaluation and poor patient–provider communication. To achieve accurate assessment and appropriate action, healthcare providers must routinely evaluate pain using proven tools. Healthcare professionals can follow standardized quality metrics and recommendations to implement best practices, optimize pain management, and enhance patient outcomes.

Additionally, patient involvement and education are vital in bridging the gaps in perioperative management. Patients can take an active role in managing their pain when they are informed about pain expectations, accessible analgesic alternatives, and self-management approaches. Comprehensive pain management must address patient worries and misconceptions about opioids while encouraging non-pharmacological treatments like physical therapy and relaxation methods, both pre- and postoperatively.

Looking ahead, investigation on complementary therapies and cutting-edge therapy choices will be important for postoperative pain management. Non-opioid drugs, procedures for regional anesthesia, and neuromodulatory methods have the potential to enhance pain treatment outcomes and lessen reliance on opioids. Clinical professionals may receive additional tools and approaches to maximize pain relief and reduce gaps in postoperative pain management because of ongoing research and innovation in these fields.

Challenges in Post-operative pain management:

In clinical practice, postoperative pain treatment presents several difficulties. To prevent the development of chronic postsurgical pain, which can affect a large percentage of patients, adequate treatment of acute pain after surgery is essential. To enhance patient outcomes and reduce opioid overuse and related harm, these issues must be resolved.

Below, some of the major difficulties in postoperative pain management are listed:

1. Optimization of patients' physical condition. Preparation to surgery, both physical and mental, has resulted as an important aspect also for the optimization of postoperative pain management.
2. Poor Pain Assessment: In order to effectively manage pain, it is important to accurately gauge the severity of pain and how it affects the patients' wellbeing. Due to the subjective nature of pain and variability in patients' capacities to convey their discomfort, pain assessment can be difficult. While for assessing pain, it is advised to constantly use proven tools.
3. Variability in Physician Practices: Physicians' prescribing practices for postoperative pain management can vary. This diversity may be influenced by elements like prior experience,