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Conference Abstracts

Proceedings of the 6th Saudi Spine Society Annual Conference on December 2022, Jeddah, Saudi Arabia

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The 6th Annual Meeting of the Saudi Spine Society (SSS) was held in Jeddah, Saudi Arabia, on the 18th–20th of December 2022. The meeting was attended by over 500 participants. The title of the meeting was "Promoting Excellence in Spine Care," and it was hosted by Dr. Mahdi Bassi, the president of the meeting, and Dr. Fahad Abduljabbar, the chairman of the scientific committee.

The meeting was preceded by five workshops, including Neurolife cervical spine trauma, intraoperative neurophysiological monitoring, spine radiology for non-radiologists, clinical classification of age-related low back pain, and finally, a hands-on workshop on "Enabling technology in spine surgery: Robotic, navigation and endoscopy." The main conference was enriched by the participation of nine different national and international societies.

Sixty-four speakers shared their experiences through the conference from different specialties to emphasize the importance of multidisciplinary care in spine surgery. In addition, a special session was dedicated to spine care evolution after the pandemic. A total of 66 lectures were delivered in addition to 16 podium presentations for the accepted abstracts. The following highlights include selected abstracts from the meeting.

The following are the accepted peer-reviewed abstracts that the first authors presented during the conference:

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Surgical management of neuromuscular scoliosis: Approaches, pitfalls, and outcomes

Elsayed Negm M.D.

Background

Scoliosis is a common problem among those with neuromuscular disorders with an increased incidence of morbidity and mortality. The management of neuromuscular scoliosis (NMS) is complex and requires a cooperative multidisciplinary team to provide meticulous perioperative care. Conservative treatment, such as bracing, can delay but not replace surgical correction. However, surgery has the risk of higher perioperative complication rates in this patient population.

Materials and Methods

Patients with NMS who underwent surgery for scoliosis between 2004 and 2018 were retrospectively evaluated. Sixty-eight patients were included in the study after a meticulous preoperative checkup. While in most cases a single-pedicle screw construct was used, in a few others, a hybrid construct was utilized. A follow-up was performed to make a clinical and radiological assessment and record all measurements and complications. A telephonic questionnaire was used for functional evaluation and patient/parent satisfaction with surgery. Only 52 patients could participate in the questionnaire.

Results

The mean follow-up period was 43.28 months, and the mean age at the time of surgery was 14.29 years. The mean preoperative Cobbs angle was 71.7, while that of the final follow-up was 34.6. The mean Cobbs correction percentage was 53.25%. For correction of the fixed pelvic obliquity, a sacropelvic extension was done in 60.29% of cases. Complications occurred in 39.71% of operated cases – chest-related in 36.11% (of all complications), hardware-related in 16.67%, visceral complications (as paralytic ileus) in 13.89%, decubitus ulcer and delayed wound healing in 13.89%, deep wound infection in 8.33%, CNS complications (as status epilepticus) in 8.33%, and death in 2.78% (one case). The results of the questionnaire indicated favorable functional outcomes and patient/family satisfaction with surgery.

Conclusion

Despite the perioperative difficulties seen in patients with NMS, patients who had relatively higher postoperative morbidity and mortality, most patients/parents were satisfied with the results of the spinal deformity surgery. The patients/parents would recommend surgery to other patients with similar disorders.

Three decades of spine surgery research evolution in Saudi Arabia: A bibliometric analysis

Mowadah Ashqar M.B.B.S.

Background

Over recent decades, there has been a constant increase in the numbers and quality of spine surgery research. We herein plan to analyze the evolution of spine surgery-related publications from Saudi Arabia over three decades.

Materials and Methods

A systematic review of the literature with predefined inclusion criteria was carried out, utilizing multiple significant databases (PubMed, Google Scholar, and Embase). Multiple search terms were used to retrieve related articles. Numerous variables were collected and analyzed, such as articles' level of evidence, citation numbers, study design, and author-related information. For comparison, the study period was divided into three time frames: 1990–2000, 2001–2010, and 2011–2022.

Results

Out of the 2969 articles, only 254 articles met the inclusion criteria of the current study. The increase in the number of publications during the period of 2011–2022 was noted to be 41%. The highest number of publications was observed in 2020 (n = 36, 14.2%). Level IV comprised the highest percentage (n = 130, 51%). High-quality articles (Levels I and II) had increased (11%) from 2011 to 2022. The most commonly utilized study design was case reports (44%). Seven randomized controlled trials were identified during the study period. Most of the included articles were from Riyadh province (65%).

Conclusion

This study is the first to quantitatively analyze spine surgery-related research in Saudi Arabia. Although there has been significant development in the number of publications in the last decade, the quality is still of concern. Therefore, we should aim to produce higher-quality studies to meet the country's 2030 vision goals to be one of the leading nations in spine surgery practice.

Immersive visual reality: A technology-based rehabilitation for persistent low back pain

Mohammed Alghamdi M.D.

Background

Persistent pain is considered a complicated multisensory and multidimensional neurophysiological phenomenon accompanied by psychosocial factors. In addition, persistent musculoskeletal pain and particularly persistent low back pain is considered

nociplastic pain that develops as a result of distorted nociception without a clear indication of actual or susceptible tissue damage leading to stimulation of the peripheral nociceptors or evidence of lesion or disease to the somatosensory nervous system. Immersive visual reality (IVR) and its applications are currently under consideration as a potential tool for treating different types of acute and persistent pain, including persistent low back pain. Patients can actively interact with an artificial environment through IVR with the expectation of a reduction in pain.

Materials and Methods

A systematic search strategy, using a set of keywords, wildcard characters where applicable, and the Boolean operators OR, was applied to appropriately expand or narrow the findings across five digital databases – Allied and Complementary Medicine Database (AMED), PubMed, Physiotherapy Evidence Database (PEDro), Cumulative Index to Nursing and Allied Health Literature (CINAHL), and Web of Science. The inclusion criteria were applied, and only papers published in English were searched for.

Results

In many acute musculoskeletal conditions, numerous guidelines have been published and protocols implemented. There is, however, some controversy surrounding persistent pain and IVR. Several approaches across the scientific community have been proposed regarding the delivery of IVR including the distraction-based IVR approach and embodiment-based approach. However, IVR in general may stimulate subconscious motor adaptation, which may affect patients' physiological and motor behaviors, consequently decreasing pain. In addition, the IVR might change how patients might feel toward their bodies, assumably due to improving spatial processing in the central nervous system, since spatial processing is affected in persistent low back pain. IVR may provide a significant positive effect on pain perception and pain-related disability. Both embodiment and distraction-based approaches are shown to provide analgesic effects and are thus commonly used with persistent pain patients, including persistent low back pain patients.

Conclusion

Both distraction-based IVR and embodiment-based IVR are shown to provide analgesic effects and are thus commonly used with persistent pain patients, including persistent low back pain. IVR is being considered as a potential intervention for persistent pain, including persistent low back pain.

Cervical disc arthroplasty and zero-profile cage for single-level disc degeneration: A meta-analysis of the long-term clinical and radiological outcomes

Ahmed Alsenan M.B.B.S.

Background

With the emergence of new surgical techniques to treat cervical disc degeneration (CDD), two novel approaches have gained popularity in the past decade; zero-profile cage, which spares any plating system, and cervical disc arthroplasty (CDA). Although no procedure is free of complications, both have shown promising results in evading or reducing multiple implant-related complications derived from the classical ACDF with plating, especially in preserving motion. However, no meta-analysis of long-term studies compared both techniques. We aim to compare the efficiency of both techniques in treating single-level CDD clinically and radiologically in the long term.

Materials and Methods

This meta-analysis will be conducted per the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Statement. A systematic search was done by two authors (researcher A and researcher B) using PubMed, Google Scholar, Medline, and Cochrane Database of Systematic Reviews. The resulting research papers were further reviewed and analyzed for selection and criteria eligibility, which were nine studies overall with a sample of 741 patients. According to our planned timeline, the meta-analysis was finalized by November 2022 for the manuscript writing and pooling of statistical values.

Results

In this meta-analysis, we examined two surgical approaches for the treatment of single-level CDD. We are attempting to compare the efficiency of both techniques on given subsets of a reference database. A wide and diverse number of criteria is utilized to measure the long-term complications under clinical parameters, such as the operative time, blood loss, recurrence or persistence of symptoms, VAS neck and arm, postoperative dysphagia and dysfunctional sleeping pattern, NDI score, JOA score, reoperation rate, and self-reported patient satisfaction and radiological evaluations, such as the incidence of ASD and cervical alignment.

Conclusion

The proposed project represents a significant step forward toward understanding the latest trends of surgical approaches for the management of single-level CDD that are zero-profile devices ACDF and cervical arthroplasty, in adjunction with the long-term clinical and radiological outcomes in a mean follow-up of more than 20-month post-operation, as well as the quality of life of patients suffering from this debilitating condition. While scarce, the statistical outcomes in many published papers do not promote a definitive advantage of one surgical option over the other, further necessitating extensive and comprehensive studies. This study will generate insights into such treatment regimens and sharpen surgeons' clinical sense for applying individualized care according to predicted clinical outcomes.

Reliability of postoperative radiographs in the estimation of thoracolumbar pedicle screw accuracy as compared to computerized tomographic reference standard

Syed Qadri M.D.

Background

Pedicle screw insertion in the thoracolumbar spine needs accuracy for a stable construct. Postoperative imaging like radiographs and CT scans are frequently needed to check this. Interpretation of radiology is very observer-dependent and can result in erroneous conclusions. This retrospective study attempts to analyze the results of pedicle screw accuracy estimation in a series of patients who had both radiographs and CT scans of the constructs.

Materials and Methods

All patients operated on for thoracolumbar pedicle screw fixation in the past 24 months in our unit were assessed for imaging records, and 18 patients who had concurrent postoperative radiographs and CT scans of their spinal constructs were chosen for this study. A total of 108 screws were included in the study. All patients had had AP and lateral radiographs. Two blinded raters including one senior neurosurgeon and one neuro-radiologist were asked to rate each pedicle screw for breach. The study was repeated at two weeks to assess reliability. The data were compared to CT scans of the construct as a reference standard which were interpreted by the same two raters. No specific criteria were set for the interpretation of pedicle screw accuracy. The results were tabulated, and intra- and inter-observer reliabilities were calculated. Cohens Kappa's results were calculated to assess reliability. Sensitivity, specificity, positive predictive values (PPV), and negative predictive values (NPV) were calculated for each rater for each observation.

Results

Intra-rater reliability of 0.87 and inter-rater reliability of 68–70% were noted. Cohen Kappa value was only 0.18–0.20, denoting low inter-rater reliability. A high degree of concurrence due to chance agreement was found. The sensitivity of interpretation ranged from 27% to 39% in the first series and 45% in the second reading. Specificity was approximately 77%–87% in the two readings. PPV ranged from 43% to 50% in the first reading and 48% to 60% in the second. NPV was 74% in the first series and 76–78% in the second.

Conclusion

Rating radiographs for pedicle screw accuracy has poor inter-rater reliability with a low Kappa. Our series demonstrated low sensitivity of plain radiology to identify pedicle breaches. Specificity was 77–87% for predicting no breach. PPV of experienced observers was low. In conclusion, the estimation of pedicle screw accuracy on radiographs, even by experienced observers, is not reliable. The results are not reproducible between raters. In the absence of

specific examination criteria, expert opinion is of low reliability to diagnose pedicle breach, and if in doubt, CT scans are better at defining pedicle screw accuracy.

Underestimation of postoperative ileus as a benign complication in spine surgery: A case–control study in a major spine surgery center in Saudi Arabia

Suhail Al Assiri M.D.

Background

The recent evolution in spine surgery, especially in the last decade, necessitates surgeons to optimize not only pre- and perioperative care but also postoperative care. One of the disturbing complications is postoperative ileus (POI). Although it is usually a reversible complication, it carries a more significant burden on the healthcare system and patient dissatisfaction. This study aimed to identify the risk factors and incidence of POI in patients following spine surgery, their burden on the healthcare system, and patient outcomes.

Materials and Methods

This case–control study was conducted at King Abdulaziz Medical City from 2016 to 2020. Patients aged 6 to 75 years with postoperative ileus after spine surgery who presented to our hospital were included. Patients with previous spine surgeries, medical conditions that cause postoperative ileus, tumors, and cervical spine disease that requires surgical intervention were excluded. Data collection and cleaning were done using Microsoft Excel, and SPSS v.22 was used for data analysis.

Results

A total of 293 patients were included, of which 40.8% developed POI. Females accounted for 62.9%. Delay of passing bowel motion was the prominent symptom (31.3%), followed by a delay of passing flatus (16.3%) and abdominal distension (13.6%). Hypertension and diabetes were the most common comorbidities accounting for 31.3% and 28.2%, respectively. Proton-pump inhibitors were used in 41.5%. Postoperatively, Fentanyl and Morphine were the most used narcotics (89.8% and 79.3%, respectively). Normacol, Docusate, and Glycerin were used in 49.7%, 67.3%, and 54.8%, respectively. POI was associated significantly with using Gabapentin, Percocet, Tramadol, NSAIDs, Movicol postoperatively, and PCA morphine (*P*-value = 0.012, 0.003, 0.037, 0.002, 0.028, and 0.008, respectively). Furthermore, diabetes, BMI, intraoperative blood loss, and calcium level were also significantly associated with POI (*P*-value = 0.009, 0.003, 0.016, and 0.002, respectively). The mean number of level fusion was 6.2, and there was a significant association with POI development (*P*-value = 0.001).

Conclusion

POI harms both patients and the healthcare system. To avoid such complications, risk factors, incidence, and burden were assessed thoroughly for better prediction of POI development.

Endoscopic extreme transforaminal lumbar interbody fusion with large spacer (OLIF cage): A technical note and preliminary report

Jin Eum M.D.

Background

The current report describes a novel endoscopic fusion technique performed with unilateral biportal endoscopy (UBE) that is known as extreme transforaminal lumbar interbody fusion (eXTLIF) and is performed with a large spacer.

Materials and Methods

We performed modified far lateral endoscopic TLIF using a biportal endoscopic approach. Unilateral total facetectomy and laminotomy were performed for decompression and exposure of the exiting and transverse nerve root. We made an additional third portal laterally for large spacer (OLIF cage) insertion, after which percutaneous pedicle screw fixation was done. We investigated several clinical and radiological parameters.

Results

Endoscopic extreme transforaminal lumbar interbody fusion was performed in 12 patients who were followed for more than three months after surgery. Lumbar lordosis, segmental lordosis, and disc height significantly increased postoperatively ($P < 0.05$). Preoperative radicular leg pain and the Oswestry Disability Index significantly improved after surgery ($P < 0.05$). Despite a short follow-up period, endoscopic extreme TLIF showed satisfactory clinical radiologic results. However, there are some limitations of the procedure, such as dural injury and technical difficulty.

Conclusion

We successfully performed extreme endoscopic TLIF using a large spacer (OLIF cage). Our technique was usually suitable for the L4-5 and L5-S1 levels. Endoscopic extreme TLIF may be an alternative treatment method for lumbar degenerative disease.

Unilateral biportal endoscopic lumbar discectomy: Experience in the first 10 cases

Alhareth Maaya M.B.B.S.

Background

Various treatment modalities including standard discectomy, microdiscectomy, percutaneous discectomy, transforaminal endoscopic discectomy, and biportal endoscopic discectomy have been in use for lumbar intervertebral disc prolapse. The access to the spine is kept to a minimum without stripping paraspinal muscles minimizing muscle damage by posterior interlaminar or extraforaminal endoscopic approach. This study aimed to

evaluate technical problems, complications, and overall initial results of biportal endoscopic discectomy.

Materials and Methods

The first 10 consecutive cases operated by biportal endoscopic discectomy between February 2022 and September 2022 are reported. All patients with single nerve root lesions, including sequestrated or migrated and selected central discs at L3–L4, L4–5, and L5–S1, were included. All cases were operated under the direct supervision and assistance of Dr. Jin Hwa Eum. All patients had preoperative MRI and three had postoperative MRI to check the adequacy of decompression. Postoperatively, all patients were mobilized as soon as the pain subsided and discharged within 24–48 hr post-surgery. Patients were followed-up at 1, 3, 6, and 12 weeks.

Results

The mean follow-up was four months (range, one–nine months). The open conversion was not required in any patient. Minor dural punctures occurred in one case and no root damage happened. The average surgical time was 110 min (range, 70–210 min). Average blood loss was <10 ml. Technical difficulties encountered were image orientation, perioperative dissection, bleeding problems, and reaching wrong levels suggestive of a definitive learning curve. Overall, 85% of the patients had good-to-excellent results, with three patients having a recurrence, of whom one was reoperated. One patient had root irritation symptoms to the L5 root that had paresthesia in the L5 region even at the three-month follow-up.

Conclusion

Biportal endoscopic discectomy is a minimally invasive procedure for discectomy with early encouraging results. Once definite learning curve is over and expertise is acquired, the results of this procedure are acceptable, safe, and effective.

Lumbar disc herniation in heavy manual workers: Conventional discectomy versus TLIF with unilateral fixation

Mohamed Alqazaz M.D.

Background

Conventional discectomy is a common surgical method for treating lumbar disc prolapse. The situation may be different in heavy manual workers who may have more pronounced degenerative spine disease and broad-based disc herniations and are expected to be exposed postoperatively to the same preoperative manual stress.

Materials and Methods

Sixty patients underwent surgeries for lumbar disc herniation. They were divided into two groups – Group (A), the microscopic conventional discectomy group, and Group (B), the fusion (TLIF and unilateral TPF) group. They were operated between 2018 and 2020.

Participants were evaluated preoperatively and postoperatively at 3-, 6-, 9-, and 12-month intervals. The pain was scored by a VAS for both lower limb and back pain. The clinical outcomes were compared using the Prolo economic and functional rating scale and a new outcome score.

Results

The two groups of patients were fairly homogeneous and comparable. The workload exposure to repetitive vibration was the most risk for disc prolapse and surgery (28.3%). The fusion group showed better clinical outcomes parameters, including better VAS for low back pain, better Prolo economic and functional rating scale, and better new clinical outcome score. In comparison, the discectomy group showed a significantly higher recurrence rate and reoperation during the follow-up period.

Conclusion

Heavy manual workers treated with unilateral transforaminal interbody fusion reported less pain and lower disability scores all over the follow-up period. This technique is preferable to conventional discectomy because it decreases back and leg pain while avoiding the possibility of recurrence by heavy duties and maintains the stability of the lumbar spine.

The therapeutic effect of recurrent medial branch nerve radio-frequency ablation for chronic low back pain

Nizar Al Nakshabandi M.D.

Background

Low back pain remains one of the most complex problems in the world, with significant pain and loss of workdays. The objective of this talk is to review the therapeutic effect of recurrent medial branch nerve radiofrequency for chronic low back pain by image-guided procedures done on an outpatient basis.

Materials and Methods

A total of 42 patients have undergone image-guided radiofrequency ablation of the recurrent medial branch nerves—A study approved by the hospital ethics committee. VAS was measured at baseline and at 1, 4, and 12 weeks post-procedure. Image guidance was done using an image intensifier, the needle advanced percutaneously toward the neck of the Scotty dog beyond the facet joint and lateral process of the vertebral body of L3–4, L4–5, and L5–S1 bilaterally. The RF electrode was inserted through the needle, and the electrode tip temperature was raised to 60°C for 180 sec. One RF lesion was made for each recurrent medial branch nerve.

Results

The mean patient age was 63 ± 10 years. The VAS score before the procedures was 8 ± 2 while at 1, 4, and 12 weeks after the procedure, it was 4, 2, and 3, respectively. *P*-value < 0.05 was considered significant.

Conclusion

Radiofrequency ablation of the recurrent medial branch nerves of the lumbar spine has significant pain reduction and functional improvement in elderly patients with chronic degenerative facet joint disease. It is therefore an effective treatment in such cases.

The utilization of lumbar MRI for lower back pain at National Guard Hospital, Jeddah: A retrospective cohort study

Waleed Alnejadi M.D.

Background

Magnetic reasoning imaging (MRI) is the imaging modality of choice for detecting spinal pathologies. The study of the appropriateness of MRI utilization in Saudi Arabia is lacking. As a result, this research aims to assess the use and misuse of lumbar MRI in lower back pain (LBP) at National Guard Hospital (NGH) in Jeddah city.

Materials and Methods

This is a retrospective cohort study that included all adult patients who had lumbar MRI for LBP at NGH in 2019. A total of 1225 patients were included. Patients with extreme ages, trauma, recent lumbar spine surgery, spine or spinal canal tumors, and infection were excluded leaving a number of 805 patients. Specific MRI findings were obtained and assessed in association with history and physical examination.

Results

LBP with radiculopathy was the most common complaint (82.9%), followed by LBP without radiculopathy (12.8%) with the lowest being limb pain alone (2.6%). Seventy-two percent of patients had negative MRI findings which did not explain their symptoms, while 28% had positive MRI findings that were not associated with their symptoms (*P*-value < 0.001). A complete physical examination was performed on 27.5% of the patients of which only 12% had positive findings. MRI was ordered for 72.5% of the patients without a complete physical examination. Finally, 88.2% of the patients who had MRIs were managed conservatively, while only 6.7% were managed with surgery (*P*-value < 0.04).

Conclusion

The number of patients who had proper assessment before the ordering of MRI was significantly low. The decision to request MRI was not based on any scientific basis. This study has demonstrated that without proper and strict guidelines, MRIs will continue to be overutilized which in turn will have negative consequences on the waiting time for an MRI and the cost of all the unnecessary MRIs.

Minimally invasive sacroiliac joint fusion using triangular titanium implants versus nonsurgical management for sacroiliac joint dysfunction: A systematic review and meta-analysis

Noor Alsharef M.B.B.S.

Background

Sacroiliac joint (SIJ) dysfunction is one of the most common causes of chronic low back pain. Minimally invasive SIJ fusion (MISIJ fusion) is the surgical option when nonoperative measures fail to relieve SIJ pain. This systematic review aimed to compare MISIJ fusion with triangular titanium implants (TTI) to the nonoperative management of SIJ dysfunction.

Materials and Methods

We searched databases including Medline, Embase, and CENTRAL. We included randomized controlled trials (RCTs) that compared MISIJ fusion with TTI to the nonoperative management for adult individuals with chronic low back pain attributed to SIJ dysfunction. We sought to evaluate the following outcomes: pain on the visual analog scale (VAS), Oswestry Disability Index (ODI) score, health-related quality of life (HRQL) using the Short-Form 36 survey physical component summary (SF-36 PCS) and mental component summary (SF-36 MCS), and patient satisfaction. The standardized mean difference (SMD) was used to represent continuous outcomes while the odds ratio (OR) was used to represent dichotomous outcomes.

Results

A total of eight articles representing three RCTs that enrolled 423 participants were deemed eligible. MISIJ fusion showed a significant reduction in pain score compared to nonoperative management (SMD = 1.71, 95% CI: 2.03 to 1.39). Similarly, the MISIJ fusion has significantly improved the ODI score (SMD = 1.03, 95% CI 1.24 to 0.81), HRQL using SF-36 PCS score (SMD = 1.01, 95% CI 0.83 to 1.19) and SF-36 MCS score (SMD = 0.72, 95% CI: 0.54 to 0.9), and patient satisfaction (OR = 6.87, 95% CI 3.73 to 12.64).

Conclusion

This meta-analysis demonstrated that MISIJ fusion with TTI showed a clinically and statistically substantial improvement in pain score, ODI disability score, HRQL scores, and patient satisfaction compared to the nonoperative management for chronic low back pain attributed to SIJ dysfunction.

The incidence rate of motor evoked potential alerts in 1159 lumbar spinal surgeries

Faisal Jahangiri M.D.

Background

Spinal surgery is associated with a high rate of neurological sequelae due to damage to the spinal nerve roots. This study aims to determine the most common alert type during lumbar spinal surgeries, including either anesthetic/physiological, positioning, or surgical.

Materials and Methods

We retrospectively reviewed 1159 extradural spinal surgeries with intraoperative neurophysiological monitoring (IONM) from January 2019 to March 2021 to evaluate the incidence of events. We analyzed the Motor Evoked Potentials (MEP) alerts and changes in the neurophysiological signals. Cases were categorized by procedure type, muscles, and then by the level (upper or lower) that the MEP alert occurred.

Results

A total of 131 of 1159 (11.3%) surgeries had an intraoperative MEP alert (55% female and 45% males). An MEP alert occurred with a possible risk of postoperative deficit, and 56% of those MEP alerts were due to anesthesia/pharmacological intervention. Moreover, 50 of the 131 cases had multiple muscle group alerts. Of the five muscle groups reviewed, the quadriceps were most likely to cause an alert. However, the tibialis anterior is most at risk as loss of MEP to this muscle could lead to foot drop. Overall, 27 of the 131 cases had MEP alerts resolved intraoperatively by either repositioning, adjustment in anesthesia, or surgical action. Pre-existing conditions were not considered in this study. The MEP had a greater incidence than somatosensory evoked potentials (SSEP) and electromyography (EMG) in detecting intraoperative and postoperative neurological deficits, especially those involving a single nerve root.

Conclusion

During extradural lumbar procedures, MEPs provide accuracy to be required as a modality as SSEP and s-EMG lack the sensitivity that could lead to false negatives. MEPs allow for prompt, timely investigation, and initiation of intervention by the surgical team to mitigate the possible deficit. Although MEPs could lead to false positive alerts, this can be easily adjusted by correcting alert criteria. Utilization of a multimodal intraoperative neuromonitoring intervention avoided postoperative neurologic deficits in most cases. Our data shows that the overall incidence of MEP is higher in detecting nerve root injuries during lumbar spine surgeries than in SSEP and EMG. We recommend adding the MEP modality to the multimodality IONM protocol for all lumbar surgeries to minimize nerve root injuries and postoperative deficits.

Returning to work and narcotic use after traumatic spine fractures: Current status in Saudi Arabia

Abdulrahman Alhabeeb M.D.

Background

The consequences of traumatic spine fractures are inexorable and have a major burden not only on the patients' physical and psychological health but also on their social life and financial status. Because many spinal fracture victims have life-long crippling deformities and pain, we aimed to investigate the return to work after surgically treated traumatic spinal fractures, develop eventual predictors of delayed or failure to return to work and assess the use of narcotics following such injuries.

Materials and Methods

This single-center retrospective cohort study was conducted at a tertiary care center in Riyadh, Saudi Arabia. Patients with traumatic spine fractures who required surgical intervention from 2016 to 2021 were enrolled. Indications for surgical treatment included: three-column fractures or fracture dislocations, fractures with neurological injuries or local deformity, and unstable fractures in polytrauma patients. Early return to work was defined as returning to work within three months and remaining at work for more than six months of the following year. Late return to work was defined as returning to work within two years and remaining at work for more than six months of the following year. Return to work was modeled using multivariate logistic regression analysis.

Results

Of the 173 patients with TSF, male patients accounted for 82.7%, and motor vehicles accident (MVA) was the most common mechanism of injury, accounting for 80.2%. The majority of fractures were three-column fractures (32.2%), and neurologically intact patients represented 59%. Only 38.15% of the patients returned to their jobs after their injury, and 24.24% of them had to change their work style or university specialty. Contrarily, patients who had not returned to work accounted for 27.1%. The majority of the patients did not use narcotics more than one week after discharge (93.1%). A significant difference was found between older age and not getting back to work (P = 0.005). Moreover, higher surgical blood loss, operation time, and hospital length of stay were significantly associated with not returning to work (P = 0.001, P = 0.003, P = 0.012, respectively). In multivariant regression analysis, every increase of 100 ml of blood loss during the operation was found to decrease the chance of getting back to work by 25% (P = 0.04). Furthermore, every increase of 1 hr in operation time decreases the chance of getting back to work by 31% (P = 0.03).

Conclusion

Returning to work is an important aspect that needs to be taken into consideration by healthcare providers. We found that age, longer surgery time, higher blood loss, and longer hospital stay significantly impact patients returning to work.

Optimizing outcomes and experience for patients traveling abroad for spine surgery: A survey of neurosurgeons and orthopedic spine surgeons in Saudi Arabia

Saleh Baeesa M.D.

Background

It is widely accepted that patients with complex medical diagnoses and who have the means will travel for specialized medical care abroad. Leading global medical centers have promoted destination medical services to capture international patients, increase revenue, and boost brand visibility abroad. For various reasons, patients from the Gulf countries, including the Kingdom of Saudi Arabia (KSA), have comprised a significant proportion of patients traveling abroad for care. Rarely, however, have local physicians and surgeons been involved at the granular level in these decisions. This study aims to understand better the opinions, insights, and suggestions of local spine surgeons in KSA on the outbound surgical services provided to their patients. We believe that engaging local physicians will ultimately enhance outcomes and experience for patients who may need to travel abroad for specialized spine surgery.

Materials and Methods

A cross-sectional study was conducted from April 11 to April 27, 2022. An electronic Qualtrics online survey with 12 items was sent to all spine surgeons (orthopedics and neurosurgeons) from KSA, identified by the local neurosurgery, orthopedics, and spine societies. In addition, current experiences and opinions on patients traveling abroad for spine care were assessed.

Results

A total of 110 participants were identified, with 86 responses. Most responders (84%) have cared for patients who have traveled abroad or feel knowledgeable about destination services. The patient's perception of the local system, the complexity of the case, and the opportunity for tourism, in that order, were selected as the main reasons for patients traveling abroad. The top three destinations for spine surgery were Germany (31%), the USA (23%), and Egypt (16%). Hospital and surgeon's reputations were chosen as the most likely factors for patients to select their destination. The quality of care received abroad was considered fair (49%) or good (31%), while the communication between stakeholders and the patient was considered poor by 72% and 52% of the respondents, respectively. Better communication with the patient and colleagues and changes to the local system to improve the patient's perception of the local care was suggested to enhance local clinical care.

Conclusion

This study highlights the need to engage local physicians in the destination services conversation. While most Saudi surgeons surveyed consider the care abroad acceptable for their patients, the vast majority have identified a gap in communication among treating

physicians, local physicians, and patients. Many have also suggested a need for better education and awareness locally to improve the perception of the local capabilities.

Correlation of lumbar spine fat thickness and surgical site infection in degenerative lumbar spine surgery

Tariq Jawadi M.D.

Background

Surgical site infection (SSI) is a serious and common complication following any surgical operation. Patients undergoing lumbar surgery have a higher risk for SSI. Therefore, it is essential to identify the risk factors to prevent them accurately. There is an insufficient number of studies internationally and only one to our knowledge nationally that studied the correlation between lumbar fat thickness and SSI in patients undergoing lumbar spine surgery. We aim to identify the correlation between lumbar fat thickness and SSI and determine its predictive value compared to other risk factors in predicting the incidence of SSI.

Materials and Methods

A retrospective cohort study involving all patients aged 18 and above who underwent primary elective degenerative lumbar spine surgery in NGHA from 2016 to 2020 at King Abdulaziz Medical City (KAMC), Riyadh, Saudi Arabia were included. All trauma and oncology cases, patients with previous spine surgery, non-instrumented cases, and all emergency cases without preoperative radiological images were excluded. The pre- and postoperative measurements were assessed using the sagittal MRI images on the T1 view to measure the fat length of the lumbar spine from L2 to S1. Two observers assessed the films, and the average measurement was documented for each level.

Results

Of the 151 patients included in our study, 4 developed SSI. When comparing the demographics of both groups, BMI was found to be a significant variable between the two groups with a *P*-value of 0.013. However, there was no significance in regard to age, gender, DM, HTN, steroid use, and level of stay for each group. Furthermore, there was no significance in all vertebrae levels except for L4 fat thickness which was significantly higher in the SSI group with a *P*-value of 0.0264.

Conclusion

Surgical site infection (SSI) is a common complication following any surgical operation. Patients undergoing lumbar surgery have a higher risk for SSI. Therefore, it is essential to identify the risk factors to prevent them accurately. Increased BMI has been known to be a significant risk factor for developing SSI. However, there is an insufficient number of studies internationally and nationally that studied the correlation between lumbar fat thickness and SSI. In our study, we concluded that an increased L4 fat thickness was considered to be a

significant predictor of SSI. A limitation of our study was the small sample size, and thus we recommend a national future survey should be done to identify accurately the correlation between lumbar fat thickness and SSI in patients undergoing lumbar spine surgery.