Background: Should imbalance was more common and more serious in severe scoliosis patients than it in AIS. Because of the special correction mechanism, a well deformity correction and well trunk balance rebuilding could lead to a new shoulder imbalance in PVCR. There was no study and guideline about how to rebuilding the should balance of the severe scoliosis patients in PVCR. Objective: To analyze the clinic and imaging data of the severe scoliosis patients received PVCR, then investigate the strategy of shoulder balance rebuilding in severe thoracic scoliosis received PVCR.

Methods: Severe thoracic scoliosis treated with PVCR were retrospectively reviewed. Patients with pelvic obliquity>2 cm, leg length discrepancy, muscle weakness of the lower limbs and a higher shoulder on the concave side were excluded. All patients performed routine posteroanterior standing radiographs before and after surgery. The clinic data, shoulder height (SH), the Cobb angle and trunk shift were measured. All patients followed the below steps to rebuild shoulder balance in PVCR: 1. Reconstruct trunk shift<2cm; 2. The correction of the major curve was the main force to rebuild the shoulder balance and would be result in elevating the shoulder on the concave side (50% correction rate: 2.5cm; 60% correction rate: 3cm; 70% correction rate: 4cm). It should be matched with the shoulder imbalance before surgery. 3. The correction of proximal fixation segment can further adjust the shoulder balance, but its efficiency is low (<1cm). 4. Sacrificed part of the trunk balance to reconstruct the shoulder balance was the last resort. 5. Patients fixed to T3 have a lower potential for remodeling the shoulder balance and the potential would be loss when fixed to T2.

Results: The study included 84 severe thoracic scoliosis patients, aged 12-25 years old. The mean preoperative major curve of 118±17° was corrected to 43±13° (correction rat: 65±11%). The trunk shift was 2.47±0.56cm before surgery and 1.56±0.36cm after surgery. The average preoperative SH was 26.7±6.9mm, the average postoperative SH was 11.3±4.1mm (mean change: 15.4mm)(P <0.05). 69(82%) patients showed shoulder imbalance before surgery and 19(23%) showed shoulder imbalance after surgery (p <0.05).

Conclusions: Preoperative shoulder imbalance in patients with severe scoliosis is more common and more severe. The special correction mechanism of PVCR has a special impact on the reconstruction of the patient's shoulder balance, often resulting in new shoulder imbalances. The strategy of reconstructing the shoulder balance presented in the study can guide the surgeon to better reconstruct the shoulder balance during PVCR.
Disclosures:
RECONSTRUCTION OF THE BASEMENT - RATHER THAN ADDING A STOREY IS MORE. EFFECTIVE IN PREVENTING RE-PJK IN ADULT SPINAL DEFORMITY PATIENTS

Caglar Yilgor, Suna lahut, kadir abul, Yasemin Yavuz, Firat Gulagaci, Ibrahim Obeid, Frank CK Kleinstuck, Francisco Javier Sanchez Perez-Grueso, Esmre Acaroglu, Ferran Pellise, Ahmet Alanay, ESSG, European Spine Study Group

1Department of Orthopedics and Traumatology, Acibadem Mehmet Ali Aydinlar University, Istanbul, Turkey; 2Comprehensive Spine Center, Acibadem Maslak Hospital, Istanbul, Turkey; 3Department of Biostatistics, Ankara University, Ankara, Turkey; 4Spine Surgery Unit, Bordeaux University Hospital, Bordeaux, France; 5Spine Surgery Unit, Hospital Universitari Vall d’Hebron, Barcelona, Spain; 6Spine Center Division, Department of Orthopedics and Neurosurgery, Schulthess Klinik, Zurich, Switzerland; 7Spine Surgery Unit, Hospital Universitario La Paz, Madrid, Spain, 8Ankara ARTES Spine Center, Ankara, Turkey, 9Spine Center Division, Department of Research and Development, Schulthess Klinik, Zurich, Switzerland; 10Vall Hebron Institute of Research (VHIR) Barcelona-Spain

Summary
In an analysis of 47 adult spinal deformity patients, that had undergone PJK revision surgery, re-PJK rates were found to be significantly lower in patient that had „Reconstruction of the Basement“ (i.e., spinopelvic realignment surgery) rather than „Adding a Storey” only (i.e., extension of fusion to higher segments). Patients that reached ideal individualized sagittal plane shape and alignment had the lowest re-PJK rates.

Hypothesis
Reconstruction of spinopelvic alignment is more effective in preventing re-PJK than extension of fusion to upper segments.

Design
Retrospective analysis of a prospectively collected data of adult spinal deformity pts.

Introduction
Extension of fusion to upper segments is the mainstay of symptomatic PJK/PJF revision surgery. Although this procedure stands effective due to the reduction of stressors at the proximal junctional segments, it frequently results in re-PJK. A reason for this may be the ongoing spinopelvic misshape and malalignment. The aim was to compare the effects of two different surgical strategies (Spinopelvic realignment and extension of fusion (REALIGN) vs extension of fusion only (EXT)) on re-PJK rates.

Methods
Inclusion criteria: ≥4 levels fusion, ≥2y f/up and having revision surgery due to symptomatic PJK/PJF. Re-PJK/PJF was defined as UIV-UIV+2 angle ≥20° and ≥10° increase between early postop and f/up x-rays and/or fracture of UIV/UIV+1 and implant complications at UIV. The Global Alignment and Proportion (GAP) score was used to postoperatively divide pts into 3 groups: Proportioned (GAP-P), Moderately Disproportioned (GAP-MD) and Severely Disproportioned (GAP-SD), indicating individualized sagittal shape and alignment. Re-PJK rates were compared using Chi-squared tests.

Results
47 pts (36F, 11M) were included. Mean age: 66.9±11(23-81) yrs. Mean f/up: 31±10.8(24-62) months. 29 had EXT and 18 had REALIGN surgery. Groups were similar according to age, BMI and gender (p>0.05). Overall, 28 (59.6%) had re-PJK. Re-PJK rates were different in treatment groups (p=0.023). In EXT, mean pre- and post-op GAP was 8 and 7, respectively. 72.4% of the pts
had re-PJK. In REALIGN, mean pre- and post-op GAP was 10.7 and 4.5, respectively. 38.9% of the pts had re-PJK. Details are given in Fig 1.

Conclusion
Re-PJK occurred in more than half of the patients that had undergone PJK revision surgery. Re-PJK rates can significantly be reduced via performing spinopelvic realignment surgery in addition to extension of fusion. Lowest re-PJK rates were observed in patients that reached ideal individualized sagittal shape and alignment.

Disclosures:
CLOSED DRAINAGE VERSUS NON-DRAINAGE FOR SINGLE-LEVEL LUMBAR DISCECTOMY: A PROSPECTIVE RANDOMIZED CONTROLLED STUDY

Dingjun Hao, Biao Wang
Department of Spine Surgery, Honghui Hospital, Xi’an Jiaotong University College of Medicine, Xi’an, China

BACKGROUND CONTEXT: In spine surgery, postoperative epidural hematomas and wound infections can have devastating neurologic compromise. Closed drainage is commonly used for prevention of postoperative hematoma, infection, and associated neurologic compromise after lumbar decompression, but it remains unclear whether closed drainage reduces postoperative complications and improves clinical outcomes.

PURPOSE: To determine the efficacy of closed drainage in reducing complications and improving clinical outcomes after single-level lumbar discectomy.

STUDY DESIGN: A prospective randomized controlled study.

PATIENT SAMPLE: 420 patients with single-level lumbar discectomy were included.

OUTCOME MEASURES: The rates of postoperative complications (fever, symptomatic epidural hematomas, wound infections, and requiring revision surgery), visual analog scale (VAS) score and Oswestry Disability Index (ODI) score.

METHODS: 420 patients with single-level lumbar disc herniation were recruited between March 2012 and March 2015 (169 females and 251 males, age 50.0±6.4 years). Patients were randomly assigned to either closed drainage group (214 patients) or non-drainage group (206 patients). The rates of postoperative complications (fever, symptomatic epidural hematomas, wound infections, and requiring revision surgery) were compared between the two groups using a chi square test. Pain intensity was evaluated by VAS. Functional ability was measured for all of the patients using ODI. The lower extremity VAS score and ODI score were evaluated preoperatively, postoperatively, and at the last follow-up. The operation area VAS score were evaluated preoperatively, postoperative day 1, week 1, week 2, month 1, and at the last follow-up. The scoring results were compared between the two groups using a t test.

RESULTS: The difference in postoperative fever between patients in the closed drainage group (18.7%) and that in the non-drainage group (28.2%) was statistically significant (p<0.05). This is mainly due to the difference of patients with fever less than 38.5°C. There was no significant difference in symptomatic epidural hematomas, infection rate, and re-operation rate when the two groups were compared. Only compared the postoperative day 1 operation area VAS score, the closed drainage group (5.1±0.8) was better than the non-drainage group (6.0±0.7) and with a significant statistical difference (p<0.05). The left scoring results compared between the two groups were not significant difference (p>0.05).

CONCLUSIONS: We believe that closed drainage can be beneficial to reduce postoperative fever rate and alleviate postoperative operation area pain in the early postoperative period, but it has no effect on preventing postoperative occurrence of symptomatic epidural hematomas, wound infections, need for revision surgery; and improving clinical outcomes in single-level lumbar discectomy.

Keywords: lumbar discectomy; wound drainage; randomized controlled study.

Disclosures:
author 1: none; author 2: none
COMPARING LUMBAR SPINAL FUSION PERIOPERATIVE MORBIDITY AND MORTALITY BY APPROACH UTILIZING THE NATIONAL INPATIENT SAMPLE (NIS): 2005-2013

Michael Faloon, Conor Dunn, Kimona Issa, Nikhil Sahai, Kumar Sinha, Ki Soo Hwang, Arash Emami
Seton Hall University, School of Medicine; Dept of Orthopaedic Surgery, Paterson, NJ, USA

Introduction: Surgical fusion of the lumbar spine has increased in popularity as a treatment modality to address common pathologies of the degenerative spine. Furthermore, the past two decades have seen a substantial change in the instrumentation and surgical approach decisions of the spine surgeon that has improved fusion rates and surgical outcomes. The advancement of lumbar fusion surgery, combined with an increasingly aging population, has led to a surge in the overall number of procedures performed. The different approaches to lumbar spine fusion each address unique lumbar pathology have their own technical challenges and associated risks. The National Inpatient Sample (NIS) serves as the single largest all-payer inpatient database in the United States and provides weights for nationally representative estimates.

Methods: The NIS database was reviewed from 2005 to 2013. Patients undergoing elective lumbar fusion surgery were identified by their discharge ICD-9-CM code by approach with indications specific to the lumbar spine identified by their respective ICD-9CM codes. Demographics were identified. Outcomes were assessed by frequencies of complications related to the procedure including pulmonary embolism (PE), deep venous thrombus (DVT), infection, cardiac, hematoma, durotomy, dysphagia and independent predictors of mortality. Statistical analysis involved T tests, χ2 analysis, and binary logistic regression with P < 0.001 denoting significance.

Results: We identified 199,858 patients which represented an estimated 984,089 of weighted patients hospitalized for primary lumbar spine fusion. Overall, the majority of patients were white females. The ALF cohort had significantly more DVTs and Infections than the PLF cohort but less than the APLF cohort and significantly less PEs than both. The PLF cohort had significantly more durotomies and neurologic complications that the other two approaches but significantly less mortality. The APLF cohort had significantly more cardiac complications, hematomas, infections and DVTS than the other cohorts but significantly less dysphagia. Patients who died during hospital stay were significantly older (68.8 +/-12.2), male (59.1%), utilized Medicare as their primary insurer (69.0%), had a higher CCI score (1.6), were more likely to be diabetics with complications (3.9%), have AIDS (2.5%), metastatic disease (1.5%), more than 2 chronic diseases (95.5%), a longer length of stay (10.9 days) and more total charges (185,536). On multivariate analysis, increased age, male sex and CCI were statistically significant independent predictors of mortality.

Conclusions: Our study demonstrates that all lumbar spinal fusion approaches are increasingly common surgical techniques with low rates of complications and mortality. Future studies should utilize the improved data collection capabilities of the recently implemented ICD-10 codes to paint a clearer picture of this common procedure.

Disclosures:
LOW-GRADE INFECTION IN SPINAL INSTRUMENTATION: A PROSPECTIVE COMPARATIVE STUDY

Ehab Shiban, Mohammed Issa, Insa Janssen, Bernhard Meyer
Department of neurosurgery, technical university of munich, Germany

Introduction

We investigated the hypothesis that many aseptic screw-loosening revisions in spinal instrumentations are in fact low-grade infections and not due to mechanical screw overload.

Methods

A prospective observational study was performed. All patients undergoing spinal instrumentation revision surgery between August 2015 and August 2017 were screened. In the study group all patients with an indication for revision due to screw loosening on CT-scan were included. In the control group those needing revision for adjacent disc disease were included. The rate of low-grade infection using a sonification fluid culture was analyzed.

Results

82 patients met all inclusion criteria. 78 patients were enrolled. 52 and 26 patients in the study and control group respectively. There were no statistically significant differences in patients’ characteristics between both groups. A low-grade infection was identified in 52% and 19% cases in the study and control group, respectively (p=0.001).

Conclusion

Half of symptomatic screw loosening was associated with a low-grade infection. Sonification is recommended in all patients with screw loosening.

Disclosures:
DEEP SURGICAL INFECTION FOLLOWING INSTRUMENTED THORACOLUMBAR SURGERY. THE EXPERIENCE OF A QUARTER OF A CENTURY.

Borja De La Hera Cremades, Felisa Sánchez-Mariscal Díaz, Alejandro Gómez-Rice, Iria Carla Vázquez Vecilla, Lorenzo Zúñiga Gómez, Rafael Rubio Quevedo, Esther Ruano Soriano
Orthopaedic surgery, Spinal Unit, Getafe University Hospital, Madrid, Spain

Background / Introduction
Deep surgical infection following instrumented thoracolumbar surgery (DSIITS) is a major complication in spine surgery and its impact on long term morbidity and mortality is yet to be determined.

Purpose of the study
To evaluate the characteristics and evolution of DSIITS in a large series with a long follow-up

Materials and Methods
Retrospective cohort study of all consecutive patients who underwent spinal surgery in our institution between Jan 1992-Dec 2016 and who developed DSIITS. General health status, epidemiological and surgical data, gamma scan, infection characteristics (time and type of presentation, required debridements, implant removal, isolated microorganisms), and major complications linked to infection were evaluated.

Result
An overall of 174 patients (106 women) developed DSIITS during the study period. Median follow-up after infection diagnosis was 40 months (56 patients over 5 years follow-up). Median age at primary surgery was 54.5 years old. Diabetics 16.1%. Smokers 20.1%. BMI 27.8. Frailty Index over 0.18 in 27% of the cases. Frailty Index was significantly higher in early infections. Most frequent etiologies were adolescent idiopathic scoliosis, degenerative lumbar stenosis and adult scoliosis. Surgical approach was posterior in 88.5% and double in 11.5%. Average number of fused levels was 6.9. Average surgical time 5.5 hours. In 32 patients a preoperative Gamma Scan was performed with a sensibility of 43.7%. Infection presentation was early in 59.2% cases, delayed in 11.5% cases and late in 29.3% cases. Serous/ purulent exudate was present in 49.5% cases, fistula in 25.3%, abscess in 4.6%, sepsis in 2.9%, and other types of presentation in 17.7%. More than one surgical debridement was required in 20.7% of the patients. Implant removal was necessary in 46.6% of the cases. Earlier debridement was associated with a greater probability of implant retention. Most frequently isolated microorganisms were Staphylococcus coagulase negative (30.1%), E. coli (20.4%), Proteus spp. (20.4 %), Enterococcus spp. (18.4%) and Staphylococcus aureus (17.4%) in early infection; Staphylococcus coagulase negative (40%) and Propionibacterium acne (30%) in delayed infection and Propionibacterium acne (37.2%) and Staphylococcus coagulase negative (33.3%) in late infection. One third of the infections, were polymicrobial. Mayor complications appeared in 25 patients. The most frequent was pseudarthrosis with loss of correction. Over 80% of those patients required major surgery during follow-up.

Conclusions
In a large series and after a long follow-up, late DSIITS are more frequent than previously reported.
Implant removal is necessary in 46% of the cases. Early surgical debridement helps implant retention. We found a remarkably high incidence of Gram negatives in early DSII TS. Skin microorganisms predominate in delayed and late DSII TS. Mayor complications in 14% of the DSII TS patients.

Disclosures:
RESULTS OF PREOPERATIVE NASAL BACTERIAL CULTURE IN PATIENTS WHO UNDERWENT SPINAL INSTRUMENTATION SURGERY

Hirohito Takeuchi, Itaru Oda, Shigeki Oshima, Masaru Suzuki, Masanori Fujiya
Hokkaido Orthopedic Memorial Hospital, Sapporo, Japan

Objective
There are some studies reporting that nasal carriage of Staphylococcus aureus (including MRSA) is one of the risk factor of surgical site infection (SSI) in patients who underwent orthopedic surgery. However, it remains uncertain in spinal surgeries. In this study, number and types of bacterium detected from the nasal culture prior to spinal instrumentation surgeries were investigated. Also, relations between the results and patients’ background were analyzed.

Method
Since January 2012 to August 2017, a total of 358 patients underwent spinal instrumentation surgery in our hospital were screened. There were 140 male and 218 female patients with an average age of 68.6 (28-88) years. Preoperative nasal bacterial culture was performed in all cases before surgery. Collection of bacterium was done by sterile swab in each nostril and bacterial culture was performed. Number of culture positive cases and types of detected bacteria were investigated. Also, relations between the detected bacteria and comorbidity or medical history were investigated retrospectively.

Results
Nasal culture was positive in 96.3% (345/358 cases), negative in 3.6% (13/458 cases). Multiple types of bacterium were detected in 4.8% (22/458 cases). Detected bacteria were Methicillin-sensitive Staphylococcus epidermidis (MSSE) in 115 cases (33.3%), Methicillin-resistant Staphylococcus epidermidis (MRSE) in 79 cases (22.9%), Methicillin-sensitive Staphylococcus aureus (MSSA) in 75 cases (21.7%), Methicillin-resistant Staphylococcus aureus (MRSA) in 17 cases (4.9%), Corynebacterium Spp. in 11 cases (3.2%), Streptococcus Pneumoniae in 9 cases (2.6%), Klebsiella oxytoca in 4 cases (1.2%), Pseudomonas Aeruginosa in 1 case (0.3%), alfa-Streptococcus 41 cases (11.9%) as resident bacteria and others in 15 cases. Although it wasn’t bacteria, Candida albicans was detected in 2 cases. Importantly, 29.1% (104/358 cases) of the detected bacterium were not sensitive to Cefazolin. Although MRSE and MRSA are not indigenous bacteria, their positive rate was as high as 22.9% and 4.9%, respectively. Detection rate of bacteria or types of bacteria didn’t have correlation to comorbidities (diabetes mellitus, cerebral infarction, malignant tumor, et al).

Conclusion
In this study, preoperative nasal culture was positive in 96.3% of the patients who underwent spinal instrumentation surgery. MRSE and MRSA were detected with considerable frequency. Totally, around 30% of patients were carrier of non-sensitive bacteria to Cefazolin. In these patients, Cefazolin as prophylactic antibiotics may not be suitable. Further study investigating the relationship between nasal bacteria and SSI are required for a certainty.

Disclosures:
author 1: none; ; author 2: none; ; author 3: none; ; author 4: none; ; author 5: none
IMPACT OF ELECTROCAUTERY ON FATIGUE LIFE OF SPINAL FUSION CONSTRUCTS - AN IN VITRO BIOMECHANICAL INVESTIGATION

Michael Akbar, Haidara Al Mansour, Wojciech Pepke, Robert Sonntag, Jan Philippe Kretzer
Spine Center, Department of Orthopedic Surgery and Spinal Cord Injury, University of Heidelberg, Heidelberg, Germany

Study design: In vitro biomechanical investigation of fatigue life using vertebrectomy model comprised of bilateral rod pedicle-screw constructs

Objective: To assess the safety of Titanium (Ti) and Cobalt-Chrome (CoCr) rod-screw constructs after being treated with electrocautery.

Summary of Background data: Instrumentation failure is attributed to cyclic loading leading to nucleation of fatigue cracks which later propagate and result in rod fracture. Risk factors for rod failure post spine surgery has been extensively analyzed. The potential impact of electrocautery on fatigue life of orthopedic implant has been sporadically described in literature pertaining to arthroplasty. A biomechanical analysis of this impact on spinal constructs has not been performed thus far.

Methods: Twelve spinal constructs with CoCr and Ti rods were examined using the ASTM F1717-01 model. The twelve specimens were divided into four groups pertaining to rod material (Ti or CoCr) and to the application of monopolarelectrocautery device on rods’ surface (control group CG and electrocautery group EG) (n = 3 for each group). Electrocautery device was applied on each rod at three locations. Constructs were cycled at a load ratio of 10 between a minimum and maximum loading regime of 10/100 N and 45/450 N at a frequency of 12 Hz. Outcome measures were estimated fatigue strength, load, number of cycles to failure and location of rod failure

Results: Ti rod constructs treated with electrocautery (Ti-EG) demonstrated significantly lower fatigue life than the intact Ti rods (Ti-CG) (p = 0.023). Intergroup comparison of cycles to failure revealed a significant mean decrease of almost 9 x 105 cycles. (p= 0.03). No CoCr rods failed in this experiments but all of the spinal constructs with CoCr rods failed at the Ti pedicle screw

Conclusion: Electrocautery application on the surface of Ti rods significantly reduces their fatigue life. On the other hand, CoCr constructs were not affected. Surgeons might want to consider using a classical surgical blade in the vicinity of Ti rods to mitigate the risk of rod failure.

Disclosures:
author 1: none; author 2: none; author 3: none; author 4: grants/research support: CeramTec; Corin; DePuy Synthes; Questmed; Smith&Nephew; Falcon Medical; consultant: AMTI; author 5: grants/research support: DePuy, Link, Brehm, S&N, Ceramtec, Aesculap, Falcon Medical, etc.; consultant: DePuy, Link, etc.
Patients have greater expectations than surgeons have for improvement in psychological well-being from lumbar surgery

Carol A Mancuso, Roland Duculan, Frank P Cammisa, Andrew A Sama, Alexander P Hughes, Darren R Lebl, Federico P Girardi
Dept of Orthopedics, Hospital for Special Surgery, New York, NY, USA

Background: Patients expect improvement in physical and psychosocial well-being as a result of lumbar surgery. Patients and surgeons should agree on expectations so that they share the same goals and targeted outcomes. Because surgeons may be less aware of mental versus physical well-being and patients may have unrealistic expectations, agreement for expectations for psychosocial improvement may be lower if patients have more depressive/anxiety symptoms.

Purpose: To compare preop expectations for improvement in psychosocial well-being between patients and surgeons according to depressive/anxiety symptoms.

Sample: 415 patient-surgeon dyads

Outcomes: Comparison of patients’ and surgeons’ scores from the psychosocial domain of the validated Hospital for Special Surgery Lumbar Spine Surgery Expectations Survey based on depressive symptoms (Geriatric Depression Scale (GDS)) and anxiety symptoms (State Anxiety Inventory (STAI)).

Methods: Several days preop patients completed the GDS, STAI, and the 20-item Expectations Survey asking how much improvement they expected for symptoms, function, and mental well-being. Based on factor analysis, the psychosocial domain is composed of 4 items (e.g. improve interactions with others, reduce emotional stress); a score is generated ranging from 0-100 (higher=greater expectations). Surgeons completed an identical Survey asking them to rate expected improvement for each patient. Agreement was assessed within the patient-surgeon dyad with the intraclass correlation coefficient (ICC) (range 0-1, higher=greater agreement) and difference in scores was assessed in multivariable analysis.

Results: Mean age was 55 years, 55% were men, 79% had degenerative diagnoses, 31% had a positive screen for depression, 69% had greater anxiety than population norms. Patients had greater expectations than their surgeons (mean domain score 74 vs 58; mean difference 16 (p<.001), ICC =.48); these differences were more marked if patients had more depressive/anxiety symptoms. For example, the domain score differed more for patients with a positive vs a negative depression screen (19 vs 14, p=.007) and agreement (ICC) was lower (.23 vs .55). In multivariable analysis, controlling for age, gender, and diagnosis, more depressive symptoms remained associated with a greater difference in score between patients and surgeons (OR 1.7, CI 1.2-2.4, p=.006). Domain score also differed more for patients with greater anxiety than population norms (18 vs 14, p=.002; ICC .39 vs .57). In similar multivariable analysis, more anxiety remained associated with greater difference between patients’ and surgeons’ domain scores (OR =1.6, CI 1.1-2.3, p=.008).
Conclusions: Patients have greater expectations for psychological improvement from lumbar surgery than their surgeons have. Ascertaining expectations of patients with depressive/anxiety symptoms is particularly challenging but important to do to ensure expectations are realistic.