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Reoperations for degenerative spinal disease in Poland reported to the National Health Fund over 12 months with estimation of reoperation rate and of risk factors associated with reoperations

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I read with great interest the article by Słowiński et al. entitled: 'Risk factors for reoperation after surgical treatment for spinal disease in Poland: a nationwide retrospective study of 38,953 hospitalisations'. The authors of this study have analysed and discussed the state of play regarding the practice of surgical treatment of degenerative spine disease (DSD) in Poland reported to the National Health Fund (NHF) over a 12-month period.

The authors did not only touch upon the problems associated with the neurosurgical treatment of DSD in Poland, they also presented this issue in a broader context that will be unfamiliar to neurosurgeons or orthopaedic surgeons. The sheer numbers of surgical procedures for DSD in Poland illustrate how large is the burden placed on doctors of many specialisms and on our NHF. The authors stated that, in 2014, 68,000 hospitalisations for DSD were reported in Polish hospitals. A total of 1,001,000 DSD patients were treated, and 2,004,000 medical consultations were provided. All these consultations, medical treatments, and neurosurgical operations including reoperations, were reimbursed by the NHF.

The issue of reoperations for DSD is a timely topic because spinal surgeries constitute the majority of neurosurgical operations performed in many neurosurgical departments across Poland. The practice of neurosurgical treatment of DSD is growing, and in the coming years this will pose not only a medical challenge, but also a financial burden for our NHF (Fig. 1). An increasing trend for spinal surgeries is also being observed in many other countries [1–4].

The authors of this study found that in 2018, 38,953 neurosurgical operations for DSD were performed. Reoperations reported within 365 days of hospital discharge affected a total of 3,942 operated patients (10.12%). They established the risk factors for reoperations to include female sex (female-to-male ratio 1.34:1), age at surgery (mean age of reoperated patients 56.66, mean age of other patients 53.24), and multiple comorbidities (from 8.81% in a group of patients without comorbidities to 15.31% in a group of patients with at least three comorbidities). The highest reoperation rate for comorbidities was reported for patients with severe malnutrition (24%), lymphomata and haematological cancers (21.13%), and also obesity (15.11%), depression (14.76%), peripheral vascular diseases (14.54%), arthropathies and connective tissue diseases (14.15%), and neurological diseases (14.71%).

The identification of the above-mentioned comorbidities may be of practical significance in selecting and counselling potential candidates for surgery due to DSD. Regarding the facility profile, those surgeries performed in orthopaedic departments had the highest reoperation rate (11.65%) compared to neurosurgical departments (8.27%) and clinical centres (8.51%). The study revealed unexpected effects of other studied variables on the reoperations rate, which included surgeries with implants, as well as emergency admission and duration of hospital stay. The highest reoperation rate was identified for hospitalisation lasting 1–2 days (12.37%), then for emergency admission (9.33%). Surgeries involving an implant (6.6%) and hospitalisation lasting 4–7 days (6.25%) had the lowest reoperation rates.

Variables that reduced the likelihood of reoperation were shown to include: place of residence (lower for rural areas than urban areas), surgery with an implant compared to surgery without, performance of the primary surgery in a neurosurgical department, and longer hospital stay compared to one-day surgery.

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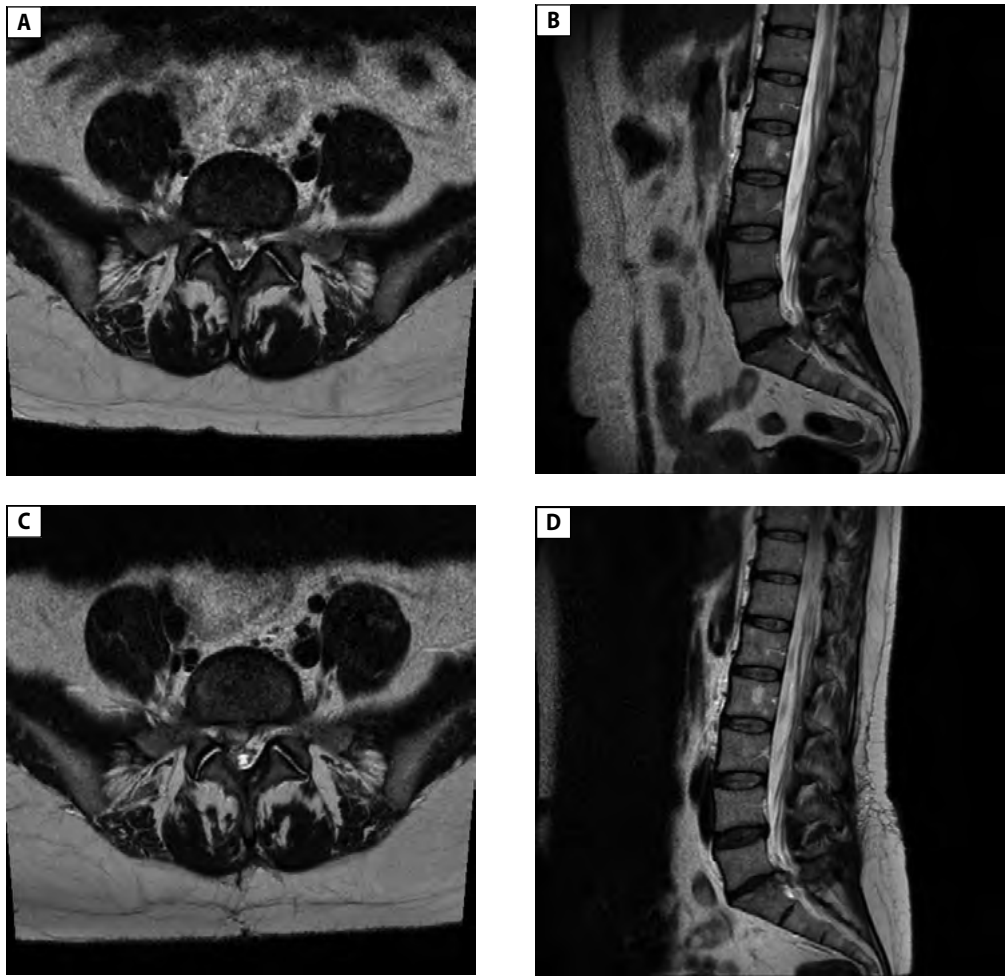

Figure 1. Axial (**A**) and sagittal (**B**) magnetic resonance images show large left disc sequestration at level of L5/S1. Postoperative axial (**C**) and sagittal (**D**) magnetic resonance images depict recurrent herniated disc two months after right-sided microdiscectomy

In my opinion, this is the first Polish study which has systematically elaborated on the reoperation rate after spine surgery in Poland, taking into account so many variables [3, 4]. There have been a few studies, but the literature related to this issue is still scarce in Poland as it is worldwide [5–8]. Furthermore, the authors claim that there is still a need for the establishment of a national spine surgery registry in Poland. However, a few Polish medical institutions already provide medical data to the EUROSPINE International Spine Registry (Spine Tango), founded in 2002 [9].

The establishment of true risk factors for reoperations is a highly important goal, and this may help to reduce the incidence of reoperations for DSD in the future. This approach will, undoubtedly, lead to a reduction of the costs associated with repeated hospitalisations and reoperations reimbursed by the NHF. The search for ways to reduce reoperations is urgent [10, 11].

This study provokes some concerns regarding the true incidence of the reoperations rate throughout one year in Poland. The data provided in this study refers only to the services reimbursed by the NHF. The services funded by private non-public funds are not included. The inclusion criterion set by the authors was 365 days to a reoperation; yet some reoperations are performed later than 12 months. Thus, the final annual rate for the reoperations of DSD is probably underestimated in this study.

My second concern regarding this study relates to non-reported truly reoperation-associated variables including the anatomical site of operation (e.g. cervical, thoracic or lumbar spine), the surgical approach adopted (anterior *vs.* posterior), and any underlying spine pathology (e.g. spinal stenosis, instability, spinal disc herniation) as well as the experience of a surgeon built up over years of clinical practice. If the reoperation rate was to be considered in the scope of primary spinal operation, the reoperation ratio could be estimated according to the type of first spinal surgery performed.

Nevertheless, this study remains a good basis for comparative studies in the future, and may become a benchmark for subsequent studies regarding truly surgical-associated variables of the operation/reoperation ratio for DSD in Poland and beyond.

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