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Silesian Registry of Intensive Care Units

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To the Editor:

The Silesian Registry of Intensive Care Units (hereafter called 'the Registry') is an Internet platform which gathers medical data regarding hospitalisations of patients in Silesian intensive care units (ICUs). The Registry has been functioning since September 2010 and is available for all multi-profile ICUs for adults. The owner and administrator of the Registry is the Silesian Section of the Polish Society of Anaesthesiology and Intensive Care PSAIT). The initiators of this project were Prof. Ewa Karpel (then Regional Consultant in anaesthesiology and intensive care for the Silesian region) and Prof. Piotr Knapik (Chairman of the Silesian section).

The registration of hospitalisations in the Registry is voluntary. The platform is accessible exclusively for registered users, namely physicians employed in Silesian ICUs. The database contains information regarding hospitalisations of adult patients treated in ICUs cooperating with the Registry. To enter the data to the Registry, the user has to log on to the system (for verification). When a particular patient is discharged from or dies in an ICU (completion of hospitalisation), the attending physician or physician on duty logs on (individual login and password) and enters the strictly defined data concerning hospitalisation to the Registry. On entering the data, the hospitalisation is assigned an individual number in the Registry. No data enabling identification of patients are entered (e.g. full name, first name or Universal Electronic System for Registration of the Population UESRP – PESEL in Polish) [1]. On 11.01.2017 the Registry contained data regarding 20,049 hospitalisations.

The data from the entire region are accessible to the Regional Consultant in anaesthesiology and intensive care, the Chairman of the Silesian Section, as well as the administrators of the Registry. Each Senior Registrar of an ICU or those authorised have a continuous access to the data concerning their unit (moreover, they can compare the data about their Unit with the mean characterising all ICUs in the Silesian Region). The registry does not contain any information enabling identification of individual patients or hospitalisations; all units were asked to note the individual Registry number assigned in their internal ICU documentation. Thus, each ICU in the Silesian region can create its own database containing information on its hospitalisations, provided that all hospitalisations are regularly reported to the Registry.

The system gathers data regarding patients' conditions before admission and on admission, the course of ICU treatment, treatment outcomes (according to the questionnaire provided) (Table 1). The entered data were previously defined (thus, they can be entered only by marking the appropriate box); in some cases, the data can be entered in a descriptive manner (only non-standard data). In answering a particular question, several boxes can be marked.

The obtained information is used to plan and accomplish intensive care therapies at an appropriate level, to improve the quality of services, to prepare multi-centre scientific studies and to promote cooperation of individual ICUs in the Silesian region. Therefore, the Registry is a scientific and educational undertaking and an important tool for the evaluation of the quality of treatment of patients hospitalised in Silesian ICUs.

The data from the entire region are also available for analyses and scientific studies by physicians working in the ICUs participating in the Project [2–15], once approved by the Regional consultant or Chairman of the Silesian section of the PSAIT. The use of Registry data for scientific purposes was approved by the Bioethics Committee of the Medical University of Silesia in Katowice.

The Registry's functioning (IT services, hosting services, protection, software) is supported from the funds of the Silesian Section of the PSAIT. All data are verified by the administrator of the database as for their internal coherence in order to eliminate errors during their entering (i.e. conflicting data regarding the same hospitalisation. The entered data, however, are not audited by the Registry administrators as to their conformity with medical records. It was assumed that such verification should be conducted at the Unit level.

According to the opinion of the Legal Department of the Ministry of Health, the statistical-scientific platform operated in the way described above does not fall into the category of registries requiring the Directive of the Minister of Health pursuant to the Health Information Protection Act. This means that the Silesian Section can freely carry on with its database and the information included in it can be used for research purposes by physicians employed in the therapeutic units participating in the Project [16].

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Table 1. Data available in the Silesian Registry of Intensive Care Units (ICUs)

Pre-admission data
Age (years)
Gender
Admission from [surgical suite; emergency or admission room, another surgical department, another medical department, another ICU, site of incident by an R ambulance]
Number of ICU admission [first; second; further]
Next ICU admission [does not apply; the same hospitalisation, a new hospitalisation]
Next ICU admission (calculated from ICU discharge) [does not apply; ≤ 14 days after discharge; 15–30 days after discharge; > 30 days after discharge]
Number of all hospitalisation days before ICU admission
Date and hour of admission
Additional conditions before admission [coronary disease; chronic circulatory failure; arterial hypertension; disseminated atherosclerosis (vasocerebral or peripheral); chronic respiratory failure; home oxygen therapy, morbid obesity (BMI > 35 kg m^{-2}); cachexia (including BMI < 15 kg m^{-2}); alcoholism; HIV(+) HCV(+) or HBS (+); diabetes mellitus; chronic kidney failure; dialyses; history of CNS stroke; chronic neurological diseases; systemic autoaggression diseases; post-organ transplantation condition; advanced neoplastic disease; pregnancy (gestational age > 12 weeks), other diseases not listed, none of the listed]
Description of other conditions present before admission
Admission data
Primary cause of ICU admission [acute respiratory failure; exacerbated chronic respiratory failure; acute circulatory failure; multiorgan failure; shock; sudden cardiac arrest; consciousness disorders; condition after surgery; traumatic multiorgan disorders; craniocerebral trauma; acute pancreatitis; obstetrical conditions; acute neurological diseases; poisonings; severe metabolic disorders; infections; severe sepsis. pandemic influenza (AH1N1); other causes not listed above- description of other primary causes of admission]
The leading cause of disease — ICD-10 code
Direct cause of ICU admission (acute respiratory failure; circulatory failure-shock; kidney failure; consciousness disorders; metabolic disorders; traumatic multiple injuries, intensified monitoring required; other causes]
Description of other direct causes of admission
Condition on admission (unconscious; intubated; mechanically ventilated; with infusion of catecholamines; dialysed; endocavital stimulation; none of the listed above]
GCS on admission
APACHE II on admission
SAPS III on admission
TISS-28 on admission
Data about hospitalisation in ICU
Treatment in ICU- standard procedures (catecholamines; intubation; invasive ventilation; dialysis; continuous renal replacement therapy; antibiotic therapy; surgery during ICU stay; other — not listed above]
Description of other standard procedures
Monitoring in ICU [haemodynamic; intracranial pressure (ICP); end-tidal (ET-CO_2); other — not listed; none of the listed]
Description of other forms of monitoring
Treatment in ICU — non-standard procedures [intraaortic counterpulsation (IABP), nitrous oxide (NO); VAD; ECMO; non-invasive ventilation; HFO; DLV; surfactant; protein C; phages; plasmapheresis; therapeutic hypothermia; other forms not listed; none of the listed]
Description of other non-standard procedures
Data about ICU treatment outcomes
Date and hour of discharge or death
ICU treatment outcome [discharge; death after diagnosing brain death; death without diagnosing brain death]
ICU treatment outcome (according to the attending physician) [cured; discharged with improvement, discharged without improvement, discharged with exacerbation; does not apply (death)]
General condition on ICU discharge (according to the attending physician) [good; moderate; severe; death]
Neurological condition on ICU discharge (according to the Glasgow Outcome Score [good, moderate disability, severe disability, minimally conscious state or vegetative condition; death]
Transfer to [the same hospital — another department; another hospital, nursing facility; home; death]

ICD-10 — International Classification of Diseases and Related Health Problems; APACHE II — Acute Physiology and Chronic Health Evaluation II; DLV — double lung ventilation; ECMO — extracorporeal membrane oxygenation; GCS — Glasgow Coma Scale; TISS-28 — Therapeutic Intervention Scoring System-28; SAPS III — Simplified Acute Physiology Score III; VAD — ventricular assist device

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Commentary to the article "Neuromuscular blockade in the elderly"

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Sir,

With great interest, we read the review paper entitled "Neuromuscular blockade in the elderly" written by Dr. Michał Stankiewicz-Rudnicki, published in issue 4/2016 of *Anaesthesiology Intensive Therapy* [1].

The selection of medication for the patient stems from — among others — the patient's age and limitation of organ function associated with it, affecting drug metabolism and excretion. Despite this, the selection of neuromuscular blocking agent often results from the necessity to use an agent with the shortest possible time until achieving maximum blockade. Having considered its numerous side effects, succinyldicholine's position — as a drug of choice during rapid induction of anaesthesia — is becoming weaker, with its place being replaced by rocuronium [2, 3]. The use of rocuronium in elderly people is associated with a significantly extended duration of the neuromuscular blockade [4, 5]. The author noticed it is a neuromuscular blocking agent that is currently the most often used in the world. In this context, it is surprising that the author did not express his opinion regarding an agent which could significantly reduce the risk of residual neuromuscular transmission blockade (postoperative residual curarisation — PORC), namely sugammadex. Potentially, this is a neuromuscular blockade reversing agent which could entirely eliminate the incidence of this phenomenon [6].

Therefore, we would like to supplement this publication with a few remarks related to sugammadex use in the elderly. In 2011, in an issue of the journal *Anaesthesiology*, McDonagh *et al.* [7] assessed sugammadex's efficiency and safety in terms of reversing the neuromuscular blockade in a group of patients above 65 years of age. The study included 150 patients, of whom 62 were between 65 and 74 years of age, and 40 were 75 years old or older. The biggest difference the authors managed to observe was the extension of the muscle strength return period (expressed as an increase in the TOF (train of four) rate above 0.9), by 0.7 minute in the group of patients older than 65. This result was attributed to decreased circulatory system dynamics, and the resulting