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Impact of the COVID-19 pandemic on sleep medicine in the Czech Republic and Slovakia

Vliv pandemie COVID-19 na spánkovou medicínu v České republice a na Slovensku

Abstract

Aim: The COVID-19 pandemic affected all parts of the healthcare system. The aim of this study was to assess the pandemics effect on sleep medicine in the Czech Republic (CZE) and Slovakia (SVK). *Methods:* A questionnaire based study, in which where 23 sleep departments (SD) (16 CZE; 7 SVK) were included between May 5, 2020 and May 17, 2020. *Results:* The service was completely interrupted in 43.5% SD. The sum of estimated missed sleep studies in responding SD was 1,100 and the sum of missed positive airway pressure titrations was 580. When considering the response rate of the questionnaire through extrapolation, it is estimated that about 1,900 sleep studies and 1,000 positive airway pressure titrations were not performed in the region of the CZE and SVK because of COVID-19. The situation is unlikely to improve soon, as 59.1% of SD do not expect to meet the same number of diagnosed/treated patients as in 2019 (53.3% CZE; 71.4% SVK) and about 34.8% of SD will not restart their activity by the end of May 2020 or will run with a very limited capacity (23.5% CZE; 57.1% SVK). *Conclusion:* Sleep medicine in the CZE and SVK was heavily affected by COVID-19 and the loss of diagnostic and therapeutic procedures may be considered as one of pandemic "collateral damages".

Souhrn

Cíl: Pandemie COVID-19 zasáhla celý systém zdravotní péče. Cílem studie je zjistit dopad pandemie na oblast spánkové medicíny v ČR (CZE) a na Slovensku (SVK). *Metody:* Dotazníková studie 23 spánkových pracovišť (sleep departments; SD) (16 CZE; 7 SVK) v období 5.–17. 5. 2020. *Výsledky:* Provoz zcela přerušilo 43,5 % SD. Součet odhadů neprovedených nočních monitorací spánku v referujících pracovištích je 1 100 a součet odhadů neprovedených titrací terapie přetlakovou ventilací je 580. Vzhledem k podílu SD, které odpověděly, odhadujeme, že z důvodu COVID-19 nebylo v CZE a na SVK dohromady provedeno přibližně 1 900 nočních monitorací spánku a 1 000 titrací terapie přetlakovým dýcháním. Situace se nejspíše v nebližší době nezlepší, 59,1 % SD předpokládá nižší počet diagnostikovaných/léčených pacientů ve srovnání s rokem 2019 (53,3 % CZE; 71,4 % SVK) a k 31. 5. 2020 nebude v provozu 34.8 % SD nebo bude jejich kapacita výrazně snížena (23,5 % CZE; 57,1 % SVK). *Závěr:* Spánková medicína v CZE a na SVK byla těžce zasažena COVID-19 a výrazné snížení počtu diagnostických a terapeutických výkonů může být považována za jednu z „kolaterálních škod".

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Introduction

The coronavirus disease 2019 (COVID-19) pandemic had a huge impact on affected individuals and society as a whole, causing an immense negative collateral effect; the delay in non-acute healthcare may be a part of this collateral damage. Metzler et al [1] found a reduction of acute admissions for acute coronary syndrome (ACS) of 39.4% in the calendar weeks 10–13 in 2020, when the COVID-19 pandemic was peaking in Austria. The lower rate of admitted and treated ACS is concerning, as the authors are postulating that this will be accompanied by a substantial increase in myocardial infarction-related mortality and morbidity.

The impact of COVID-19 on oncological treatment is similarly severe. Sud et al [2] estimates that the delay of 3 months in surgery for incident cancers would mitigate 19% of life-years gained by hospitalisation of an equivalent volume of admissions for community-acquired COVID-19.

The large extent of the failure of health care in Sleep departments (SD) is expected.

Grote et al [3] published the data from the European sleep Apnoea Database (ESADA) and found that in 40 centres in 15 countries, the COVID-19 pandemic had led to an 80% reduction in the number of polysomnography tests and titrations of positive airway pressure therapy (PAP). The ESADA group mainly consists of academic setting departments and it is not clear whether these results could be extrapolated into routine clinical practice. Moreover, the safety restrictions were different in European countries. For this reason, we decided to analyse the impact on sleep medicine in two countries in Central Europe (Czech Republic [CZE] and Slovakia [SVK]) which have similar health care systems and low incidences of COVID-19 (8,820 confirmed cases in the CZE and 1,503 in SVK; data as of May 23, 2020) and also the number of fatal cases is low (312 in the CZE and 28 in SVK) [4].

Methods

The aim of this study was to assess the COVID-19 related reduction of night sleep studies and newly treated patients with obstructive sleep apnoea (OSA).

A simple questionnaire was sent to SD in both countries (the list of accredited departments was obtained from national sleep societies).

The questionnaire was distributed on May 5, 2020 and the last response was obtained on May 17, 2020. The data were then analysed. The overall response rate was 57.8% (60% CZE; 53.8% SVK).

Results

In the region of the former Czechoslovakia, COVID-19 countermeasures caused a complete shut-down of 43,5% of SD (31.3% CZE; 71.4% SVK). Other SD were operating in a telemetric way, or at a reduced outpatient capacity, and none of the SD were diagnosing and treating the same number of patients as before the COVID-19 pandemic.

The total of 37.5% of hospital-based SD were transformed into COVID-19 departments (36.4% CZE; 33% SVK) and 43.5% of hospital-based staff was transferred into other hospital units (41.2% CZE; 42.8% SVK). These SD were mainly (60.9%) a part of pneumological departments.

The sum of estimated number of sleep studies which were not performed because of the COVID-19 pandemic is 1,100 (860 CZE; 240 SVK). When we consider the study response rate of 57.8 %, it could be extrapolated that in the region of the CZE and SVK, about 1,900 sleep studies were not performed. The overall population of both countries is 16.1 million (CZE 10.7 million; SVK 5.5 million).

Similarly, the sum of estimated numbers of missing PAP titrations is 600 (480 CZE; 220 SVK). We estimate from the extrapolation of the results that about 1,000 PAP titrations were not performed (Tab. 1).

Tab. 1. Impact of COVID-19 on sleep department operability and estimation of missed procedures.

	total	CZE	SVK
completely shut-downed sleep departments	43.5%	31.3%	71.4%
missed sleep studies	1,900	1,500	400
missed positive airway pressure titrations	1,000	800	200

COVID-19 – coronavirus disease 2019; CZE – Czech Republic; SVK – Slovakia

The negative impact on sleep medicine deepens, as 59.1% of those responding to the survey do not expect to meet the same number of diagnosed/treated patients as in 2019 (53.3% CZE; 71.4% SVK).

Regarding possible new approaches in the diagnostics and treatment (especially telemedicine), 71.4% responders do not expect changes in their routine clinical practice.

Discussion

As we have expected, the care of patients with sleep disorders was heavily affected by the COVID-19 pandemic and this study provides the data on how severe this impact was.

The main finding is the large number of sleep studies and PAP titrations which were not performed due to COVID-19. The estimated number of 1,900 missed sleep studies in the population of 16 million inhabitants presents a significant problem for the overall level of treatment given to patients with different sleep disturbances, mainly, sleep disordered breathing with regards to health, social life and quality of life.

The health care systems in the CZE and SVK are not able to raise the number of examinations performed under normal conditions to make up for the missing activity (as responders do not expect to meet the same numbers as in 2019). Moreover, the need of sleep studies in both countries exceeds the capacity of SD in standard condition.

In the CZE, there are about 7,500 patients annually that are newly treated with PAP and the number of currently missed PAP titrations represents around 12 % of lost activity.

The effect of impact on SD is higher than in the ESADA trial as none of the SD reported normal function (about 20% in ESADA). A possible reason are the stricter measures applied in the CZE and SVK, like an almost complete abandonment of elective procedures in health care.

In the ESADA group it was found that many centres will change their habits, e. g., increasing the use of telemedicine and titration via remote access. This effect is not expected in the CZE and SVK, as telemedicine is not covered by health insurance in either of the countries.

The COVID-19 pandemic represents a severe problem for sleep medicine across the world and even impacts low COVID-19 prevalence countries such as the CZE and SVK. It seems that the collateral damage (missing preventive or diagnostic procedures) may

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have an impact on the population, mainly on overall health, and, of course, on social and economic conditions.

Conclusion

This study found a significant negative impact of the COVID-19 pandemic on the care for patients suffering from sleep disorders in the CZE and SVK, and we do not expect the missed procedures to be made up for by the end of 2020.

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