

This habilitation thesis is a synthesis of previously published scholarly works, and it is organised into three distinct parts.

The initial part of the habilitation thesis is dedicated to anaesthetic management of patients scheduled for neuromuscular scoliosis surgery. The publications in this section include three case reports describing anaesthesia in patients with extremely rare syndromes and diseases, some of which are being described for the first time globally. The significance of these cases is underscored by the subsequent release of two international guidelines under the OrphanAnesthesia project. In these recommendations, we report strategies and steps for safe perioperative management of patients with orphan syndromes. Additionally, we published a review article on anaesthesia and perioperative management in patients undergoing neuromuscular scoliosis surgery, which has received numerous citations in the Web of Science database. A notable clinical achievement resulting from this work is the establishment of a multidisciplinary committee at Brno University Hospital dedicated to paediatric spinal deformities.

The second part of the habilitation thesis is focused on anaesthesia and intraoperative neurophysiological monitoring, specifically motor evoked potentials. The influence of anaesthetics and other pathophysiological conditions on the quality of motor evoked potentials has been described in the literature, and we reported these anaesthetic specifics as a review article. However, some influences remain unclear. We focused on the effect of anaesthesia depth on the reproducibility and quality of motor evoked potentials. We described another essential part of safe anaesthetic management and expanded the perspective on the possibilities of anaesthesia during scoliosis surgeries in children, with motor evoked potential monitoring. Furthermore, we described a unique case of the interdisciplinary approach to the patient with GLUT-1 deficiency syndrome.

The last part covers prophylactic fibrinogen administration in paediatrics during scoliosis surgery, with particular emphasis on evaluating its safety and feasibility. Our pilot study involved 32 patients, and the results indicated that prophylactic fibrinogen administration is both safe and feasible. Nevertheless, this study did not allow us to draw clinical conclusions regarding blood loss from this study.

A total of 11 publications are listed, including research articles, case reports, letter, study protocol, and review studies. The author's contribution to these publications is summarised in the following tables.

[1]¹ HUDEC, J., M. KOSINOVÁ, T. PROKOPOVÁ, M. FILIPOVIČ, M. REPKO a P. ŠTOURAČ. Anesthesia of a patient with congenital cataract, facial dysmorphism, and neuropathy syndrome for posterior scoliosis: A case report. *World J Clin Cases*. 2022, **10**(13), 4207-4213. Available at: doi: [10.12998/wjcc.v10.i13.4207](https://doi.org/10.12998/wjcc.v10.i13.4207)

Document type: Article; IF = 1,1; Category: MEDICINE, GENERAL & INTERNAL Q4.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
20	50	50	20

[2] HUDEC, J. a M. KOSINOVÁ. Anesthesia of the Patient with Zhu-Tokita-Takenouchi-Kim (ZTTK) Syndrome: A Case Report. *Children (Basel)*. 2022, **9**(6), 869. Available at: [10.3390/children9060869](https://doi.org/10.3390/children9060869)

Document type: Article; IF = 2,4; Category: PEDIATRICS Q2.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
35	50	70	50

[3] HUDEC, J. a M. KOSINOVÁ. Anaesthesia recommendations for Congenital cataracts, facial dysmorphism and neuropathy syndrome. *Anästh Intensivmed*. 2023, **64**(12), S446–S453. Available at: doi: [10.19224/ai2023.s446](https://doi.org/10.19224/ai2023.s446)

Document type: Article; IF = 0,5; Category: ANESTHESIOLOGY Q4.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
60	30	50	50

[4] HUDEC, J. a M. KOSINOVÁ. Anaesthesia recommendations for Zhu-Tokita-Takenouchi-Kim syndrome. *Anästh Intensivmed*. 2023, **64**(10), S332–S339. Available at: doi: [10.19224/ai2023.s332](https://doi.org/10.19224/ai2023.s332)

Document type: Article; IF = 0,5; Category: ANESTHESIOLOGY Q4.

¹ Bibliographic record of a published scientific result, which is part of the habilitation thesis.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
60	30	50	50

[5] HUDEC, J., T. PROKOPOVÁ, M. GALKO, M. PRÝMEK, M. REPKO a R. GÁL. Perioperative Management of the Patient With Chromosome 6p Duplication: A Case Report And a Narrative Review of Literature. *Bratisl. Med. J.* 2025, **126**,196–201. Available at: doi: [10.1007/s44411-024-00012-5](https://doi.org/10.1007/s44411-024-00012-5)

Document type: Article; IF = 1,1; Category: MEDICINE, GENERAL & INTERNAL Q2.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
30	30	40	20

[6] HUDEC, J., T. PROKOPOVÁ, M. KOSINOVÁ a R. GÁL. Anesthesia and Perioperative Management for Surgical Correction of Neuromuscular Scoliosis in Children: A Narrative Review. *J Clin Med.* 2023, **12**(11), 3651. Available at: doi: [10.3390/jcm12113651](https://doi.org/10.3390/jcm12113651)

Document type: Review; IF = 3,0; Category: MEDICINE, GENERAL & INTERNAL Q1.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
20	20	60	50

[7] HUDEC, J., M. KOSINOVÁ a M. NĚMEC. Základní principy anesteziologické péče k perioperační monitoraci transkraniálních motorických evokovaných potenciálů. *Cesk Slov Neurol N.* 2022, **85**(6), 457-461. Available at: doi: [10.48095/cccsnn2022457](https://doi.org/10.48095/cccsnn2022457)

Document type: Review; IF = 0,5; Category: NEUROSCIENCES Q4.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
30	30	50	50

[8] HUDEC, J., M. KOSINOVÁ, O. HORÁK, M. REPKO a R. GÁL. Challenging anesthesia of the patient on keto-genic diet therapy scheduled for scoliosis surgery under motor evoked potentials monitoring: a case report. *J Anesth.* 2023, **37**(5), 815-817. Available at: doi: [10.1007/s00540-023-03226-z](https://doi.org/10.1007/s00540-023-03226-z)

Document type: Letter; IF = 2,8; Category: ANESTHESIOLOGY Q2.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
40	25	40	20

[9] HUDEC, J., M. KOSINOVÁ, T. PROKOPOVÁ, H. ZELINKOVÁ, K. HUDÁČEK, M. REPKO, R. GÁL a P. ŠTOURÁČ. The influence of depth of sedation on motor evoked potentials monitoring in youth from 4 to 23 years old: preliminary data from a prospective observational study. *Front Med (Lausanne).* 2024, **11**, 1471450. Available at: doi: [10.3389/fmed.2024.1471450](https://doi.org/10.3389/fmed.2024.1471450)

Document type: Article; IF = 3,0; Category: MEDICINE, GENERAL & INTERNAL Q1.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
70	25	50	35

[10] VRBICA K., J. HUDEC (corresponding author), O. HRDÝ, M. GALKO, H. HORÁLKOVÁ, R. DEMLOVÁ, M. KUBELOVÁ, M. REPKO a R. GÁL. Effect of Prophylactic Fibrinogen Concentrate In Scoliosis Surgery (EFISS): a study protocol of two-arm, randomised trial. *BMJ Open*. 2023, **13**(5), e071547. Available at: doi: [10.1136/bmjopen-2022-071547](https://doi.org/10.1136/bmjopen-2022-071547)

Document type: Article; **IF = 2,4;** **Category:** MEDICINE, GENERAL & INTERNAL Q1.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
NA	15	20	10

[11] HUDEC, J., K. VRBICA, O. HRDÝ, M. GALKO, M. REPKO, R. ŠTĚPÁNOVÁ, R. DEMLOVÁ, M. KUBELOVÁ a R. GÁL. Effect of prophylactic fibrinogen concentrate in scoliosis surgery (EFISS): a randomised pilot trial. *BMJ Open*. 2025, **15**(10), e100137. Available at: doi: [10.1136/bmjopen-2025-100137](https://doi.org/10.1136/bmjopen-2025-100137)

Document type: Article; **IF = 2,3;** **Category:** MEDICINE, GENERAL & INTERNAL Q2.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
35	15	20	10