

Neurosurgery

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DESCRIPTION

The neurosurgery team is a young research group with a clear mission: to improve the quality of life for patients and, at the same time, contribute to advancements in healthcare practice through research into potentially surgical neurological diseases. There are 4 areas of knowledge where our group stands out nationally and internationally: neurooncology, skull base surgery, functional neurosurgery, and spine surgery.

MAIN LINES OF RESEARCH

- Tumour biology: gliomas (prognostic value of different mutations in anaplastic astrocytoma and GBM). (De Quintana Schmidt, Cristian José).
- Tumour biology: Neuroendocrine Tumors (pituitary adenomas). (Muñoz Hernández, Fernando).
- Biomarkers in anaplastic astrocytomas and glioblastoma multiforme. (De Quintana Schmidt, Cristian José).
- Application of new technologies in the resection of intracranial tumors. (De Quintana Schmidt, Cristian José).
- Towards a pharmacological treatment for SYNGAP1 deficiency. Preclinical studies to investigate the efficacy of 4 drugs in the rescue of the main phenotypes. (De Quintana Schmidt, Cristian José).
- Prospective study of patients operated by endoscopic endonasal approach. (Muñoz Hernández, Fernando).

- Anatomical studies of the skull base. (Muñoz Hernández, Fernando).
- Clinical evaluation of neurostimulation techniques in different neurological entities (Parkinson disease and neuropathic pain). (Rodríguez Rodríguez, Rodrigo; Aibar Duran, Juan Angel).
- Neurostimulation for resistant craniofacial pain (jointly with Neurology and Pain Clinic Unit). (Rodríguez Rodríguez, Rodrigo; Aibar Duran, Juan Angel).
- "Study of brain neuromodulation techniques for psychiatric indications (depression and schizophrenia)" (Rodríguez Rodríguez, Rodrigo; Aibar Duran, Juan Angel).
- Use of intraoperative ecography for treatment of brain tumors. (De Quintana Schmidt, Cristian José).
- Monitor the glioma tumor diagnosis, treatment and prognostic factors (Hospital Sant Pau - Hospital del Mar). (De Quintana Schmidt, Cristian José).
- Pituitary adenoma treatment: medial cavernous sinus wall approach to cure adenomas. (Muñoz Hernández, Fernando).
- Intraoperative neuromonitoring of oculomotor cranial nerves in skull base tumors. (Muñoz Hernández, Fernando).
- Pre-op and post-op volumetric study in OPEN laminectomies vs MISS (tubular) laminectomies. (Patino Alvarado, Juan Diego; Leiding, Andreas).
- The impact of lateral lumbar interbody fusion on psoas muscle morphology. (Patino Alvarado, Juan Diego; Leiding, Andreas).
- Use of tractography in resection of brain tumors.
- Better outcomes in Pituitary Surgery by removing the tumor inside the cavernous sinus.
- Use of artificial intelligence and volume calculation to assess outcomes of spine surgery.
- Implementation of HIFU treatment in patients with neurological and psychiatric disorders.
- Implementation of the Neurotechnology Laboratory for the study of new treatment devices for neurological diseases.

SCIENTIFIC PRODUCTION

- Aibar JA, Salgado L, Anka MO, Mirapeix RM, Alcañiz AG, Alvarado JDP, Pereira MR, Rodríguez RR, Munoz F, Quintana CD. Navigated intraoperative ultrasound in neuro-oncology: volumetric accuracy and correlation with high-field MRI. JOURNAL OF NEUROSURGERY. 2023;128(1):10. JNS231244. PMID:38181499. IF:3,500 (Q1/2D). Document type: Article.
- Aibar JA, Villalba G, Freixas B, Araus E, Morollón Sánchez N, Belvis R, Revuelta M, Molet J, García C, de Quintana C, Muñoz F, Rodríguez R. Long-Term Results of Cortical Motor Stimulation for Neuropathic Peripheral and Central Pain: Real-World Evidence From Two Independent Centers. Neurosurgery. 2024; 94(1). DOI:10.1227/neu.0000000000002638. PMID:37638720. IF:3,900 (Q1/1D). Document type: Article.
- Fernández JM, Aracil I, García C, Campolongo A, Curell M, Rodríguez R, Aibar JA, Kulisevsky J, Pascual B. Cognitive phenotyping of GBA1-Parkinson's disease: A study on deep brain stimulation outcomes. PARKINSONISM & RELATED DISORDERS. 2024; 128:107127. DOI:10.1016/j.parkreldis.2024.107127. PMID:39357432. IF:3,100 (Q2/4D). Document type: Article.
- González C, Calafat M, Gisbert JP, Iglesias E, Minguez M, Sicilia B, Aceituno M, Gomollón F, Calvet X, Ricart E, De Castro L, Rivero M,

SCIENTIFIC CHALLENGES

- Neurostimulation for resistant craniofacial pain (jointly with Neurology and Pain Clinic Unit).
- Deep brain stimulation for resistant psychiatric disease: depression and schizophrenia.
- Use of intraoperative ecography for treatment of brain tumors. How to maximise the extent of resection.

- Mesonero F, Márquez L, Nos P, Rodríguez A, Guardiola J, García M, García S, Lorente RH, Alba C, Sánchez R, Vera I, Madero L, Riestra S, Navarro M, Pérez JL, Camps B, Van M, Lucendo AJ, Martín MD, Montoro MA, Sierra M, Llao J, Carpio D, Varela P, Merino O, Fernández L, Piqueras M, Sese E, Busquets D, Tardillo C, Maroto N, Riera J, Martínez C, Munoz F, Gordillo J, Bertolotti F, García E, Domènech E, ENEIDA G. Influence of familial forms of inflammatory bowel disease on the use of immunosuppressants, biological agents, and surgery in the era of biological therapies. Results from the ENEIDA project. POSTGRADUATE MEDICAL JOURNAL. 2024; DOI:10.1093/postmj/qgae076. PMID:38913019. IF:3,600 (Q1/2D). Document type: Article.
- Gras JR, Martel M, Casasayas M, Villatoro JC, García A, Massegur H, Reina F, Muñoz F. Transpalpebral transorbital endoscopic lateral approach to the middle cranial fossa: anatomical study in cadaver. European Journal Of Anatomy. 2024; 28(3). DOI:10.52083/HNNK7711. Document type: Article.
 - Ikwuegbuenyi CA, Woodfield J, Waterkeyn F, Zuckerman SL, Cheserem B, Leidinger A, Lazaro A, Shabani HK, Haertl R, Mangat HS. Is mechanism of injury associated with outcome in spinal trauma? An observational cohort study from Tanzania. PLoS One. 2024; 19(7):e0306577. DOI:10.1371/journal.pone.0306577. PMID:39024312. IF:2,900 (Q1/3D). Document type: Article.
 - Mármol MCC, Aguado M, Cajal TRY, Gallardo A, Catasús L, González A, Méndez JE, Lasa A, Arumi M, Rubío OG, Serra JB, Hernández FM, von A, Kommoss FKF, Espinosa I. Non-*C19MC*-altered embryonal tumor with multilayered rosettes in a young woman with DICER1 syndrome: case report and review of the literature. Pathologica. 2024; 116(3). DOI:10.32074/1591-951X-970. PMID:38979591. Document type: Review.
 - Mosteiro A, Llull L, Pedrosa L, Amaro S, Reyes LA, Basco J, Zattera L, de Riva N, Arikan F, Gandara D, Villalba G, Cuadrado E, Rodríguez A, Blanco A, Muñoz F, Rico M, Romero F, Álvarez P, Ojeda PL, Chirife O, Salvat M, Ros J, de la Ossa NP, Torné R. The HSACat Project: A Prospective Multicenter Observational Study of Spontaneous Subarachnoid Hemorrhage in Catalonia, Spain. World Neurosurgery. 2024; 191DOI:10.1016/j.wneu.2024.08.078. PMID:39168244. IF:1,900 (Q2/5D). Document type: Article.