



Research Group on Anesthesiology and Reanimation Consolidated group



<http://www.Anestesiainclinicovalencia.Org>

Group members

Principal investigator

Francisco Javier Belda Nácher
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H Index: 18

Collaborating researchers

Marina Soro Domingo. Hospital. University
Gerardo Aguilar Aguilar. Hospital
Carlos Ferrando Ortola. Hospital
José García de la Asunción. Hospital
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Carlos Tornero Tornero. Hospital. University
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Ana Mugarra Llopis. Hospital
Laura Reviriego Agudo. Hospital
Estefania Gracia Ferrandiz. Hospital

Emerging researcher

Carlos Ferrando Ortola. Hospital



Strategic aims

- The effects of advanced monitoring on hemodynamic management in critically ill patients.
- Open lung approach for the acute respiratory distress syndrome.
- Stratification and outcome of acute respiratory distress syndrome.
- Recommendations on invasive candidiasis in patients with complicated intra-abdominal infection and surgical patients with ICU extended stay.
- Pharmacokinetics of anidulafungin during venovenous extracorporeal membrane oxygenation.

Main lines of research

- Studying gases used in anesthesia: halogenated agents, xenon and oxygen; and the effects of anesthetics; oxidative stress and protection of organs in ischemia-reperfusion surgery.
- Study of hyperglycemia and aldose reductase-mediated mitochondrial dysfunction and apoptosis in platelets in critical patients.
- Ventilatory and pharmacological strategies to decrease organ damage in the lungs associated with mechanical ventilation in healthy and injured lungs.
- To study safety and potential benefit in terms of protection of halogenated agents during prolonged sedation.
- Development of hemodynamic monitoring and its application in the field of patients undergoing surgery or admitted to critical care units.
- Study and development of instruments and drugs to quantify or involved in different pathways of hemostasis in two ways: prevention of thrombotic complications and bleeding prevention in the perioperative period.
- Study and development of methods of detection of infections, especially fungal and virological, and how to prevent them.
- Development of neurological monitoring and study measures to protect brain damage.
- Development of new strategies and drugs for pain treatment.



Emerging researcher

Carlos Ferrando Ortola

Some of the ongoing research lines in our group that I am leading are:

1. Role of anaesthetics in the inflammatory response in anaesthesia and critical care patients.
2. Strategies to optimize and individualize intraoperative ventilatory management (precision medicine)
3. Role of the perioperative ventilatory strategies in postoperative complications. Protocol published in *Trials* (Ferrando et al. *Trials* 2015). This multicenter randomized controlled trial was performed in 20 Spanish Hospitals and enrolled 1012 patients. Currently we are drafting the manuscript for a high IF Journal.
4. Role of perioperative supplemental oxygen in postoperative complications. We are going to start a multicentre randomized controlled trial with a sample size of 756 patients in 26 Spanish Hospitals to investigate whether an individualized perioperative approach with High versus Conventional FIO₂ prevents postoperative SSI (Clinicaltrials. Gov NCT02776046. PI: Carlos Ferrando).

• PUBLICATIONS

Number of articles	IF	Average IF
20	58,38	2,91
National collaborations	International collaborations	Corresponding author
10	8	4

Original articles

1. Perel A, Saugel B, Teboul JL, Malbrain ML, **Belda FJ**, Fernández-Mondéjar E, Kirov M, Wendon J, Lussmann R, Maggiorini M. The effects of advanced monitoring on hemodynamic management in critically ill patients: a pre and post questionnaire study. *J Clin Monit Comput.* 2016 Oct; 30(5):511-8. IF: 1,985
2. **Llau JV**, Acosta FJ, Escolar G, Fernández-Mondéjar E, Guasch E, Marco P, Paniagua P, Páramo JA, Quintana M, Torrabadella P. Multidisciplinary consensus document on the management of massive haemorrhage (HEMOMAS document). *Rev Esp Anestesiología Reanim.* 2016 Jan; 63(1):e1-e22. IF: 0



3. Kacmarek RM, Villar J, Sulemanji D, Montiel R, **Ferrando C**, Blanco J, Koh Y, Soler JA, Martínez D, Hernández M, Tucci M, Borges JB, Lubillo S, Santos A, Araujo JB, Amato MB, Suárez-Sipmann F, Open Lung Approach Network. Open Lung Approach for the Acute Respiratory Distress Syndrome: A Pilot, Randomized Controlled Trial. *Crit Care Med*. 2016 Jan; 44(1):32-42. IF: 6,312
4. **García-de-la-Asunción J**, García-Del-Olmo E, **Galan G**, Guisjarro R, Martí F, **Badenes R**, **Perez-Griera J**, Duca A, Delgado C, Carbonell J, **Belda J**. Glutathione oxidation correlates with one-lung ventilation time and PO₂/FiO₂ ratio during pulmonary lobectomy. *Redox Rep*. 2016 Sep; 21(5):219-26. IF: 1,522
5. Planells Roig M, Arnal Bertomeu C, Garcia Espinosa R, Cervera Delgado M, **Carrau Giner M**. Ambulatory laparoscopic cholecystectomy by minilaparoscopy versus traditional multiport ambulatory laparoscopic cholecystectomy. Prospective randomized trial. *Cir Esp*. 2016 Feb; 94(2):86-92. IF: 0,743
6. Meier J, Filipescu D, Kozek-Langenecker S, **Llau Pitarch J**, Mallett S, Martus P, Matot I, ETPOS collaborators. Intraoperative transfusion practices in Europe. *Br J Anaesth*. 2016 Feb; 116(2):255-61. IF: 4,853
7. Sakr Y, Ferrer R, Reinhart K, Beale R, Rhodes A, Moreno R, Timsit JF, Brochard L, Thompson BT, Rezende E, Chiche JD, IC-GLOSSARI Investigators, **ESICM Trials Group**. The Intensive Care Global Study on Severe Acute Respiratory Infection (IC-GLOSSARI): a multicenter, multinational, 14-day inception cohort study. *Intensive Care Med*. 2016 May; 42(5):817-28. IF: 7,214
8. Villar J, Ambrós A, Soler JA, Martínez D, **Ferrando C**, Solano R, Mosteiro F, Blanco J, Martín-Rodríguez C, Fernández MM, López J, Díaz-Domínguez FJ, Andaluz-Ojeda D, Merayo E, Pérez-Méndez L, Fernández RL, Kacmarek RM, Stratification and Outcome of Acute Respiratory Distress Syndrome (STANDARDS) Network.. Age, PaO₂/FIO₂, and Plateau Pressure Score: A Proposal for a Simple Outcome Score in Patients With the Acute Respiratory Distress Syndrome. *Crit Care Med*. 2016 Jul; 44(7):1361-9. IF: 6,312
9. Montero A, Mulero JF, **Tornero C**, Guitart J, Serrano M. Pain, disability and health-related quality of life in osteoarthritis-joint matters: an observational, multi-specialty trans-national follow-up study. *Clin Rheumatol*. 2016 Sep; 35(9):2293-305. IF: 1,696
10. Villar J, **Belda J**, Añón JM, Blanco J, Pérez-Méndez L, **Ferrando C**, Martínez D, Soler JA, Ambrós A, Muñoz T, Rivas R, Corpas R, Díaz-Domínguez FJ, **Soro M**, García-Bello MA, Fernández RL, Kacmarek RM, DEXA-ARDS Network. Evaluating the efficacy of dexamethasone in the treatment of patients with persistent acute respiratory distress syndrome: study protocol for a randomized controlled trial. *Trials*. 2016 Jul 22; 17:342. IF: 1,859
11. Fabregat G, **García-de-la-Asunción J**, Sarriá B, Mata M, Cortijo J, de Andrés J, Gallego L, **Belda FJ**. Expression of aquaporins 1 and 5 in a model of ventilator-induced lung injury and its relation to tidal volume. *Exp Physiol*. 2016 Nov 1; 101(11):1418-1431. IF: 2,818
12. Maseda E, Rodríguez AH, **Aguilar G**, Pemán J, Zaragoza R, Ferrer R, Llinares P, Grau S, EPICO Project Group. EPICO 3.0. Recommendations on invasive candidiasis in patients with complicated intra-abdominal infection and surgical patients with ICU extended stay. *Rev Iberoam Micol*. 2016 Oct - Dec; 33(4):196-205. IF: 1,444
13. **Alonso-Iñigo JM**, Escribá FJ, Carrasco JI, Fas MJ, Argente P, Galvis JM, Llopis JE. Measuring cardiac output in children undergoing cardiac catheterization: comparison between the Fick method and PRAM (pressure recording analytical method). *Paediatr Anaesth*. 2016 Nov; 26(11):1097-1105. IF: 2,082
14. Villar J, **Belda J**, Blanco J, Suarez-Sipmann F, Añón JM, Pérez-Méndez L, **Ferrando C**, Parrilla D, Montiel R, Corpas R, González-Higueras E, Pestaña D, Martínez D, Fernández L, **Soro M**, García-Bello MA, Fernández RL, Kacmarek RM, NAVA In Acute respiraTORy failure (NAVIATOR) Network.. Neurally adjusted ventilatory assist in patients with acute respiratory failure: study protocol for a randomized controlled trial. *Trials*. 2016 Oct 13; 17(1):500. IF: 1,859
15. León C, Ruiz-Santana S, Saavedra P, Castro C, Loza A, Zakariya I, Úbeda A, Parra M, Macías D, Tomás JI, Rezusta A, Rodríguez A, Gómez F, Martín-Mazuelos E, **Cava Trem Study Group**. Contribution of Candida biomarkers and DNA detection for the diagnosis of invasive candidiasis in ICU patients with severe abdominal conditions. *Crit Care*. 2016 May 16; 20(1):149. IF: 0
16. **International Surgical Outcomes Study group**. Global patient outcomes after elective surgery: prospective cohort study in 27 low-, middle- and high-income countries. *Br J Anaesth*. 2016 Nov; 117(5):601-609. IF: 5,616



Letters

17. **Badenes R**, Bilotta F. Inhaled sedation in acute brain injury patients. *Br J Anaesth*. 2016 Jun; 116(6):883-4. IF: 4,853
18. **Aguilar G**, Ferriols R, Carbonell JA, Ezquer C, Alonso JM, Villena A, Puig J, Navarro D, Alós M, **Belda FJ**. Pharmacokinetics of anidulafungin during venovenous extracorporeal membrane oxygenation. *Crit Care*. 2016 Oct 17; 20(1):325. IF: 0

Review

19. Vincent JL, Shehabi Y, Walsh TS, Pandharipande PP, Ball JA, Spronk P, Longrois D, Strøm T, Conti G, Funk GC, **Badenes R**, Mantz J, Spies C, Takala J. Comfort and patient-centred care without excessive sedation: the eCASH concept. *Intensive Care Med*. 2016 Jun; 42(6):962-71. IF: 7,214

Clinical guidelines

20. Basora M, Colomina MJ, Moral V, Asuero de Lis MS, Boix E, Jover JL, **Llau JV**, Rodrigo MP, Ripollés J, Calvo Vecino JM. Clinical practice guide for the choice of perioperative volume-restoring fluid in adult patients undergoing non-cardiac surgery. *Rev Esp Anestesiología Reanim*. 2016 Jan; 63(1):29-47. IF: 0

• RESEARCH PROJECTS AND GRANTS FOR RESEARCH

Reference: EC10-318

Title: *Tratamiento anticipado con ganciclovir de la infección activa por el citomegalovirus (CMV) en el paciente crítico en ventilación mecánica con sepsis grave o shock séptico*

Principal Investigator: Gerardo Aguilar Aguilar

Funding Body: *Instituto de Salud Carlos III*

Beneficiary Institution: *Fundación Investigación Hospital Clínico Universitario de Valencia*

Duration: 2012-2016

Total budget: 38.500€

Reference: PI13/02742

Title: Prospective observational study of the direct oral anticoagulants perioperative management

Principal Investigator: Raquel Ferrandis Comes

Funding Body: *Instituto de Salud Carlos III*

Beneficiary Institution: *Fundación Investigación Hospital Clínico Universitario de Valencia*

Duration: 2014-2016

Total Budget: 53.845€

Reference: PI13/00119

Title: *Reducción de las asincronías y de la duración de la ventilación mecánica mediante la Ventilación Asistida Ajustada Neuralmente (NAVA) en pacientes con insuficiencia respiratoria aguda*

Principal Investigator: Jesús Villar Hernández (Francisco Javier Belda as collaborating researcher)

Funding body: *Instituto de Salud Carlos III*

Beneficiary institution: *Fundación Canaria de Investigación y Salud (FUNCIS)*

Duración: 2014-2016

Total budget: 55.418€

Reference: PI14/00829

Title: *Reducción de la complicaciones postoperatorias y de la estancia hospitalaria con una estrategia perioperatoria individualizada de ventilación de protección pulmonar. Estudio comparativo, prospectivo.*

Principal Investigator: Carlos Ferrando Ortolá

Funding body: *Instituto de Salud Carlos III*

Beneficiary institution: *Fundación Investigación Hospital Clínico Universitario de Valencia*

Duración: 2015-2017

Total budget: 108.250€

Title: *Reducción de la complicaciones postoperatorias y de la estancia hospitalaria con una estrategia perioperatoria individualizada de ventilación de protección pulmonar.*

Principal Investigator: Carlos Ferrando Ortolá and Marina Soro

Funding Body: European Society of Anaesthesiology (ESA)

Beneficiary Institution: *Fundación Investigación Hospital Clínico Universitario de Valencia*

Duration: 2015 - 2017

Total budget: 30.000€

• THESIS

Thesis title: *Expresión de aquaporinas 1 y 5 en el pulmón de ratas sometidas a ventilación mecánica: efectos del volumen corriente y el tiempo de ventilación*

Doctoral candidate: Gustavo Fabregat Cid

Director(s): Antonio M Alberola Aguilar, José García de la Asunción, Benjamín Sarriá

Date of the defense: 08/02/2016

Grade: *Sobresaliente "cum laude"*

Thesis title: *Preacondicionamiento remoto por isquemia-reperusión en la lobectomía pulmonar. Un estudio sobre la prevención del estrés oxidativo*

Doctoral candidate: Laura Bruno Carlos

Director(s): José García de la Asunción, Genaro Galán Gil

Date of the defense: 05/02/2016

Grade: Sobresaliente "cum laude"

Thesis title: *Descripción de una metodología docente para el aprendizaje de la fibroscopia flexible en el control de la vía aérea*

Doctoral candidate: Pedro Charco Mora

Director(s): Francisco Javier Belda Nácher, Marina Soro

Date of the defense: 27/01/2016

Grade: Sobresaliente "cum laude"

Thesis title: *Efecto de la duloxetina sobre la expresión de fos en el tronco del encéfalo y en la médula espinal de la rata en modelos de dolor persistente*

Doctoral candidate: Carlos Tornero Tornero

Director(s): Francisco Javier Belda Nácher, Alfonso A. Valverde Navarro, Francisco Martínez Soriano

Date of the defense: 21/01/2016

Grade: Sobresaliente "cum laude"

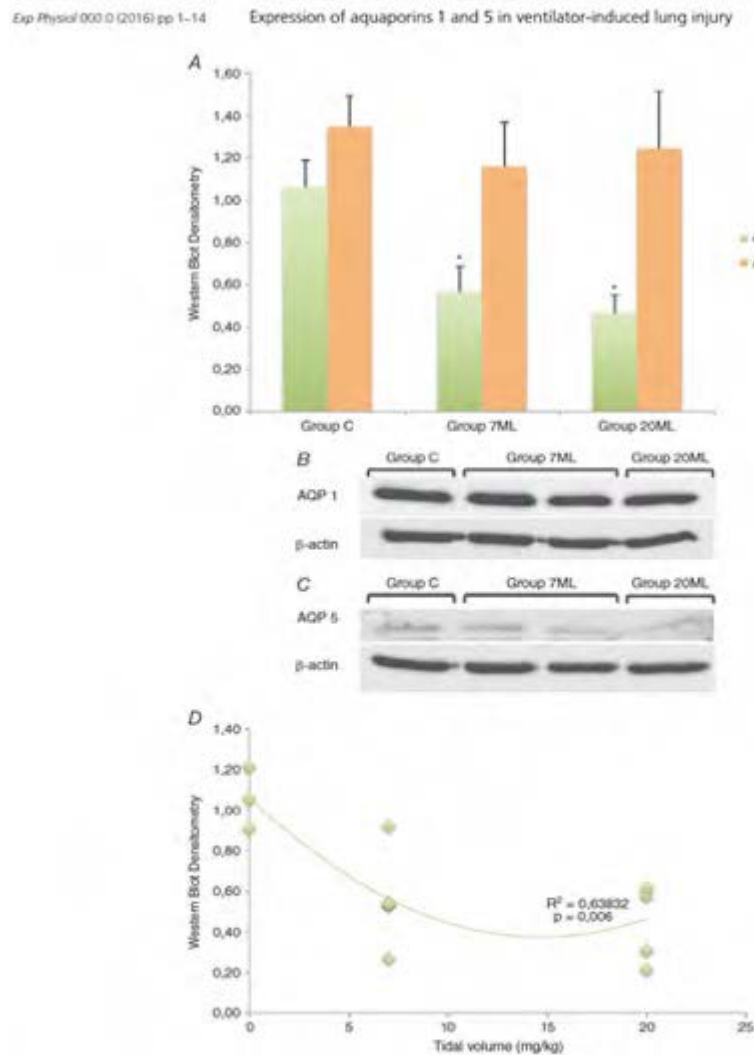


Figure 6. Expression of aquaporins measured by Western Blot. **A**, bar chart showing Western blot mean densitometry values. Error bars represent SEM. Abbreviations: AQP1, aquaporin 1; and AQP5, aquaporin 5. * $P < 0.05$ versus group C. **B**, Western blot for AQP1. Data presented are representative of 13 experiments. **C**, Western blot for AQP5. Data presented are representative of 13 experiments. **D**, dispersion chart and regression lines of Western blot densitometry values of AQP1 in relation to tidal volume. The dispersion coefficient R^2 and the degree of significance are presented. Group C, $n = 3$; group 7ML, $n = 5$; and group 20ML, $n = 5$.