



Research Group on Anesthesiology and Reanimation Consolidated group



“El Hospital Clínico presenta un protocolo de la organización asistencial en el manejo del paciente politraumatizado”. Rafael Badenes. 26/11/2015 | elperiodic.com

<http://www.anestesiaticlinicovaencia.org>

Group members

Principal investigator

Francisco Javier Belda Nácher
Hospital. University
H Index: 14

Collaborating researchers

Marina Soro Domingo. Hospital. University
Gerardo Aguilar Aguilar. Hospital
José García de la Asunción. Hospital
Francisco Martí Canoves. Hospital



Beatriz Garrigues Olivé. Hospital
Juan Vicente Llau Pitarch. Hospital. University
Rafael Badenes Quiles. Hospital
Armando Maruenda Paulino. Hospital. University
María Luisa García Pérez. Hospital
Carlos Tornero Tornero. Hospital
Benigno Escamilla Cañete. Hospital
María Luisa Laredo Alcázar. Hospital
Arturo Carratalá Calvo. Hospital
Jaime Pérez-Griera. Hospital
José Miguel Alonso Iñigo. Hospital
Blanca Arocas Chicote. Hospital
José Antonio Carbonell López. Hospital
Pedro Charco Mora. Hospital
Mario De Fez Barberá. Hospital
Mar Garzando Civera. Hospital
Andrea Gutiérrez Valcárcel. Hospital
Irene León Carsi. Hospital
M^ª Jesús Montero Hernández. Hospital
M^ª José Parra González. Hospital
Ernesto Pastor Martínez. Hospital
Jaume Puig Bernabéu. Hospital
Ana Mugarra Llopis. Hospital
Laura Reviriego Agudo. Hospital

Emerging researcher

Carlos Ferrando Ortolá. Hospital

Strategic aims

- To demonstrate the usefulness of molecular methods for the diagnosis of peritoneal candidiasis
- To identify the combination of RXR agonists with low-dose statins as a new and safe treatment for AAA control
- To validate a predictive scale of postoperative pulmonary complications
- To study the effect on blood flow of long radial arterial catheters
- Identify risk factors in predicting active Cytomegalovirus infection in HIV-positive patients liver transplant recipients
- To establish the role of insulin and analogues in critically ill patients
- To assess the epidemiology of invasive candidiasis in the intensive care unit
- To develop different maneuvers optimization oxygenation and pulmonary mechanics in patients undergoing mechanical ventilation
- To assess the possible liver and kidney toxicity caused by prolonged administration of sevoflurane

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 oxidative stress biomarkers in exhaled lung water
- 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 government bodies 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 Ortolá

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 individualized 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. We are currently drafting the manuscript for the *NEJM*.
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
38	103,64	2,65

National collaborations	International collaborations	Corresponding author
14	14	12

Original articles

1. Torregrosa I, Montoliu C, Urios A, Andrés-Costa MJ, Giménez-Garzó C, Juan I, Puchades MJ, Blasco ML, Carratalá A, Sanjuán R, Miguel A. Urinary KIM-1, NGAL and L-FABP for the diagnosis of AKI in patients with acute coronary syndrome or heart failure undergoing coronary angiography. *Heart Vessels*. 2015 Nov ;30(6):703-11. IF: 2,065
2. Ferrando C, Soro M, Belda FJ. Protection strategies during cardiopulmonary bypass: ventilation, anesthetics and oxygen. *Curr Opin Anaesthesiol*. 2015 Feb ;28(1):73-80. IF: 1,979
3. Villanueva MP, Mollar A, Palau P, Carratalá A, Núñez E, Santas E, Bodí V, Chorro FJ, Miñana G, Blasco ML, Sanchís



- J, Núñez J. Procalcitonin and long-term prognosis after an admission for acute heart failure. *Eur J Intern Med.* 2015 Jan ;26(1):42-8. IF: 2,891
4. Ferrando C, Suárez-Sipmann F, Gutierrez A, Tusman G, Carbonell J, García M, Piqueras L, Compañ D, Flores S, **Soro M**, Llombart A, **Belda F**. Adjusting tidal volume to stress index in an open lung condition optimizes ventilation and prevents overdistension in an experimental model of lung injury and reduced chest wall compliance. *Crit Care.* 2015 Jan 13 ;19(1):9. IF: 5,035
 5. Corrales I, Giménez E, **Aguilar G**, Delgado C, Puig J, Izquierdo A, **Belda J**, Navarro D. Detection of fungal DNA in peritoneal fluids by a PCR DNA low-density microarray system and quantitation of serum (1-3)- β -D-glucan in the diagnosis of peritoneal candidiasis. *Med Mycol.* 2015 Feb 1 ;53(2):199-204. IF: 2,335
 6. Escudero P, Navarro A, **Ferrando C**, Furio E, González-Navarro H, Juez M, Sanz MJ, Piqueras L. Combined treatment with beaxotene and rosuvastatin reduces angiotensin-II-induced abdominal aortic aneurysm in apoE(-/-) mice and angiogenesis. *Br J Pharmacol.* 2015 Jun ;172(12):2946-60. IF: 4,842
 7. **Ferrando C**, **Soro M**, Canet J, Unzueta MC, Suárez F, Librero J, Peiró S, Llombart A, Delgado C, León I, Rovira L, Ramasco F, Granell M, Aldecoa C, Diaz O, Balust J, Garutti I, de la Matta M, Pensado A, González R, Durán ME, Gallego L, Del Valle SG, Redondo FJ, Diaz P, Pestaña D, Rodríguez A, Aguirre J, García JM, García J, Espinosa E, Charco P, Navarro J, Rodríguez C, Tusman G, **Belda FJ**, iPROVE investigators (Appendices 1 and 2).. Rationale and study design for an individualized perioperative open lung ventilatory strategy (iPROVE): study protocol for a randomized controlled trial. *Trials.* 2015 Apr 27 ;16(1):193. IF: 1,731
 8. **García-de-la-Asunción J**, García-del-Olmo E, **Perez-Griera J**, Martí F, Galán G, Morcillo A, Wins R, Guijarro R, Arnau A, Sarriá B, García-Raimundo M, **Belda J**. Oxidative lung injury correlates with one-lung ventilation time during pulmonary lobectomy: a study of exhaled breath condensate and blood. *Eur J Cardiothorac Surg.* 2015 Sep ;48(3):e37-44. IF: 3,304
 9. Canet J, Sabaté S, Mazo V, Gallart L, de Abreu MG, Belda J, Langeron O, Hoefft A, Pelosi P, PERISCOPE group. Development and validation of a score to predict postoperative respiratory failure in a multicentre European cohort: A prospective, observational study. *Eur J Anaesthesiol.* 2015 Jul ;32(7):458-70. IF: 2,942
 10. Villar J, Blanco J, del Campo R, Andaluz-Ojeda D, Díaz-Domínguez FJ, Muriel A, Córcoles V, Suárez-Sipmann F, Tarancón C, González-Higueras E, López J, Blanch L, Pérez-Méndez L, Fernández RL, Kacmarek RM, **Spanish Initiative for Epidemiology, Stratification & Therapies for ARDS (SIESTA) Network**. Assessment of PaO₂/FiO₂ for stratification of patients with moderate and severe acute respiratory distress syndrome. *BMJ Open.* 2015 Mar 27 ;5(3):e006812. IF: 2,271
 11. Balcells E, Gimeno-Santos E, de Batlle J, Ramon MA, Rodríguez E, Benet M, Farrero E, Ferrer A, Guerra S, Ferrer J, Sauleda J, Barberà JA, Agustí À, Rodríguez-Roisin R, Gea J, Antó JM, García-Aymerich J, **PAC-COPD Study Group**. Characterisation and prognosis of undiagnosed chronic obstructive pulmonary disease patients at their first hospitalisation. *BMC Pulm Med.* 2015 Jan 17 ;15:4. IF: 2,404
 12. **HIV-CAUSAL Collaboration**, Cain LE, Phillips A, Olson A, Sabin C, Jose S, Justice A, Tate J, Logan R, Robins JM, Sterne JA, van Sighem A, Reiss P, Young J, Fehr J, Touloumi G, Papanizos V, Esteve A, Casabona J, Monge S, Moreno S, Seng R, Meyer L, Pérez-Hoyos S, Muga R, Dabis F, Vandenhende MA, Abgrall S, Costagliola D, Hernán MA. Boosted lopinavir- versus boosted atazanavir-containing regimens and immunologic, virologic, and clinical outcomes: a prospective study of HIV-infected individuals in high-income countries. *Clin Infect Dis.* 2015 Apr 15 ;60(8):1262-8. IF: 8,886
 13. Redondo Calvo FJ, Bejarano Ramirez N, Uña Orejon R, Villazala García R, Yuste Peña AS, **Belda FJ**. Elevated Extravascular Lung Water Index (ELWI) as a Predictor of Failure of Continuous Positive Airway Pressure Via Helmet (Helmet-CPAP) in Patients With Acute Respiratory Failure After Major Surgery. *Arch Bronconeumol.* 2015 Nov ;51(11):558-563. IF: 1,823
 14. Rovira L, **Aguilar G**, Cuñat A, **Belda FJ**. Late evaluation of upper limb arterial flow in patients after long radial (PiCCO™) catheter placement. *Ann Intensive Care.* 2015 ;5:1. IF: 3,311
 15. **Badenes R**, Lozano A, **Belda FJ**. Postoperative pulmonary dysfunction and mechanical ventilation in cardiac surgery. *Crit Care Res Pract.* 2015 ;2015:420513. IF: 0
 16. Esquinas AM, Jover JL, Úbeda A, **Belda FJ**, International Working Group on Critical and Noninvasive Mechanical Ventilation Anesthesiology. [Non-invasive mechanical ventilation in the pre- and intraoperative period and difficult airway]. *Rev Esp Anesthesiol Reanim.* 2015 Nov ;62(9):502-11. IF: 0

17. Hidalgo F, Gómez-Luque A, Ferrandis R, **Llau JV**, de Andrés J, Gomar C, Sierra P, Castillo J, Torres LM. [Perioperative management of direct oral anticoagulant in emergency surgery and bleeding. Haemostasis monitoring and treatment]. *Rev Esp Anesthesiol Reanim*. 2015 Oct ;62(8):450-60.IF: 0
18. Bourguet M, Amselem Albuixec L, Benavent Corai V, **Tornero C**. [Rectal mass in 31-year-old man with human immunodeficiency virus: differential diagnosis]. *Enferm Infecc Microbiol Clin*. 2015 Aug-Sep ;33(7):493-4.IF: 2,172
19. Fernández-Ruiz M, Corrales I, Arias M, Campistol JM, Giménez E, Crespo J, López-Oliva MO, Beneyto I, Martín-Moreno PL, Llamas-Fuente F, Gutiérrez A, García-Álvarez T, Guerra-Rodríguez R, Calvo N, Fernández-Rodríguez A, Taberero-Romo JM, Navarro MD, Ramos-Verde A, Aguado JM, Navarro D, **OPERA Study Group**. Association between individual and combined SNPs in genes related to innate immunity and incidence of CMV infection in seropositive kidney transplant recipients. *Am J Transplant*. 2015 May ;15(5):1323-35.IF: 5,683
20. Bilotta F, Badenes R, Lolli S, **Belda FJ**, Einav S, Rosa G. Insulin infusion therapy in critical care patients: regular insulin vs short-acting insulin. A prospective, crossover, randomized, multicenter blind study. *J Crit Care*. 2015 Apr ;30(2):437.e1-6.IF: 1,995
21. **Llorens J**, Rovira L, Ballester M, Moreno J, Hernández-Laforet J, Santonja FJ, Cassinello N, Ortega J. Preoperative inspiratory muscular training to prevent postoperative hypoxemia in morbidly obese patients undergoing laparoscopic bariatric surgery. A randomized clinical trial. *Obes Surg*. 2015 Jun ;25(6):1003-9.IF: 3,747
22. Gallego L, **Soro M**, Alvarriño A, Noguera I, **Belda FJ**. Renal and hepatic integrity in long-term sevoflurane sedation using the anesthetic conserving device: a comparison with intravenous propofol sedation in an animal model. *Rev Esp Anesthesiol Reanim*. 2015 Apr ;62(4):191-203.IF: 0
23. **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). *Med Intensiva*. 2015 Nov ;39(8):483-504.IF: 1,336
24. **Ferrando C**, **Belda FJ**. The Effects of Flow Waveform on Oxygenation in Pediatric Patients. *Anesth Analg*. 2015 Oct ;121(4):1111.IF: 3,472
25. 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*. 2015 Dec 10 ;.IF: 1,985
26. Broch O, Carbonell J, Ferrando C, Metzner M, Carstens A, Albrecht M, Gruenewald M, Höcker J, **Soro M**, Steinfath M, Renner J, Bein B. Accuracy of an autocalibrated pulse contour analysis in cardiac surgery patients: a bi-center clinical trial. *BMC Anesthesiol*. 2015 Nov 26 ;15:171.IF: 1,375
27. **Badenes R**, Gruenbaum SE, Bilotta F. Cerebral protection during neurosurgery and stroke. *Curr Opin Anaesthesiol*. 2015 Oct ;28(5):532-6.IF: 1,979
28. **Badenes R**, Bilotta F. Neurocritical care for intracranial haemorrhage: a systematic review of recent studies. *Br J Anaesth*. 2015 Dec ;115 Suppl 2:ii68-ii74.IF: 4,853
29. Lodi S, Phillips A, Logan R, Olson A, Costagliola D, Abgrall S, van Sighem A, Reiss P, Miró JM, Ferrer E, Justice A, Gandhi N, Bucher HC, Furrer H, Moreno S, Monge S, Touloumi G, Pantazis N, Sterne J, Young JG, Meyer L, Seng R, Dabis F, Vandehende MA, Pérez-Hoyos S, Jarrín I, Jose S, Sabin C, Hernán MA, **HIV-CAUSAL Collaboration**. Comparative effectiveness of immediate antiretroviral therapy versus CD4-based initiation in HIV-positive individuals in high-income countries: observational cohort study. *Lancet HIV*. 2015 Aug ;2(8):e335-43.IF: 0
30. **Aguilar G**, **Delgado C**, Corrales I, Izquierdo A, Gracia E, Moreno T, Romero E, Ferrando C, Carbonell JA, Borrás R, Navarro D, **Belda FJ**. Epidemiology of invasive candidiasis in a surgical intensive care unit: an observational study. *BMC Res Notes*. 2015 Sep 29 ;8:491.IF: 0
31. van Zaane B, van Klei WA, Buhre WF, Bauer P, Boerma EC, Hoeft A, Metnitz P, Moreno RP, Pearse R, Pelosi P, Sander M, Vallet B, Pettilä V, Vincent JL, Rhodes A, **European Surgical Outcomes Study (EuSOS) group for the Trials groups of the European Society of Intensive Care Medicine and the European Society of Anaesthesiology**. Nonelective surgery at night and in-hospital mortality: Prospective observational data from the European Surgical Outcomes Study. *Eur J Anaesthesiol*. 2015 Jul ;32(7):477-85.IF: 2,942
32. Sakr Y, Alhussami I, Nanchal R, Wunderink RG, Pellis T, Wittebole X, Martín-Loeches I, François B, Leone M, Vincent JL, **Intensive Care Over Nations Investigators**.



Being Overweight Is Associated With Greater Survival in ICU Patients: Results From the Intensive Care Over Nations Audit. *Crit Care Med*. 2015 Dec ;43(12):2623-32.IF: 6,312

33. Salinas M, López-Garrigós M, Flores E, Uris J, Leiva-Salinas C, **Pilot Group of the Appropriate Utilization of Laboratory Tests**. Larger differences in utilization of rarely requested tests in primary care in Spain. *Biochem Med (Zagreb)*. 2015 ;25(3):410-5.IF: 2,667

Letters

34. Mazo V, Sabaté S, Canet J, Gallart L, de Abreu MG, **Belda J**, Langeron O, Hoelt A, Pelosi P. In reply. *Anesthesiology*. 2015 Mar ;122(3):716-7.IF: 5,879
35. Llopis M, Cioaia S, Poquet I, **Tornero C**. [Is necessary monitoring CD4 lymphocytes in HIV patients virologically stables?]. *Enferm Infecc Microbiol Clin*. 2015 Aug-Sep ;33(7):504.IF: 2,172

Review

36. Esquinas AM, Jover JL, Úbeda A, **Belda FJ**, International Working Group on Critical and Noninvasive Mechanical Ventilation. *Anesthesiology*. [Non-invasive mechanical ventilation in postoperative patients. A clinical review]. *Rev Esp Anesthesiol Reanim*. 2015 Nov ;62(9):512-22.IF: 0

Editorial

37. **Ferrando C, Belda FJ**. Inverse ratio ventilation: back to the future? *Crit Care Med*. 2015 Mar ;43(3):724-5.IF: 6,312
38. **European Society of Anaesthesiology task force reports on place of aprotinin in clinical anaesthesia**. Aprotinin: is it time to reconsider? *Eur J Anaesthesiol*. 2015 Sep ;32(9):591-5.IF: 2,942

• THESIS

Thesis title: Continuous cardiac index trending (proaq) via a radial arterial line versus standard care in general surgical patients

Doctoral candidate: Jaume Puig Bernabeu

Director(s): Francisco Javier Belda Nacher, Daniel Arnulf Reuter

Date of the defense: 29/06/2015

Grade: *Sobresaliente "cum laude"*

Thesis title: *Efecto de las diferentes ondas de flujo y de la pausa teleinspiratoria sobre la oxigenación y ventilación en modelo animal*

Doctoral candidate: María Luisa García Perez

Director(s): Rafael Badenes Quiles, Carlos Ferrando Ortolá, Marina Soro Domingo

Date of the defense: 29/06/2015

Grade: *Sobresaliente "cum laude"*

• 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€

• AWARDS

Carlos Ferrando Ortolá was awarded with the Young Investigator Start-Up Grant 2015 by the European Society of Anaesthesiology (ESA).