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Original article



Risk factors for advanced resuscitation in term and near-term infants: a case–control study

Juan Pablo Berazategui^{1, 2, 3, 4}, Adriana Aguilar¹, Marilyn Escobedo⁵, Douglas Dannaway⁵, Ruth Guinsburg⁶, Maria Fernanda Branco de Almeida⁶, Firas Saker⁷, Ariel Fernández^{1, 2}, Guadalupe Albornoz⁸, Mariana Valera⁴, Daniel Amado⁹, Gabriela Puig¹⁰, Fernando Althabe², Edgardo Szyld^{2, 5, 11, 12} for the ANR study group

[Author affiliations](#) +

Abstract

Objective (1) To determine which antepartum and/or intrapartum factors are associated with the need for advanced neonatal resuscitation (ANR) at birth in infants with gestational age (GA) ≥ 34 weeks. (2) To develop a risk score for the need for ANR in neonates with GA ≥ 34 weeks.

Design Prospective multicentre, case–control study. In total, 16 centres participated in this study: 10 in Argentina, 1 in Chile, 3 in Brazil and 2 in the USA.

Results A case–control study conducted from December 2011 to April 2013. Of a total of 61 593 births, 58 429 were reported as an GA ≥ 34 weeks, and of these, only 219 (0.37%) received ANR. After excluding 23 cases, 196 cases and 784 consecutive birth controls were included in the analysis. The final model was generated with three antepartum and seven intrapartum factors, which correctly classified 88.9% of the observations. The area under the receiver operating characteristic (AROC) performed to evaluate discrimination was 0.88, 95% CI 0.62 to 0.91. The AROC performed for external validity testing of the model in the validation sample was 0.87 with 95% CI 0.58 to 0.92.




Conclusions We identified 10 risk factors significantly associated with the need for ANR in newborns ≥ 34 weeks. We developed a validated risk score that allows the identification of newborns at higher risk of need for ANR. Using this tool, the presence of specialised personnel in the delivery room may be designated more appropriately.

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Collaborators: Jorge Tavosnaska, Carolina Olmo Herrera, Maria Lidia Failla, Valeria Quispe, Rocio Decena, Mariela Torres, Adriana Cazón, Lorna Andreussi, Carola Capelli, Lucrecia Rosales, Guillermo Colantonio, Ramón Pio Larcade, Héctor Sexer, Natalia Davase, Maria Lidia Failla, Liliana Roldan, Lory Lewis, Cristina Pinedo, Adriana Castro, Ana López, Guillermo Sudini, Ana Yessica López, Sandra Barón, Jorge Fabres, Paulina Toso, Miriam Faune Perez, F Martin, Ligia Maria Souza, Sippo Rugolo, Fabiana Enjamio, Macarena Paz Trigo.

Contributors: JPB, ES, AA, ME and FA conceptualised and designed the study, drafted the initial manuscript, and approved the final manuscript as submitted. JPB, AA, AF, DD and FS carried out the initial analyses, reviewed and revised the manuscript, and approved the final manuscript as submitted. RG and MFBdA designed the data collection instruments, and coordinated and supervised data collection at four (San Pablo ANR network) of the 16 sites, critically reviewed the manuscript and approved the final manuscript as submitted. GA, MV, DA and GP coordinated and supervised data collection in their sites, critically reviewed the manuscript and approved the final manuscript as submitted.