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Editorial

Promoting research in paediatric anaesthesia[☆]



Promover la investigación en anestesia pediátrica

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In reference to the article by Drs. Linston and Jiménez on promoting research in paediatric anaesthesia,¹ it is time to analyze the current status of research in children in our country and find timely solutions to encourage and increase academic work in this field of anaesthesiology.

The population of Colombia at the present time is 47 million and, of those, 12 million (25%) are children under 15 years of age.² Overall, there are close to 2430 anaesthetists in the country,³ which means that every anaesthetist must face paediatric patients with different degrees of complexity. The field of paediatric anaesthesia is demanding and requires specific skills and knowledge of paediatrics in order to achieve good outcomes in children. This poses a daily challenge in anaesthetic practice in Colombia and also presents a bleak perspective given that there is no academic subspecialty training in paediatric anaesthesia endorsed by the Ministry of Education in Colombia. Paediatric anaesthetists practicing in this country are a handful, no more than one hundred, and most of them have trained abroad or developed their experience through many years of working in paediatric anaesthesia.

Against this background, there is then an urgent felt need to create formal training programmes in paediatric anaesthesia as a specialty. The degree should be awarded by a recognized higher education institution and endorsed by the Ministries of Education and Social Protection if this training is to be promoted among anaesthetists in Colombia. Paralleling the creation of this new academic training is the development

of research in paediatric anaesthesia, and the primary challenge here is to overcome the multiple barriers that hamper the production of research work in this area.¹

In view of this situation, and while progress is made in creating the new training programmes, anaesthetists doing paediatrics in the country are up against several challenges and fundamental commitments in their daily practice, namely, to ensure safe and quality care for children requiring sedation or anaesthesia; support the learning of anaesthetists in training; and generate new knowledge in the field of paediatric anaesthesia. This last commitment is perhaps the most difficult because of several reasons, including work overload, lack of financial incentives or academic recognition, and lack of epidemiological advice. All these discourage research in our country, not to mention that research in children is not easy, and requires clear, strong protocols that ensure safety, autonomy, confidentiality and wellbeing of the children participating in any research study. Full parental consent is required, as well as close oversight over the research process at each institution by an ethics and research committee.^{4,5}

However, there are multiple options to change the course of research in paediatric anaesthesia in Colombia. Headway has been made already with the creation of the research guidelines published by the Colombian Anaesthesia and Resuscitation Society,⁶ according to which research and contribution to knowledge may be enhanced by means of simple but consistent activities such as the creation of anaesthesia databases.

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These databases will include information of all patients seen at each institution, but most importantly, they will allow for continuous reporting of adverse events, complications, and satisfaction with overall patient care. This methodology has produced very important work at a world level such as the study of perioperative arrest in children⁷ and the PRAN study on anaesthesia-related adverse events and complications,⁸ the two largest studies in paediatric anaesthesia at present. They have contributed relevant information for the practice of anaesthesia and driven significant changes towards improving perioperative safety and care in children.

Incidence studies, case reports and observational studies are of the greatest importance for the initial diagnosis of the most common situations in daily clinical practice, and they serve as a basis to come up with research hypotheses for conducting controlled and experimental studies in the near future.^{6,9} These studies are easy to conduct, do not require interventions or experiments in the participants, they are low-cost and may be applied in all clinical scenarios. However, they require steadfast commitment on the part of the professionals involved who need to consistently enter the data and fill the necessary information. And they are not only of academic interest but also serve as tools for certification, accreditation and healthcare quality evaluation.

Motivation to develop and maintain research proposals must not only be academic. These proposals must also give rise to a financial incentive or reward at work in the form of time allowed for research without it interfering with the daily activities or the family life of the researchers. In order for this to happen, institutions with teaching and healthcare agreements must develop joint strategies with academic institutions in order to encourage the development of research protocols, provide financial rewards, academic recognition and permanent assistance from a team of epidemiologists in charge of driving the creation of sustainable research lines.

The importance of creating these lines in paediatric anaesthesia is paramount. There is concern around the world regarding the safety of children exposed to general anaesthesia, due to toxic effects and neural development abnormalities, particularly in newborns and premature babies.¹⁰ The deleterious effects of anaesthetic agents and long-term exposure are still unclear. Although there are recommendations to reduce brain damage, the dose, the time of exposure or the ideal anaesthetic technique to avoid neuronal damage and long-term learning disabilities in children have not been established.¹¹ For this reason, it is important to start building our own reliable and comprehensive databases so that we can do stringent follow-up on children exposed to anaesthesia and follow them through time in order to determine the real or potential damage that may be triggered by anaesthesia. We also need to consider that existing studies were conducted in populations with very different demographic, physical and sociocultural characteristics from ours, creating a big question of whether it is possible to extrapolate these results to our children or if our long-term behaviour will be different given our own genetic characteristics.¹

In brief, we recognize two great challenges that need to be solved in order to promote research in paediatric anaesthesia. First, to structure a subspecialty training programme focused on comprehensive paediatric management during

the perioperative period and in research studies. Second, to provide professionals doing paediatric anaesthesia with room to develop research protocols, as well as recognition in terms of time and work space; and allocate resources to ensure constant dedication from the researchers to this activity. Again, the job is not easy, but even in developed countries like the United States, with 46 certified training programmes for subspecialists in paediatric anaesthesia, research production is not entirely satisfactory, because programmes structured around research training account only for more than 20% of the publications by the new graduates in this area. The reasons for this low production are the same: high clinical healthcare demands, lack of time to devote to research, and absence of faculty mentoring.¹²

In conclusion, although the situation of anaesthesia research in Colombia is disturbing, there is growing interest throughout the country in creating spaces, improving knowledge, and finding incentives to increase academic and research production.^{1,13} Although a big challenge, it is not impossible. Having identified the barriers to research in paediatric anaesthesia, we need to work to correct them. However, more importantly still is to create a research culture involving medical students, anaesthesia residents and university faculty, and start with simple work such as building databases in every operative service, and conduct observational and incidence studies as the first step towards diagnosing the main problems occurring in daily anaesthesia practice in our country.^{9,14}

This work is low-cost, easy to perform and entails low-risk for the patient. The advantage is that it builds trust among the team of researchers, consolidating lines of research that may be strengthened epidemiologically in the immediate future, and escalated into intervention, experimental, controlled and blinded studies.

Promoting research in general as well as paediatric anaesthesia requires our involvement as anaesthetists and must be our commitment to our profession, society and training of future specialists. We do not need to be expert epidemiologists in order to do research, but rather excellent clinicians capable of asking if there is a better way to do what we do every day.

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Conflicts of interest

The authors have no conflicts of interest to declare.

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