

## **Dr. Adrian Baranchuk MD, FACC, FRCPC: An example of professional passion**

**Professor of Medicine, Heart Rhythm Service, Queen's University Editor-in-Chief, Journal of Electrocardiology**

Dr. Adrian Baranchuk, a native of Buenos Aires, Argentina, obtained his MD from the University of Buenos Aires in 1990. After qualifying in Internal Medicine and Cardiology at Sanatorio Mitre, Buenos Aires (1995), he completed a Clinical Fellowship in Cardiac Electrophysiology at the same institution. He completed his Clinical Fellowship (1997) and was part of the Arrhythmia Service until 2002, when he immigrated to Spain to join the Arrhythmia Service at the Fundacion Jimenez Diaz. Dr. Baranchuk was appointed as a Clinical Fellow in Electrophysiology (EP) at McMaster University in September 2003. In 2004, he won 1<sup>st</sup> Prize at the Fellows Forum, “5<sup>th</sup> Annual EP Fellows Course” (Sponsored by Medtronic) held in Montebello, Quebec.

Dr. Baranchuk was appointed as an Assistant Professor of Medicine in the Division of Cardiology at Queen's University in June 2006. He is an active member of the Arrhythmia Service and founded the EP Training Program in 2007. Currently, the program has three Clinical Fellows. In 2009, he received a cross-appointment with the Department of Physiology and Biomolecular Sciences. He was promoted to the rank of Associate Professor of Medicine and Physiology in 2010, and was granted tenure at Queen's University in 2014.

He is a member of numerous editorial boards and reviews submissions to several journals. He has been the recipient of teaching awards including Outstanding Contribution to the Queen's Core Internal Medicine Program, The Queen's Faculty of Health Sciences Education Award, and the “Golden Caliper” Award from the SOLAECCE (Latin American Society of Pacing and Electrophysiology) in 2014.

He has published more than 340 articles in well-recognized international journals (260 cited in PubMed), authored 27 book chapters, and presented more than 190 abstracts around the world. He is a Board Member of several international journals (*Europace*, *Journal of Electrocardiology*, *Annals of Noninvasive Electrocardiology*, *Journal of Innovations in Cardiac Rhythm Management*, etc.). He is the Director of the Electrocardiology Council of the Inter-American Society of Cardiology (SIAC) and has directed an online electrocardiography (ECG) course with more than 6,800 participants from 36 countries.

Dr. Baranchuk lives in Kingston, Ontario, Canada with his wife Barbara and his daughter Gala.

### **Adrian Baranchuk Editor in-chief of the Journal of Electrocardiology**

Dear colleagues from all the world, The appointment of our exceptional colleague Adrian Baranchuk to lead the most important world journal on electrocardiology –Journal of Electrocardiology-, the “red” journal, is a remarkable fact, extremely significant and a reason for pride for Latin American cardiologists. Never before a “Hispanic” colleague reached such acknowledgement and influence so quickly. And never a Hispanic colleague had such great responsibility. But knowing the mettle of Adrian, I am absolutely certain that he will greatly honor our origins. This entails the exceptional leading conditions, creativity, tenacity, persistence, obsession, refined critical power displayed by our admired colleague. Concomitantly, this shows the absence of prejudice by the great Northern countries, the US and Canada. We have to appreciate this achievement, unconditionally supporting Adrian. We, Latin American people, had some golden ages with great scientific weight on electrocardiology. First, in the decades of the 60s and 70s with the magnificent Mexican school represented by the Instituto Ignacio Chávez (founded on April 18, 1944) and its legendary team of investigators of the method such as Demétrio Sodi Pallares, Medrano, De Michel, Enrique Cabrera, Bisteni, Cisneros, Ariza, Ponce de León, Ignacio Chávez-Rivera, Friedland, Testelli, and so many others that greatly influenced the advancement of knowledge on the method, thus creating the so-called “Deductive and Polyparametric Electrocardiology and Vectorcardiography” that spread throughout the world, originating brilliant disciples from Europe and America, directly and indirectly, such as Joao Tranchesi, Dante Peñaloza (Peru), Fulvio Pileggi, Osvaldo Spiritus, Bocanegra-Arroyo (Brazil-Peru), Germiniani, Rady Macruz, Norberto Santamarina (Córdoba, Argentina), Pablo Jorge Moffa, etc. The institute has trained 2500 cardiologists from approximately 60 countries in Latin America, Europe, Asia, Africa, and Oceania. Some time later, in the 70s and 80s, Latin American Electrocardiology reached a huge world position, thanks to the figure of Dr. Mauricio Rosenbaum (August 20, 1921 – May 4, 2003) who modified the concepts of intraventricular blocks and so many other topics, with great researchers that continue to influence and innovate, such as the scholar Marcelo Elizari, Lazzari, the late Dr. Pablo Ambrosio Chiale, Nau, Levi, Halpern, Rafael Acunzo, and so many others. In Europe, we should also highlight between the great Hispanic figures, our admired Catalonian Professor, Antoni Bayés de Luna, a tireless warrior and an example for all. With Adrian in the lead, I foresee a new scientific boom, a third wave of advancement in the Latin-American world in terms of electrocardiology. It has been proven that the century-old method is never exhausted and it always shows something new. With Adrian I am certain that the impact factor of the red journal will go through the roof. I say this because I deeply know the personality of this, my fellow, who has enriched me so much in terms of science and humanity through his friendship. Adrian, I wish you a lot of success with all my heart. I want you to know that you can count on my help, as I am a tireless soldier who, from his modest trench, is willing to support you with ideas and concrete actions to constantly improve the red journal that you will be leading now. I don’t know who appointed you, but whoever did it has a great logical sense to choose.

Andrés Ricardo **Pérez-Riera** MDDPhD. Design of Studies and Scientific Writing Laboratory in the ABC School of Medicine, Santo André, São Paulo, Brazil

Dear friend Andres Your kind words mean lots to me. As you know, my only talent is to listen: A. to my teachers: Antoni Bayes de Luna, Pablo Chiale, Marcelo Elizari, Andres Ricardo Perez-Riera, Wojtek Zareba, Jeronimo Farre. B. To my colleagues: Chris Simpson, Steve Archer, Edgardo Schapachnik, Martin Ibarrola, Manlio Marquez, Raimundo Barbosa-Barros, Diego Delgado, Sami Viskin, Manuel Martinez-Selles, Tony Bayes-Genis, so many more talented individuals... and C. To my students, residents, fellows: Bill McIntyre, Byron Gottschalk, Dan Anselm, Zardasht Oqab, Jane Caldwell, Fariba Sadiq Ali, Bryce Alexander, so many other creative and super talented young individuals... The list of people that I hear, that I listen, that I try to emulate would be so extensive... maybe boring too. Almost at the corner of my 50s, I only learn than listening is more important (and beneficial) than talking. I take the role of Editor-in-Chief of Journal of Electrocardiology with the utmost responsibility. In order to dedicate extra time to this task, I have resigned yesterday to my position as Head of the Heart Rhythm Service at Queen's, a place that gave me the opportunity to develop my academic career and now is supporting this new endeavor. I leave this position in the hands of a brilliant younger colleague, Dr Ben Glover. As Bayes de Luna always remind me, it is my obligation to secure the path to success to energetic, dedicated and talented young individuals. Nothing brings me more satisfaction than the success of the people I have mentored. Dear friend, our collaborations have now crystalized into concepts that the scientific community has accepted, just to name some few: Brugada Phenocopy (a concept from your brilliant mind!), Left Septal Fascicular Block (with a book printed by Springer!) and now, the Bayes' Syndrome (the book will be released this week!). I hope in my role as EIC of the Journal of Electrocardiology, I can help our Latin community as well as other groups with less visibility in the scientific arena, to produce high-quality research in the field of ECG. My principles will be: transparency, scientific rigor, democratic management, inclusive perspectives, and gender equity. I hope to help JE to reach its next level, and I hope to count with all of you on this ambitious task. Happy 2017!

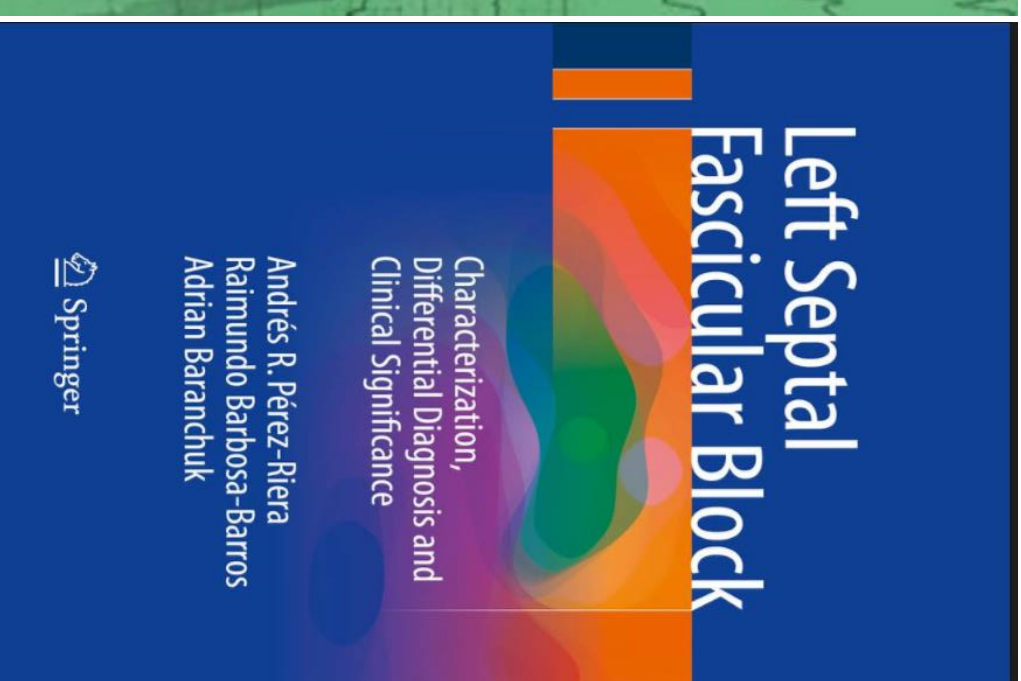
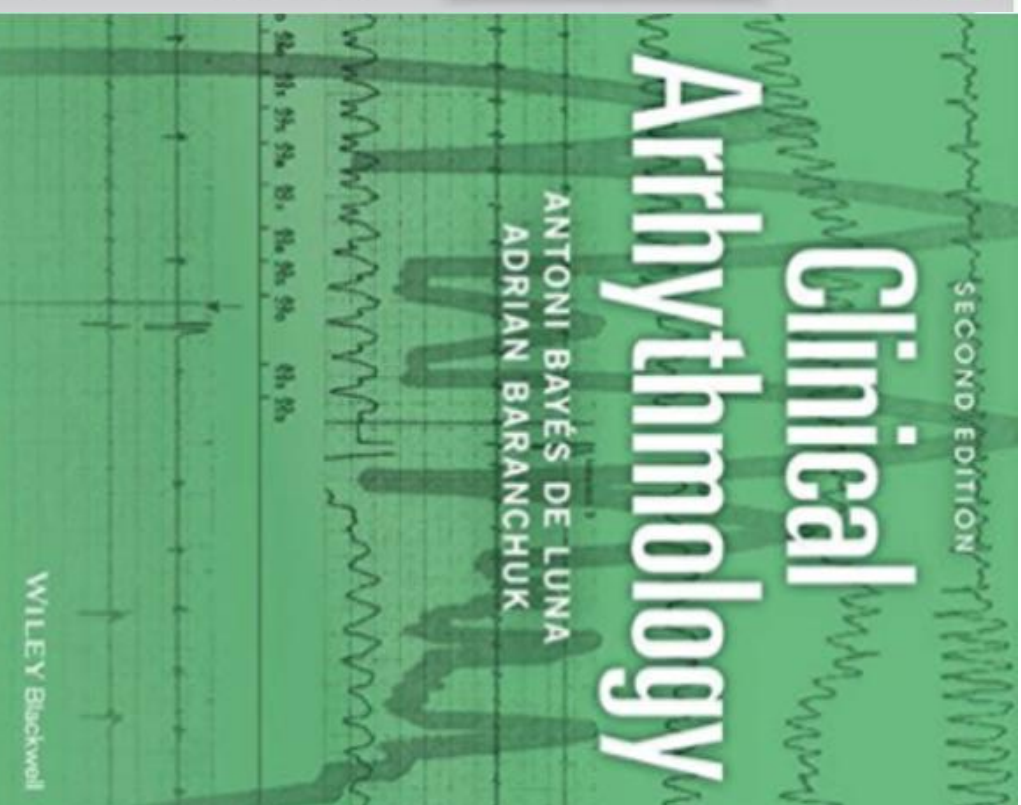
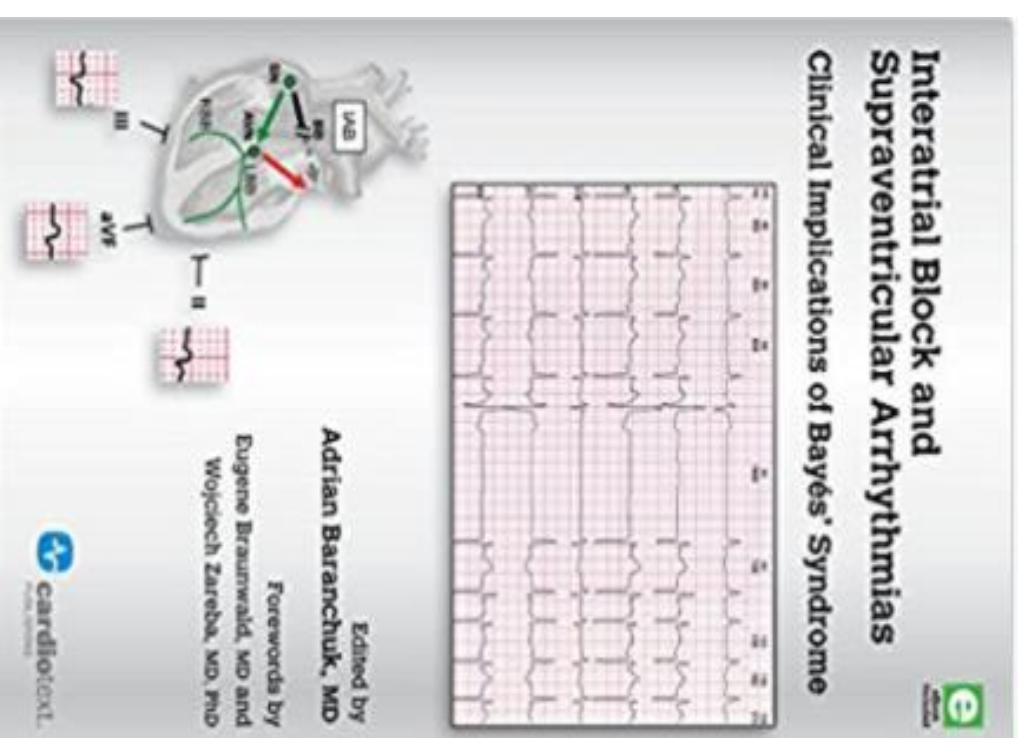
Adrian Baranchuk MD FACC FRCPCC FCCS Professor of Medicine Queen's University Editor-in-Chief, Journal of Electrocardiology

\* "Electrical Genesis" is the 5th painting of a series dedicated to the heart. This one represents a healthy heart as a gentle and autonomous entity that gives us life and energy streams. In "Electrical Genesis" all is bright, all is light, colour, abundance and hope of eternal life. Marcelo Bava, the artist, is also a teacher and musician from Buenos Aires, Argentina. He graduated from Rogelio Yrurtia National Art School and continued his education at National School Prilidiano Pueyrredon where he currently teaches art. He has presented at different galleries both as a single performer and collective performances. The artist can be contacted at [artebava@gmail.com](mailto:artebava@gmail.com).



Here with the First Volume of Journal of Electrocardiology as editor-in-Chief. I am honored to take on this responsibility and to work hard to elevate this Journal as much as I can. In this first volume, the art of [Marcelo Bava](#) illustrates the cover\*. I want to thank those who have helped me during this transition process: [George Yorgo Veenhuizen](#), [Andres Enriquez Pino](#), [Andrés Pérez Riera](#), [Hector Barajas Martinez](#) and many other collaborators from all around the world. Thanks to the following artists: [Marcelo Bava](#) (cover May-June), [Juan Pablo Compaired](#) (cover July-August), [Diego Perrotta](#) (cover September-October).

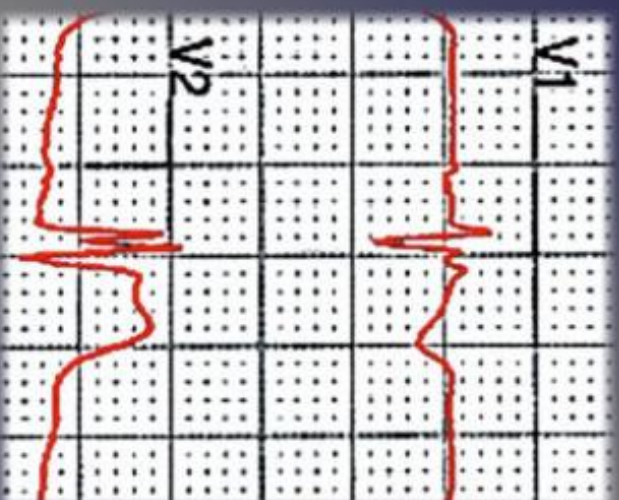
# Baranchuk's books





# **ELECTROCARDIOGRAPHY IN PRACTICE**

## WHAT TO DO?



EDITED BY  
CHARLES NADEAU-ROUTHIER  
ADRIAN BARANCHUK



# Baranchuk 'family



**Barbara**

**Gala**

**Adrian**

## **Dr. Adrian Baranchuk from Kingston General Hospital, Queen's University was interviewed by Dr. Moussa Mansour on his experience and lifetime achievements.**

**Mansour: Can you tell us about your childhood?** Baranchuk: I was born in Buenos Aires, Argentina, and both of my parents were doctors. My father was a successful pediatrician who later became the Director of the Public Health School in Buenos Aires and finished his career as Sub-secretary of Health after the return of democracy to Argentina in 1983. My mother was a revolutionary psychiatrist who collaborated to bring “Gestalt therapy” to South America. They both had great influence on my decision to pursue a medical career and to pursue music and literature as hobbies. However, I only have a few memories of my interactions with them during medical school. I recall once when I was studying late at night with the Atlas of Anatomy open to a page that showed the inside of the skull. Multiple arrows were pointing to holes and bones. I was getting desperate because I was unable to locate the “Crista Galli apophysis.” My father felt my frustration and entered the room. I asked him to show me where this thing was. Without hesitation, he pointed to a miniscule area and said “*there*.” I checked the arrow and that was indeed the “Crista Galli apophysis.” I thanked him and he left the room. I felt safe. I knew I could count on him whenever I needed him. This was the first and last time that my father helped me on any issues associated with my career. Days before celebrating his 80<sup>th</sup> birthday, during a nice lunch at a German restaurant, I told him this story. He confessed he had no idea about the “Crista Galli,” and he had just pointed to something in the book. I smiled at him, and we finished our lunch in silence. I can still count on him for whatever I need.

**Mansour: What ultimately led you to the field of EP?** Baranchuk: I completed Medical School at the University of Buenos Aires, initially thinking about following my mother's path. In the last few years, I shifted towards Cardiology, as in my limited understanding, psychiatry had only two types of patients: those with a neurosis (similar to my own) and those with psychosis (which at that time had no cure). Cardiology gave me the opportunity to deal with emergencies, and that attracted me more. During my residency, early in the second year, I found arrhythmias and EP fascinating. I had a personal relationship with Marcelo Elizari, a disciple of Mauricio Rosenbaum, who was the father of hemiblocks, and he supported my idea of training in invasive EP, an area that was developing in the early 1990s in Argentina. I trained in Argentina, and in 2001–2002 a new serious economic crisis hit the country and my lovely wife Barbara and I decided to emigrate. Dr. Jeronimo Farre from Madrid, Spain, was very receptive, and I joined his team in mid-2002. He opened his lab and his life to us, and the transition was quite easy. I enjoyed working with Dr. Cabrera in his animal lab for 1 year, and this gave me a different perspective in many areas of EP. However, I was eager to join a lab with higher volumes and large experience in teaching. I wrote to Dr. Carlos Morillo, a Colombian trained in Canada, who had recently joined McMaster University where Dr. Stuart Connolly was the Director of the EP service, and they accepted me as an EP fellow, and I made the decision to retrain according to Canadian standards. This was a life-changing experience for me and my wife, and we decided to stay in Canada. EP and arrhythmias, during my early years as a Cardiology resident, were the most challenging scenarios, and the ones that triggered my willingness to learn. I suppose that was the “magnet” towards this fascinating specialty.



**Mansour: What type of a practice are you in? How many partners do you have and staff do you have? How many procedures do you and the hospital do each year?** Baranchuk: In 2006, I joined the Division of Cardiology at Queen's University in Kingston, Ontario. This is an academic hospital with a large Internal Medicine residency program and a mid-sized Cardiology residency program. In 2007, we started the EP Training Program, and we have now trained doctors from Canada, the UK, Chile, Argentina, the United Arab Emirates, Pakistan, and Egypt. Currently, we are a group of five EPs, and Dr. Glover from Ireland will be joining us soon. Please allow me to say that I am a very fortunate person, as my colleagues here in Kingston are the best professionals and individuals that I could hope to work with. Dr. Chris Simpson, current President of the Canadian Medical Association and Head of Cardiology at Queen's, has played a key role in teaching me Canadian standards of practice, which I have embraced and will practice for the rest of my medical career. Dr. Damian Redfearn, Chief of the Heart Rhythm Service, is one of the most talented EPs I have ever met and is capable of teaching the most complex electrograms (EGMs). Drs. Hoshi Abdollah and Kevin Michael have supported me since my arrival, and my gratitude to them is immense. We perform simple and complex ablations, we use NaVXX® (St. Jude Medical, St. Paul, MN) CARTO® (Biosense Webster, Diamond Bar, CA), MediGuide® (St. Jude Medical), and Contact Force®, and now we also have Zero-Gravity® (CFI Medical Solutions, Fenton, MI) which helped us reduce intraprocedure radiation. We implant approximately 550 devices and perform 400 ablations per year, and we host a very busy Device Clinic despite employing remote and transtelephonic monitoring. We run two EP-dedicated sessions a week: one for ECG/paced rhythms/medical decisions, and one fully dedicated to intracardiac tracings. Fellows are in charge of providing the cases for the sessions. We have a dedicated educational room with the highest technology for case presentations, online discussions, and storage for interesting cases for the future. I have about 35% of my time allocated for teaching and research. We have three EP technicians and four EP nurses assisting in the Device Clinic. We also have a Device Coordinator and a group of 5 administrators for the booking process and clinics (one of them is a nurse that helps with triage).

**Mansour: For Fellows who are transitioning into practice, are there any pearls of wisdom that you can share?** Baranchuk: The reasons to pursue a career in EP are diverse, and depend, I think, on the personal background of the individual. Some generalizations, though, could be made: Pursuing an EP career as a vehicle to be a millionaire is NOT a good strategy. This is definitively not a money-making career. We can do OK, but if the goal of your life is to make millions and enjoy them, you may need to seek a different profession. I do insist in the need to find the “holy fire.” This is the ambition to learn, the ambition to perfect your skills, and to pursue excellence in what you do. EP demands lots of concentration, not only during the learning phase but also during your daily practice. Minor distractions can represent a catastrophe. EPs are usually quite obsessive individuals, looking for details and analyzing the same phenomenon from different angles. These traits are mostly “common ground” to all of us. In summary, I would say a fellow transitioning into practice should pursue his/her passion; it does not matter where he/she has to go to pursue his/her dreams. Do not allow difficulties to interfere with your dreams. And basically, think big.

**Mansour: What has been the biggest challenge and greatest reward of your EP career?** Baranchuk: The biggest challenge was leaving Argentina to pursue a career with a different academic angle. I was not sure whether I could learn the language (I still struggle!). I was not sure whether Canada would be a fit for me and my family. Now, having a Canadian daughter of 9 years old (Gala), I feel blessed to belong to this society, and the same time, I am proud of my Latin roots. The transition from one culture to another was with no doubt, the biggest challenge. EP gratifies us in many different ways. Ablating an accessory pathway in a survivor of sudden death is a personal gratification that has no comparison. Improving the functional class of a patient by using a cardiac resynchronization therapy (CRT) produces a sense of fulfillment that is difficult to describe. On a more personal note, having the opportunity to do research with some of the Masters brings me lots of pleasure and satisfaction. It is a permanent way of learning and exercising tolerance to different opinions and perspectives. This year, I received the “Golden Caliper Award” from the SOLAECF (Latin American Society of Pacing and Electrophysiology). The peer recognition from the region where I was born means lots to me. Finally, the publication of my first book “Atlas of Advanced ECG Interpretation” (REMEDICA UK, 2013) ([www.ecgatlases.com](http://www.ecgatlases.com)) is a major achievement, as most of the world leaders in Electrophysiology have agreed to participate making this piece a unique contribution to the field.

**Mansour: Please share with us emerging techniques and technologies that you feel will impact current and future practice. What innovations on the horizon are you most excited about?** Baranchuk: In the diagnostic field, extending monitoring to detect atrial fibrillation in different scenarios has dramatically increased our knowledge about the efficacy of the implemented therapies and also increased our diagnostic capabilities. In this sense, the injectable loop recorders have made the procedure shorter with fewer complications and excellent recording EGMs. The new navigation systems advanced our capacity to ablate complex arrhythmias. New pacing leads with multiple poles provide us with multiple configurations for pacing, making CRT implants more efficacious.

**Mansour: Would you provide your insights on the publication of a consensus report on current electrocardiographic criteria for diagnosis of Brugada pattern?** Baranchuk: This was an initiative conducted by Prof. Antoni Bayes de Luna from Cataluña that brought together investigators from all around the world with different expertise in Brugada syndrome. My contribution to this field at the moment was advancing the concept of Brugada phenocopies, which refers to all those conditions that can produce an identical Brugada ECG pattern but have an underlying cause. Once the underlying cause is removed, the ECG pattern disappears. Furthermore, testing with sodium channel blockers is negative, and genetics, when available, are negative as well (visit [www.brugadaphenocopy.com](http://www.brugadaphenocopy.com)). In this meeting, hosted in the beautiful town of Barcelona, some important decisions were made: 1) type-3 ECG pattern was no longer considered suspicious of Brugada syndrome; 2) new techniques to determine a Brugada ECG pattern were revised and validated (Beta angle and Base of the triangle); 3) technical aspects on recording ECGs were revised (high precordial lead placements, filters as per García-Niebla publications); and 4) more sophisticated definitions for type-1 (coved) and type-2 (saddleback) were implemented. The consensus can be read in Bayes de Luna et al., *Journal of Electrophysiology*, 2012.

**Mansour: What is your perspective on how to effectively diagnose unknown tracings?** Baranchuk: There are some commonalities to the approach to diagnose difficult ECGs, EGMs, and pacing recordings.

The intellectual process of acquiring this skill (and subsequent teaching thereof) recognizes two different approaches:

1. Pattern recognition: this refers to the ability to see a specific pattern, include it in your mind among a set of images, and recall it when deemed necessary. The “pattern recognition approach” involves the following aspects: memory, recollection, permanent exposure to avoid erosion, and comparison between similar patterns. Examples of pattern recognition could be: Brugada ECG patterns, Long QT, Morady’s maneuver responses in the EP Lab, reversed connection in pacemakers, or morphology of the paced QRS in biventricular pacing.
2. Inductive/deductive mechanisms: this refers to the comprehension of the intrinsic mechanism (physiopathology) and clinical scenario of a given pattern. The “inductive/deductive mechanism approach” involves the following aspects: understanding of the pathophysiologic mechanisms of the condition, interpretation of the algorithm to detect the condition, and application of a therapeutic strategy based on the recognition of the condition. Examples of inductive/deductive mechanisms could be: differential diagnosis of narrow complex tachycardias, Wenckebach phenomenon in the atrioventricular node, assessing bidirectional block across the isthmus during cavotricuspid isthmus ablation, and interpretation of the autocapture feature in the surface ECG.

It is conceivable that the best way of teaching and learning complex ECGs and EGMs is the interaction between these two proposed approaches. Facilitating permanent exposure to infrequent patterns and at the same time integrating the deductive/inductive mechanism to every single phenomenon we observe in the EP or pacing lab seems to be a reasonable experience. This is what we practice twice a week in our routine arrhythmia sessions.