Paola Marta Berne Suarez

PRESENTAZIONE

Descriviti qui...

ISTRUZIONE E FORMAZIONE

[24/02/2026]

Medico Specialista in Medicina d'Emergenza-Urgenza

Ateneo dell'Università degli Studi di Sassari (UNISS)

Città: Sassari | **Paese:** Italia | **Livello EQF:** Livello 7 EQF

Fisiopatologia, clinica e terapia delle urgenze ed emergenze mediche, chirurgiche e traumatologiche. Valutazione del grado di urgenza e delle priorità assistenziali. Valutazione delle funzioni vitali e rianimazione cardiopolmonare. Diagnosi e terapia in urgenza (farmacologica e strumentale) di qualsiasi patologia con caratteristiche d'urgenza-emergenza. Gestione del traumatizzato maggiore e del Trauma Team. Epidemiologia e gestione delle emergenze territoriali incluse le catastrofi. Monitoraggio elettrocardiografico e emodinamico. Emergenza extraospedaliera. Management e ottimizzazione delle risorse nel sistema integrato dell'Emergenza-Urgenza. Ricerca clinico-terapeutica applicata alle emergenze-urgenze.

[01/09/2008 – 01/09/2010]

Master in Elettrofisiologia e Stimolazione Cardiaca

Universidad de Barcelona

Città: Barcellona | **Paese:** Spagna | **Livello EQF:** Livello 7 EQF

Fisiopatologia delle aritmie cardiache e meccanismi dell'elettrofisiologia normale e patologica. Diagnosi e trattamento delle bradiaritmie e tachiaritmie sopraventricolari e ventricolari. Gestione della fibrillazione atriale. Canalopatie cardiache e aritmie genetiche. Studio elettrofisiologico invasivo intracavitario. Ablazione con radiofrequenza di aritmie semplici e complesse mediante sistemi di navigazione elettroanatomica. Impianto e controllo di pacemaker e defibrillatori (ICD mono-, bi- e tricamerale, S-ICD). Stratificazione del rischio di morte cardiaca improvvisa. Ricerca clinica in aritmologia.

[03/10/2005 – 30/06/2008]

Fellowship in Elettrofisiologia Invasiva

Unità di Aritmie-Cardiologia Clinica-Istituto del Torace-Hospital Clínic di Barcellona

Città: Barcellona | **Paese:** Spagna | **Livello EQF:** Livello 7 EQF

Elettrofisiologia invasiva clinica e stimolazione cardiaca. Ablazione con catetere di aritmie semplici e complesse (fibrillazione atriale, flutter, tachicardie ventricolari, WPW). Impianto e controllo di dispositivi cardiaci impiantabili (pacemaker, ICD mono-bi-tricamerale, CRT, Holter sottocutaneo). Programmi di ricerca in fibrillazione atriale, resincronizzazione cardiaca, canalopatie e ablazione della tachicardia ventricolare. Ambulatorio di aritmie e aritmie genetiche. Gestione di prove non invasive (Holter ECG 24 ore, tilt test, test all'ajmalina, test alla flecainide). Cardioversione elettrica. Studio elettrofisiologico

[19/10/2004 – 19/10/2004]

Dottoressa in Medicina ("Licenciada en Medicina")

Ministero dell'Istruzione e della Scienza di Spagna

Città: Madrid | **Paese:** Spagna | **Livello EQF:** Livello 6 EQF

Ministero dell'Istruzione e della Scienza di Spagna, Segreteria Tecnica Generale, Dipartimento delle qualifiche, riconoscimento e omologazioni, in conformità con le disposizioni del regio decreto 86/1987 del 16 Gennaio (BOE 23/01/87). Numero della pratica: 2004/08545/1

[01/03/1997 – 25/10/2001]

Specialista in Cardiologia

Associazione Medica della Provincia di Santa Fe (2a Circunscripción)-Sanatorio Parque de Rosario

Città: Rosario | **Paese:** Argentina | **Livello EQF:** Livello 7 EQF

Cardiologia clinica: fisiopatologia, diagnosi differenziale e trattamento delle affezioni cardiovascolari. Cardiopatia coronarica e sindromi coronariche acute. Valvulopatie. Scompenso cardiaco. Aritmie e disturbi della conduzione. Cardiomiopatie. Ipertensione arteriosa. Cardiologia preventiva e riabilitazione cardiovascolare. Emergenze cardiologiche e terapia intensiva coronarica. Metodi diagnostici strumentali (elettrocardiografia, ecocardiografia, Holter, ergometria, cateterismo cardiaco). Metodologia della ricerca clinica in cardiologia.

[01/03/1989 – 04/07/1997]

Laurea in Medicina ("Médica")

Facultad de Ciencias Médicas-Universidad Nacional de Rosario

Città: Rosario | **Paese:** Argentina | **Livello EQF:** Livello 6 EQF

Anatomia umana. Fisiologia. Biochimica. Istologia ed embriologia. Patologia generale. Farmacologia. Microbiologia e parassitologia. Semeiotica medica e chirurgica. Medicina interna. Chirurgia generale. Ginecologia e ostetricia. Pediatria. Neurologia e psichiatria. Medicina preventiva e salute pubblica. Igiene. Radiologia diagnostica. Metodologia della ricerca clinica. Deontologia medi

ESPERIENZA LAVORATIVA

ASL Sassari - Sede di Bonorva (NU), Italia

Città: Bonorva | **Paese:** Italia

[01/05/2026 – Attuale]

Medico di Guardia Medica (Continuità Assistenziale)

Attività di guardia medica notturna, festiva e prefestiva nell'ambito della Continuità Assistenziale. Gestione delle urgenze territoriali e assistenza ai pazienti non differibili.

AOUSS (Azienda Ospedaliero-Universitaria di Sassari)

Città: Sassari | **Paese:** Italia

[01/03/2026 – 07/05/2026]

Ricercatore universitario/ricercatrice universitaria

Progetto: Svelare il Paesaggio Genetico della Sindrome di Brugada: Scoperta di nuovi Biomarcatori per una diagnosi precisa

Codice: GenLaB / PNRR-POC-2023-12378388

Reclutamento del paziente e relativo inquadramento clinico secondo i criteri di eleggibilità del Progetto;

Organizzazione del Progetto;

Corretta gestione dei dati in collaborazione con il team di ricerca.

Ateneo dell'Università degli Studi di Sassari (UNISS)-Ospedale SS Annunziata (Sassari)

Città: Sassari | **Paese:** Italia

[26/01/2021 – 24/02/2026]

Specializzanda in Medicina d'Emergenza-Urgenza

-Medico Specialista in Medicina d'Emergenza-Urgenza (24 Febbraio 2026). Votazione: 50/50 con lode. Tesi sperimentale: "Carico di shock nelle canalopatie cardiache: confronto tra S-ICD e ICD transvenoso in una coorte sarda"

Fisiopatologia, clinica e terapia delle urgenze ed emergenze mediche, chirurgiche e traumatologiche. Valutazione del grado di urgenza e delle priorità assistenziali. Valutazione delle funzioni vitali e rianimazione cardiopolmonare. Diagnosi e terapia in urgenza (farmacologica e strumentale) di qualsiasi patologia con caratteristiche d'urgenza-emergenza. Gestione del traumatizzato maggiore e del Trauma Team. Epidemiologia e gestione delle emergenze territoriali incluse le catastrofi. Monitoraggio elettrocardiografico e emodinamico. Emergenza extraospedaliera. Management e ottimizzazione delle risorse nel sistema integrato dell'Emergenza-Urgenza. Ricerca clinico-terapeutica applicata alle emergenze-urgenze

ASL Nuoro

Città: Nuoro | **Paese:** Italia

[17/01/2013 – 25/01/2021] **Ricercatrice**

Ricercatrice Full-time. Titolo Progetto: "Epidemiologia e Genetica della Morte Improvvisa in Sardegna e correlazione con le canalopatie". Codice Progetto: CRP-61675. Contratto a Progetto di Collaborazione Coordinata.

Attività di ricerca clinica e genetica sulle canalopatie cardiache nella popolazione sarda. Reclutamento e inquadramento clinico dei pazienti e dei familiari. Interpretazione di test farmacologici (ajmalina, flecainide). Valutazione elettrocardiografica e studio elettrofisiologico. Consulenza specialistica per canalopatie cardiache come riferimento regionale per la Sardegna. Collaborazione con laboratori di genetica molecolare per l'analisi mutazionale. Partecipazione a studi multicentrici nazionali e internazionali. Produzione scientifica (pubblicazioni su riviste indicizzate, comunicazioni a congressi).

O.U. Complessa di Cardiologia – Ospedale "San Francesco" di Nuoro; Via Mannironi 1, primo piano, 08100 Nuoro (NU), Italia. Tel: +39 0784240797 Fax: +39 0784240022

Azienda Tutela della Salute Sardegna (ATS Sardegna), ASSL Nuoro

Universidad de Barcelona-IDIBAPS Biomedical Research Institute Augusto Pi i Sunyer)

Città: Barcelona | **Paese:** Spagna

[31/12/2012] **Ricercatrice**

Progetto I (2009-2013)

Titolo: AGAUR 2009 "Aritmie e stimolazione cardiaca"

Ente finanziatore: Agenzia per l'Amministrazione dei Finanziamenti Universitari e di Ricerca (AGAUR), Generalitat de Catalunya

Partecipazione: Ricercatrice in collaborazione esterna

Ricercatore Principale: Josep Brugada Terradellas

Progetto II (2008-2011)

Titolo: "Translational Research in Inherited Arrhythmia – Clinical investigation of sudden cardiac death and unexplained syncope. Value of clinical and genetic testing algorithms". Sottoprogetto: "Sudden Cardiac Death: Defining Clinical Algorithms for a Thorough Investigation" [CNIC-03-2008]

Ente finanziatore: Fondazione Centro Nazionale delle Ricerche Cardiovascolari (CNIC), Carlos III

Partecipazione: Ricercatrice in collaborazione

Ricercatore Principale: Josep Brugada Terradellas

Progetto III (2007-2010)

Titolo: "Utilità dell'Ajmalina per via endovenosa nella diagnosi e nel trattamento delle aritmie cardiache"

Ente finanziatore: Divisione Generale di Valutazione della Promozione della Ricerca - Istituto Superiore di Sanità Carlos III

Partecipazione: Ricercatrice in collaborazione esterna

Ricercatore Principale: Josep Brugada Terradellas

Progetto IV (2006-2009)

Titolo: "Fattori predittori di efficacia di ablazione con radiofrequenza della fibrillazione atriale"

Ente finanziatore: Fondo di Ricerca in Salute (FIS)

Partecipazione: Borsista

Ricercatore Principale: Ing. David Tamborero Noguera

Progetto V (2005-2008)

Titolo: "Studio dell'espressione genetica e fenotipica in correlazione alla sindrome di Brugada"

Ente finanziatore: Fondo di Ricerca in Salute (FIS)

Partecipazione: Ricercatrice in collaborazione esterna

Ricercatore Principale: Josep Brugada Terradellas

Progetto VI (2005-2008)

Titolo: AGAUR 2005 "Aritmie e stimolazione cardiaca"

Ente finanziatore: AGAUR, Generalitat de Catalunya

Partecipazione: Ricercatrice in collaborazione esterna

Ricercatore Principale: Antonio Berruezo Sánchez

Centro de Imágenes Médicas, Rosario, Santa Fe, Argentina

Città: Rosario | **Paese:** Argentina

[01/04/2001 – 01/09/2005] **Cardiologa**

Cardiologa full-time

Valutazione cardiaca preoperatoria.

Elettrocardiografia (ECG).

Holter ECG 24 ore.

Monitoraggio ambulatoriale della pressione arteriosa (MAPA) 24 ore.

Tilt test.

Test da sforzo / Ergometria.

COMPETENZE

Diagnosi e terapia delle aritmie cardiache | Diagnosi e terapia delle canalopatie cardiache | Diagnosi e terapia delle cardiomiopatie | malattie dell'apparato cardiovascolare | interpretare i dati di laboratorio nella genetica medica | fornire consulenza genetica | buona padronanza del software statistico SPSS | parlare lingue diverse | tutelare i dati personali e la privacy | valutare dati, informazioni e contenuti digitali | Padronanza del Pacchetto Office (Word Excel PowerPoint ecc) | Social Network | gestire lo sviluppo professionale personale | Pacemaker | Posta elettronica | costruire un albero genealogico | condurre una ricerca scientifica | eseguire l'analisi dei dati | scrivere articoli scientifici | scrivere progetti di ricerca clinica

COMPETENZE LINGUISTICHE

Lingua madre: spagnolo

Altre lingue:

inglese

ASCOLTO C1 **LETTURA** C1 **SCRITTURA** C1

PRODUZIONE ORALE C1 **INTERAZIONE ORALE** C1

italiano

ASCOLTO C1 **LETTURA** C1 **SCRITTURA** C1

PRODUZIONE ORALE C1 **INTERAZIONE ORALE** C1

Livelli: A1 e A2: Livello elementare B1 e B2: Livello intermedio C1 e C2: Livello avanzato

PUBBLICAZIONI

[2026] **Bradyarrhythmias and Brugada syndrome: clinical features, long-term outcome and prognostic implications-the BruBra study**

Riferimento: Özkartal T, et al. Bradyarrhythmias and Brugada syndrome: clinical features, long-term outcome and prognostic implications-the BruBra study. Europace. 2026 Jun 2;28(6):euag131. doi: 10.1093/europace/euag131. PMID: 42198895; PMCID: PMC13256013.
Autori: Özkartal T, Bergonti M, Caputo ML, Pannone L, de Asmundis C, Compagnucci P, Casella M, Berne P, Casu G, Migliore F, Martini N, Faccenda D, Scheirlynck E, Conte G. | **Nome della pubblicazione**: Europace | **Volume, numero, pagine**: 28(6):euag131 | **Editore**: Oxford University Press

[2025] **The Clinical Significance of Atrial Fibrillation in Non-High-Risk Brugada Syndrome: The BruFib Study**

Riferimento: Bergonti M, et al. The Clinical Significance of AF in Non-High-Risk Brugada Syndrome: The BruFib Study. JACC Clin Electrophysiol. 2025. doi: 10.1016/j.jacep.2025.06.031. PMID: 40864034.

Abstract

Background

Atrial fibrillation (AF) occurs in up to 20% of patients with Brugada syndrome (BrS), yet its risk factors and prognostic implications remain uncertain.

Objectives

This study sought to identify risk factors for AF in patients with non-high-risk BrS and to evaluate the impact of AF on ventricular arrhythmias (VAs), sick sinus syndrome (SSS), and stroke in non-high-risk BrS.

Methods

This was a multicenter, retrospective study conducted across 20 international centers. Non-high-risk BrS patients were stratified based on the presence or absence of AF. The primary endpoint was the occurrence of VAs, defined as sustained ventricular tachycardia, ventricular fibrillation, or arrhythmic sudden cardiac death.

Results

A total of 686 BrS patients were analyzed (39.3 years of age, 33.1% female, 31.8% spontaneous type 1 electrocardiogram, 36.0% pathogenic/likely pathogenic *SCN5A* variant), including 280 with AF (40.8%). Proband status and older age were associated with AF at Cox regression analysis. Over a median follow-up of 48.8 months, the incidence of VAs was 0.26% per year, with no significant difference between patients with and without AF (HR: 0.67; $P = 0.58$). Early-onset AF (<20 years) was associated with significantly higher risk of VAs ($P < 0.001$). SSS was twice as prevalent in BrS patients with AF (10.0% vs 6.2%; $P = 0.047$), and stroke occurred exclusively in the AF group (2.5%), despite low CHA_2DS_2-VA (mean 0.5).

Conclusions

The presence of AF in non-high-risk BrS does not identify patients with higher risk of VAs. However, early-onset AF (<20 years) defines a distinct subgroup with elevated risk. Patients with AF and BrS have a significantly higher risk of SSS and stroke.

Autori: : Bergonti M, Sacher F, Belhassen B, Sarquella-Brugada G, Arbelo E, Sabbag A, Crotti L, Tfelt-Hansen J, Faccenda D, Casella M, Letsas KP, Rossi A, Schwartz PJ, Monaco C, Scheirlynck E, Pannone L, Russo V, Calò L, Caputo ML, Berne P, et al. | **Nome della pubblicazione**: JACC Clinical Electrophysiology | **Volume, numero, pagine**: 2025 Aug 1:S2405-500X(25)00533-X | **Editore**: Elsevier

[2024] **aTrial arrhythmias in inhEriTed aRrhythmIa Syndromes: results from the TETRIS study**

Riferimento: Conte G, et al. aTrial arrhythmias in inhEriTed aRrhythmIa Syndromes: results from the TETRIS study. Europace. 2024;26(12):euae288. PMID: 39527076.

Abstract

Aims: Little is known about the distribution and clinical course of patients with inherited arrhythmia syndrome (IAS) and concomitant atrial arrhythmias (AAs). The aim of the study is (i) to characterize the distribution of AAs in patients with IAS and (ii) evaluate the long-term clinical course of these patients.

Methods and results: An international multicentre study was performed and involved 28 centres in 16 countries. Inclusion criteria were (i) IAS and (ii) electrocardiographic documentation of AAs. The primary endpoint was a composite of sudden cardiac death, sustained ventricular arrhythmias (VAs), or appropriate implantable cardioverter defibrillator (ICD) interventions. Strokes, inappropriate ICD shocks due to AAs, and the occurrence of sinus node dysfunction were assessed. A total of 522 patients with IAS and AAs were included. Most patients were diagnosed with Brugada syndrome (n = 355, 68%) and long QT syndrome (n = 93, 18%). The remaining patients (n = 71, 14%) presented with short QT syndrome, early repolarization syndrome, catecholaminergic polymorphic ventricular tachycardia, progressive cardiac conduction diseases, or idiopathic ventricular fibrillation. Atrial fibrillation was the most prevalent AA (82%), followed by atrial flutter (9%) and atrial tachycardia (9%). Atrial arrhythmia was the first clinical manifestation of IAS in 52% of patients. More than one type of AA was documented in 23% of patients. Nine patients (3%) experienced VA before the diagnosis of IAS due the use of anti-arrhythmic medications taken for the AA. The incidence of the primary endpoint was 1.4% per year, with a two-fold increase in patients who experienced their first AA before the age of 20 (odds ratio 2.2, P = 0.043). This was consistent across the different forms of IAS. Inappropriate ICD shock due to AAs was reported in 2.8% of patients, strokes in 4.4%, and sinus node dysfunction in 9.6%.

Conclusion: Among patients with IAS and AAs, AA is the first clinical manifestation in about half of the cases, with more than one form of AAs present in one-fourth of the patients. The occurrence of AA earlier in life may be associated with a higher risk of VAs. The occurrence of stroke and sinus node dysfunction is not infrequently in this cohort.

Keywords: Atrial arrhythmias; Atrial fibrillation; Brugada syndrome; Channelopathies; Inherited arrhythmia syndrome; Long QT syndrome; Sudden cardiac death; Ventricular arrhythmias.

Autori: Conte G, Bergonti M, Probst V, Morita H, Tfelt-Hansen J, Behr ER, Kengo K, Arbelo E, Crotti L, Sarquella-Brugada G, Wilde AAM, Calò L, Sarkozy A, de Asmundis C, Mellor G, Migliore F, Letsas K, Vicentini A, Levinstein M, Berne P, et al. | **Nome della pubblicazione**: Europace | **Volume, numero, pagine**: 2024;26(12):euae288 | **Editore**: Oxford University Press

[2024] **Continuous Rhythm Monitoring With Implanted Loop Recorders in Children and Adolescents With Brugada Syndrome**

Riferimento: Bergonti M, et al. Continuous Rhythm Monitoring With Implanted Loop Recorders in Children and Adolescents With Brugada Syndrome. J Am Coll Cardiol. 2024;84(10):921-933. PMID: 39197982.

Abstract

Background

Young (<18 years of age) patients with Brugada syndrome (BrS) are often under-represented in BrS studies and their management, especially related to syncopal episodes, remains unclear.

Objectives

This study sought to describe the arrhythmia prevalence among young patients with BrS undergoing continuous rhythm monitoring by implantable loop recorder (ILR) and to assess the etiology behind syncope of undetermined origin.

Methods

A total of 147 patients with BrS with ILR were enrolled in 12 international centers and divided into pediatric (age <12 years; n = 77, 52%) and adolescents (age 13-18 years; n = 70, 48%).

Results

Mean age was 11.3 years, 53 patients (36.1%) were female, and 31 (21.1%) had spontaneous type 1 electrocardiograms. Over a median follow-up of 3.6 years (Q1-Q3: 1.6-4.8 years), an arrhythmic event was recorded in 33 patients (22.4%), mainly of nonventricular origin: 15 atrial (10.2%) and 16 bradyarrhythmic events (10.9%). Ventricular arrhythmias occurred in 4 patients, all with spontaneous BrS, and were fever-related in one-half. Among all patients with recurrence of syncope during follow-up, true arrhythmic syncope was documented in 5 (17.8%), and it was due to bradyarrhythmias or atrial arrhythmias in 3 cases (60%).

Conclusions

Continuous rhythm monitoring with ILRs in young patients with BrS detects a broad range of arrhythmias. Ventricular arrhythmias occur predominantly in patients with spontaneous type 1 electrocardiograms and during fever. Despite the young age, bradyarrhythmias and atrial arrhythmias are frequent and represent the cause of arrhythmic syncope in 60% of patients. Young patients with BrS with syncope of undetermined origin may benefit from ILR implant.

Autori: Bergonti M, Ciconte G, Cruzalegui Gomez J, Crotti L, Arbelo E, Casella M, Saenen J, Rossi A, Pannone L, Martinez-Barrios E, Compagnucci P, Russo V, Berne P, Van Leuven O, Boccellino A, Marcon L, Dagradi F, Landra F, Özkartal T, Comune A, et al. | **Nome della pubblicazione**: Journal of the American College of Cardiology | **Volume, numero, pagine**: 2024;84(10):921-933 | **Editore**: Elsevier

[2024] **Diagnosis of Brugada syndrome affects quality of life and psychological status**

Riferimento: Berne P, et al. Diagnosis of Brugada syndrome affects quality of life and psychological status. Front Cardiovasc Med. 2024;11:1429814. PMID: 39022618

Abstract

Background:

Chronic diseases have a negative impact on quality of life (QOL) and psychological health. There are limited related data regarding this topic in Brugada syndrome (BrS). We evaluated the effects of the diagnosis of BrS on health-related QOL and psychological status among patients and their relatives.

Methods:

Patients with BrS and their relatives underwent psychological evaluation at diagnosis (T0), 1 and 2 years after diagnosis (T1 and T2) using questionnaires on mental QOL, anxiety, depression, stress, post-traumatic stress, and resilience resources.

Results:

Sixty-one patients and 39 relatives were enrolled. Compared with controls, patients showed increased physical QOL (54.1 ± 6.5 vs. 50.1 ± 8.0, $p = 0.014$), reduced mental QOL (43.2 ± 11.8 vs. 49.6 ± 9.1, $p = 0.018$) and increased anxiety (9.9 ± 6.6 vs. 6.9 ± 7.7, $p = 0.024$) at T0; reduced resilience scores (3.69 ± 0.40 vs. 3.96 ± 0.55, $p = 0.008$) at T1; and reduced resilience (3.69 ± 0.35 vs. 3.96 ± 0.55, $p = 0.019$) and increased anxiety scores (16.4 ± 12.8 vs. 6.9 ± 7.7, $p = 0.006$) at T2. Relatives presented higher stress (17.63 ± 3.77 vs. 12.90 ± 6.0, $p = 0.02$) at T0 and higher anxiety scores at T0 (13.5 ± 7.6 vs. 6.9 ± 7.7, $p < 0.001$), T1 (12.0 ± 8.7 vs. 6.9 ± 7.7, $p = 0.005$), and T2 (16.4 ± 12.8 vs. 6.9 ± 7.7, $p = 0.006$) than controls. Female sex was significantly independently associated with worse mental QOL scores in patients at T0 (odds ratio = 0.10; 95% confidence interval = 0.05-0.94; $p = 0.04$).

Conclusions:

The diagnosis of BrS impairs the QOL and psychological status of patients and their relatives. Female sex is independently associated with worse mental QOL in patients at diagnosis.

Autori: Berne P, Usai F, Silva E, Melis I, Fancello T, Onida A, Merella P, Figus F, Brugada J, Casu G | **Nome della pubblicazione**: Frontiers in Cardiovascular Medicine | **Volume, numero, pagine**: 2024;11:1429814 | **Editore**: Frontiers Media

[2024] **Mode and Characteristics of Arrhythmia Initiation in Idiopathic Ventricular Fibrillation: A THESIS Substudy**

Riferimento: Belhassen B, et al. Mode and Characteristics of Arrhythmia Initiation in Idiopathic Ventricular Fibrillation: A THESIS Substudy. JACC Clin Electrophysiol. 2024;10(8): 1794-1809. doi: 10.1016/j.jacep.2024.03.036. PMID: 38842971.

Abstract

Background

There is limited information on the mode of arrhythmia initiation in idiopathic ventricular fibrillation (IVF). A non-pause-dependent mechanism has been suggested to be the rule.

Objectives

The aim of this study was to assess the mode and characteristics of initiation of polymorphic ventricular tachycardia (PVT) in patients with short or long-coupled PVT/IVF included in THESIS (THerapy Efficacy in Short or long-coupled idiopathic ventricular fibrillation: an International Survey), a multicenter study involving 287 IVF patients treated with drugs or radiofrequency ablation.

Methods

We reviewed the initiation of 410 episodes of ≥1 PVT triplet in 180 patients (58.3% females; age 39.6 ± 13.6 years) with IVF. The incidence of pause-dependency arrhythmia initiation (prolongation by >20 ms of the preceding cycle length) was assessed.

Results

Most arrhythmias (n = 295; 72%) occurred during baseline supraventricular rhythm without ambient premature ventricular complexes (PVCs), whereas 106 (25.9%) occurred during baseline rhythm including PVCs. Nine (2.2%) arrhythmias occurred during atrial/ventricular pacing and were excluded from further analysis. Mode of PVT initiation was pause-dependent in 45 (15.6%) and 64 (60.4%) of instances in the first and second settings, respectively, for a total of 109 of 401 (27.2%). More than one type of pause-dependent and/or non-pause-dependent initiation (mean: 2.6) occurred in 94.4% of patients with ≥4 events. Coupling intervals of initiating PVCs were <350 ms, 350-500 ms, and >500 ms in 76.6%, 20.72%, and 2.7% of arrhythmia initiations, respectively.

Conclusions

Pause-dependent initiation occurred in more than a quarter of arrhythmic episodes in IVF patients. PVCs having long (between 350 and 500 ms) and very long (>500 ms) coupling intervals were observed at the initiation of nearly a quarter of PVT episodes.

Autori: Belhassen B, Conte G, Steinberg C, Whitaker J, Khan HR, Laredo M, Doldi F, Ho R, Tadros R, Dinov B, Chorin E, Hansom S, Waintraub X, Eckardt L, Jankelson L,Peichl P,Mellor G, Sy RW,Rattanawong P,Stojkovic S,Garber L,Suna G,Kautzner J, Berne P, et al. | **Nome della pubblicazione**: JACC Clinical Electrophysiology | **Volume, numero, pagine**: 2024;10(8):1794-1809 | **Editore**: Elsevier

[2024] **Implantable loop recorders in patients with Brugada syndrome: the BruLoop study**

Riferimento: Pannone L, et al. Implantable loop recorders in patients with Brugada syndrome: the BruLoop study. Eur Heart J. 2024;45:1255-1265. doi: 10.1093/eurheartj/ehae133.

Abstract

Background and Aims

Available data on continuous rhythm monitoring by implantable loop recorders (ILRs) in patients with Brugada syndrome (BrS) are scarce. The aim of this multi-centre study was to evaluate the diagnostic yield and clinical implication of a continuous rhythm monitoring strategy by ILRs in a large cohort of BrS patients and to assess the precise arrhythmic cause of syncopal episodes.

Methods

A total of 370 patients with BrS and ILRs (mean age 43.5 ± 15.9, 33.8% female, 74.1% symptomatic) from 18 international centers were included. Patients were followed with continuous rhythm monitoring for a median follow-up of 3 years.

Results

During follow-up, an arrhythmic event was recorded in 30.7% of symptomatic patients [18.6% atrial arrhythmias (AAs), 10.2% bradyarrhythmias (BAs), and 7.3% ventricular arrhythmias (VAs)]. In patients with recurrent syncope, the aetiology was arrhythmic in 22.4% (59.3% BAs, 25.0% VAs, and 15.6% AAs). The ILR led to drug therapy initiation in 11.4%, ablation procedure in 10.9%, implantation of a pacemaker in 2.5%, and a cardioverter-defibrillator in 8%. At multivariate analysis, the presence of symptoms [hazard ratio (HR) 2.5, $P = .001$] and age >50 years (HR 1.7, $P = .016$) were independent predictors of arrhythmic events, while inducibility of ventricular fibrillation at the electrophysiological study (HR 9.0, $P < .001$) was a predictor of VAs.

Conclusions

ILR detects arrhythmic events in nearly 30% of symptomatic BrS patients, leading to appropriate therapy in 70% of them. The most commonly detected arrhythmias are AAs and BAs, while VAs are detected only in 7% of cases. Symptom status can be used to guide ILR implantation.

Autori: Pannone L, Gauthey A, Conte G, Osei R, Campanale D, Baldi E, Berne P, Vicentini A, Vergara P, Sorgente A, Rootwelt-Norberg C, Della Rocca DG, Monaco C, Bisignani A, Miraglia V, Spolverini M, Paparella G, Overeinder I, Bala G, Almorad A, et al. | **Nome della pubblicazione**: European Heart Journal | **Volume, numero, pagine**: 2024;45:1255-1265 | **Editore**: Oxford University Press

[2023] **Genetics in Probands With Idiopathic Ventricular Fibrillation: A Multicenter Study**

Riferimento: Pannone L, et al. Genetics in Probands With Idiopathic Ventricular Fibrillation: A Multicenter Study. JACC Clin Electrophysiol. 2023;9(8):1296-1306. PMID: 37227348.

Abstract

Background

Different genes have been associated with idiopathic ventricular fibrillation (IVF); however, there are no studies correlating genotype with phenotype.

Objectives

The aim of this study was to define the genetic background of probands with IVF using large gene panel analysis and to correlate genetics with long-term clinical outcomes.

Methods

All consecutive probands with a diagnosis of IVF were included in a multicenter retrospective study. All patients had: 1) IVF diagnosis throughout the follow-up; and 2) genetic analysis with a broad gene panel. All genetic variants were classified as pathogenic/likely pathogenic (P+), variants of unknown significance (VUS) or no variants (NO-V), following current guidelines of the American College of Medical Genetics and Genomics and the Association for Molecular Pathology. The primary endpoint was occurrence of ventricular arrhythmias (VA).

Results

Forty-five consecutive patients were included. A variant was found in 12 patients, 3 P+ and 9 VUS carriers. After a mean follow-up time of 105.0 months, there were no deaths and 16 patients (35.6%) experienced a VA. NO-V patients had higher VA free survival during the follow-up, compared with both VUS (72.7% vs 55.6%, log-rank $P < 0.001$) and P+ (72.7% vs 0%, log-rank $P = 0.013$). At Cox analysis, P+ or VUS carrier status was a predictor of VA occurrence.

Conclusions

In probands with IVF, undergoing genetic analysis with a broad panel, the diagnostic yield for P+ is 6.7%. P+ or VUS carrier status is a predictor of VA occurrence.

Autori: Pannone L,Gauthey A,Conte G,Osei R,Campanale D,Baldi E,Berne P,Vicentini A,Vergara P,Sorgente A,Rootwelt-Norberg C,Della Rocca DG,Monaco C,Bisignani A,Miraglia V,Spolverini M,Paparella G,Overeinder I,Bala G,Almorad A,Ströker E,de Ravel T, et al. | **Nome della pubblicazione**: JACC Clinical Electrophysiology | **Volume, numero, pagine**: 2023;9(8):1296-1306 | **Editore**: Elsevier

[2021] **Impact of SMART Pass filter in patients with ajmaline-induced Brugada syndrome and subcutaneous ICD eligibility failure**

Riferimento: Conte G, et al. Impact of SMART Pass filter in patients with ajmaline-induced Brugada syndrome and subcutaneous ICD eligibility failure. Europace. 2021. doi: 10.1093/europace/euab230.

Abstract

Aims

Ajmaline challenge can unmask subcutaneous implantable cardioverter-defibrillator (S-ICD) screening failure in patients with Brugada syndrome (BrS) and non-diagnostic baseline electrocardiogram (ECG). The efficacy of the SMART Pass (SP) filter, a high-pass filter designed to reduce cardiac oversensing (while maintaining an appropriate sensing margin), has not yet been assessed in patients with BrS. The aim of this prospective multicentre study was to investigate the effect of the SP filter on dynamic Brugada ECG changes evoked by ajmaline and to assess its value in reducing S-ICD screening failure in patients with drug-induced Brugada ECGs.

Methods and results

The S-ICD screening with conventional automated screening tool (AST) was performed during ajmaline challenge in subjects with suspected BrS. The S-ICD recordings were obtained before, during and after ajmaline administration and evaluated by the means of a simulation model that emulates the AST behaviour with and without SP filter. A patient was considered suitable for S-ICD if at least one sensing vector was acceptable in all tested postures. A sensing vector was considered acceptable in the presence of QRS amplitude >0.5 mV, QRS/T-wave ratio >3.5, and sense vector score >100. Of the 126 subjects (mean age: 42 ± 14 years, males: 61%, sensing vectors: 6786), 46 (36%) presented with an ajmaline-induced Brugada type 1 ECG. Up to 30% of subjects and 40% of vectors failed the screening during the appearance of Brugada type 1 ECG evoked by ajmaline. The S-ICD screening failure rate was not significantly reduced in patients with Brugada ECGs when SP filter was enabled (30% vs. 24%). Similarly, there was only a trend in reduction of vector-failure rate attributable to the SP filter (from 40% to 36%). The most frequent reason for screening failure was low QRS amplitude or low QRS/T-wave ratio. None of these patients was implanted with an S-ICD.

Conclusion

Patients who pass the sensing screening during ajmaline can be considered good candidates for S-ICD implantation, while those who fail might be susceptible to sensing issues. Although there was a trend towards reduction of vector sensing failure rate when SP filter was enabled, the reduction in S-ICD screening failure in patients with Brugada ECGs did not reach statistical significance.

Clinical trial registration

https://clinicaltrials.gov Unique Identifier NCT04504591.

Autori: Conte G, Cattaneo F, de Asmundis C, Berne P, Vicentini A, Namdar M, Scalone A, Klersy C, Caputo ML, Demarchi A, Özkartal T, Salghetti F, Casu G, Passarelli I, Mameli S, Shah D, Burri H, De Ferrari G, Brugada P, Auricchio A | **Nome della pubblicazione**: Europace | **Volume, numero, pagine**: 2021;00:1-10 | **Editore**: Oxford University Press

[2021] **Predictors of inappropriate shock in Brugada syndrome in patients with a subcutaneous implantable cardiac defibrillator**

Riferimento: Casu G, et al. Predictors of inappropriate shock in Brugada syndrome in patients with a subcutaneous ICD. J Cardiovasc Electrophysiol. 2021;1-8. doi: 10.1111/jce.15059.

Abstract

Background

Subcutaneous implantable cardioverter defibrillators (S-ICDs) avoid complications secondary to transvenous leads, but inappropriate shocks (ISs) are frequent. Furthermore, IS data from patients with Brugada syndrome (BrS) with an S-ICD are scarce.

Objective

We aimed to establish the frequency and predictors of IS in this population.

Methods

We analyzed the clinical and electrocardiographic characteristics, automated screening test data, device programming, and IS occurrence in adult patients with BrS with an S-ICD.

Results

Thirty-nine patients were enrolled (69% male, mean age at diagnosis 46 ± 13 years, mean age at implantation 48 ± 13 years). During a mean follow-up of 26 ± 21 months, 18% patients experienced IS. Patients with IS were younger at the time of diagnosis (36 ± 8 vs. 48 ± 13 years, $p = .018$) and S-ICD implantation (38 ± 9 vs. 50 ± 23 years, $p = .019$) and presented with spontaneous type 1 Brugada electrocardiogram pattern more frequently at diagnosis or during follow-up (71% vs. 25%, $p = .018$). During automated screening tests, patients with IS showed lower QRS voltage in the primary vector in the supine position (0.58 ± 0.26 vs. 1.10 ± 0.35 mV, $p = .011$) and lower defibrillator automated screening score in the primary vector in the supine (123 ± 165 vs. 554 ± 390 mV, $p = .005$) and standing (162 ± 179 vs. 486 ± 388 mV, $p = .038$) positions. Age at diagnosis was the only independent predictor of IS (hazard ratio = 0.873, 95% confidence interval: 0.767-0.992, $p = .037$).

Conclusion

IS was a frequent complication in patients with BrS with an S-ICD. Younger age was independently associated with IS. A more thorough screening process might help prevent IS in this population.

Autori: Casu G, Silva E, Bisbal F, Viola G, Merella P, Lorenzoni G, Motta G, Bandino S, Berne P | **Nome della pubblicazione**: Journal of Cardiovascular Electrophysiology | **Volume, numero, pagine**: 2021;1-8 | **Editore**: Wiley

[2021] **Brugada phenocopy in a patient with unstable angina and three-vessel coronary artery disease**

Riferimento: Casu G, et al. Brugada phenocopy in a patient with unstable angina and three-vessel coronary artery disease. J Cardiovasc Electrophysiol. 2021. PMID: 33586167.

Abstract

A 52-year-old male was admitted with unstable angina and three-vessel coronary artery disease. Electrocardiography (ECG) changes consistent with type-1 Brugada ECG pattern were noted during admission. The patient was asymptomatic for syncope and had no family history of sudden cardiac death, ICD implantation, and Brugada syndrome. After coronary by-pass graft the Brugada ECG pattern resolved, and ajmaline test did not elicit type-1 ECG pattern, confirming the suspicion of Brugada phenocopy.

Autori: Casu G, Berne P, Viola G, Bandino S, Baranchuk A | **Nome della pubblicazione**: Journal of Cardiovascular Electrophysiology | **Volume, numero, pagine**: 2021;32:1187-1190. | **Editore**: Wiley

[2019] **Left Atrial Appendage Occlusion in High Bleeding Risk Patients**

Riferimento: Merella P, et al. Left Atrial Appendage Occlusion in High Bleeding Risk Patients. J Interv Cardiol. 2019;2019:6704031. PMID: 31772541.

Abstract

Objectives. The aim of this study was to investigate the outcomes of left atrial appendage occlusion (LAAO) in high bleeding risk patients suffering atrial fibrillation (AF) and to analyze the different antithrombotic therapies following the intervention. *Background. Methods*. This monocentric study included 68 patients with nonvalvular AF with an absolute contraindication to OAT or at high bleeding risk. Follow-up was done with a clinical visit at 3-6-12 months. *Results*. Successful LAAO was achieved in 67/68 patients. At discharge, 32/68 patients were on dual antiplatelet therapy (APT), 34/68 were without any antithrombotic therapy or with a single antiplatelet drug, and 2/68 were on anticoagulant

therapy. At three-month follow-up visit, 73.6% of the patients did not receive dual APT, of whom 14.7% had no thrombotic therapy and 58.9% were on single antiplatelet therapy. During a follow-up of 1.4 ± 0.9 years, 3/62 patients had late adverse effects (2 device-related thrombus without clinical consequences and 1 extracranial bleeding). The device-related thrombosis was not related to the antithrombotic therapy. *Conclusions*. LAAO is feasible and safe and prevents stroke in patients with AF with contraindication to oral anticoagulant therapy. After LAAO, single antiplatelet therapy seems to be a safe alternative to dual antiplatelet therapy, especially in patients at high bleeding risk. No benefit has been observed with dual APT.

Autori: Merella P, Lorenzoni G, Delitala AP, Sechi F, Decandia F, Viola G, Berne P, Deiana G, Mazzone P, Casu G | **Nome della pubblicazione**: Journal of Interventional Cardiology | **Volume, numero, pagine**: 2019;2019:6704031 | **Editore**: Wiley

[2019] **Out-of-hospital cardiac arrest due to idiopathic ventricular fibrillation in patients with normal electrocardiograms: results from a multicentre long-term registry**

Riferimento: Conte G, et al. Out-of-hospital cardiac arrest due to idiopathic VF in patients with normal ECGs: multicentre registry. Europace. 2019;21(11):1670-1677. PMID: 31504477.

Abstract

Aims

To define the clinical characteristics and long-term clinical outcomes of a large cohort of patients with idiopathic ventricular fibrillation (IVF) and normal 12-lead electrocardiograms (ECGs).

Methods and results

Patients with ventricular fibrillation as the presenting rhythm, normal baseline, and follow-up ECGs with no signs of cardiac channelopathy including early repolarization or atrioventricular conduction abnormalities, and without structural heart disease were included in a registry. A total of 245 patients (median age: 38 years; males 59%) were recruited from 25 centres. An implantable cardioverter-defibrillator (ICD) was implanted in 226 patients (92%), while 18 patients (8%) were treated with drug therapy only. Over a median follow-up of 63 months (interquartile range: 25–110 months), 12 patients died (5%); in four of them (1.6%) the lethal event was of cardiac origin. Patients treated with antiarrhythmic drugs only had a higher rate of cardiovascular death compared to patients who received an ICD (16% vs. 0.4%, $P = 0.001$). Fifty-two patients (21%) experienced an arrhythmic recurrence. Age ≤16 years at the time of the first ventricular arrhythmia was the only predictor of arrhythmic recurrence on multivariable analysis [hazard ratio (HR) 0.41, 95% confidence interval (CI) 0.18-0.92; $P = 0.03$].

Conclusion

Patients with IVF and persistently normal ECGs frequently have arrhythmic recurrences, but a good prognosis when treated with an ICD. Children are a category of IVF patients at higher risk of arrhythmic recurrences.

Autori: Conte G,Belhassen B,Lambiase P,Ciconte G,de Asmundis C,Arbelo E,Schaer B,Frontera A,Burri H,Calò L,Letsas KP,Leyva F,Porter B,Saenen J,Zacà V,Berne P,Ammann P,Zardini M,Luani B,Rordorf R,Sarquella Brugada G,Medeiros-Domingo A,Geller JC,et al. | **Nome della pubblicazione**: Europace | **Volume, numero, pagine**: 2019;21(11):1670-1677 | **Editore**: Oxford University Press

[2019] **Rendered OCT Imaging of an Impressive Stent Malapposition in the Left Main Coronary Artery**

Riferimento: Merella P, et al. Rendered OCT Imaging of an Impressive Stent Malapposition in the Left Main Coronary Artery. J Invasive Cardiol. 2019;31(9):E280-E281.

PMID: 31478900.

A 70-year-old woman was electively admitted to complete revascularization on residual stenosis of the right coronary artery. One month prior, she was hospitalized for non-ST segment elevation myocardial infarction and underwent percutaneous coronary intervention with rotational atherectomy and drug-eluting stent implantation on a very calcific stenosis at the axis of an unprotected left main (LM)/left anterior descending (LAD). A good angiographic result was achieved (Figure 1); intravascular imaging was not performed.

After discharge, the patient was well, except for some episodes of chest pain the night before the current admission. On the scheduled day, elective coronary angiography showed a subacute stent thrombosis at the distal LM; optical coherence tomography (OCT) confirmed a large red thrombus as well as impressive proximal stent malapposition (Figure 2). Postdilation with a 4.0 mm non-compliant balloon was performed according to proximal optimization technique. A good angiographic result was achieved, with OCT showing complete stent apposition (Figure 2). Follow-up was uneventful.

Our case emphasizes the need to use intravascular imaging to optimize stent implantation in the LM. Despite recommendations, intravascular imaging is still widely under-utilized. The recently developed stent apposition OCT software (Optis Stent Optimization; Abbott Vascular) confirmed its usefulness in optimizing stent implantation in an unprotected LM.

Key words: cardiac imaging, intravascular imaging, unprotected left main coronary artery

Autori: Merella P, Lorenzoni G, Viola G, Berne P, Casu G | **Nome della pubblicazione**: Journal of Invasive Cardiology | **Volume, numero, pagine**: 2019;31(9):E280-E281 | **Editore**: HMP Global

[2019] **QRS Variations During Arrhythmias: Mechanisms and Substrates. Toward a Precision Electrocardiology**

Riferimento: Bagliani G, et al. QRS Variations During Arrhythmias: Mechanisms and Substrates. Toward a Precision Electrocardiology. Card Electrophysiol Clin. 2019;11(2): 315-331. PMID: 31084853.

Abstract

Electrocardiogram (ECG) analysis trying to understand the mechanisms of QRS widening is often problematic. During WCTs, identification of P waves and atrioventricular relationship is often difficult and increasingly so if the number of recording leads available for examination is limited. For this reason, it is necessary to use every information available in an ECG tracing. The goal of this article is to focus on the reasons for QRS variations occurring during tachycardia. Correct interpretation of these data can offer the key to understand the arrhythmia mechanism.

Keywords: Cardiac arrhythmias; QRS variations; Ventricular tachycardia; Wide QRS complex.

Autori: Bagliani G, Brugada J, De Ponti R, Viola G, Berne P, Leonelli FM | **Nome della pubblicazione**: Cardiac Electrophysiology Clinics | **Volume, numero, pagine**: 2019;11(2):315-331 | **Editore**: Elsevier

[2019] **Non-valvular atrial fibrillation in high-hemorrhagic risk patients: state of the art of percutaneous left atrial appendage occlusion**

Riferimento: Merella P, et al. Non-valvular AF in high-hemorrhagic risk patients: state of the art of percutaneous LAA occlusion. J Cardiovasc Med. 2019;20(1):1-9. PMID: 30431481.

Abstract

Atrial fibrillation is the most common cardiac arrhythmia and its prevalence is constantly increasing. The main complications related to atrial fibrillation are death and major stroke. Oral anticoagulant therapy is the cornerstone of management of atrial fibrillation patients at increased stroke risk. Unfortunately, a significant proportion of patients do not receive adequate anticoagulant therapy due to increased or prohibitive hemorrhagic risk. The observation that most thrombi are generated in the left atrial appendage (LAA) had led to the consideration of surgical or percutaneous occlusion as an alternative. During recent years, the WATCHMAN percutaneous occlusion device has proven to be not inferior to anticoagulant therapy for the prevention of thromboembolic events, with the added benefit of a lower rate of hemorrhagic events. Numerous data showed the same results for the AMPLATZER cardiac plug and Amulet devices. Left atrial appendage occlusion (LAAO) often represents the only therapeutic strategy in this group of patients. We describe the current state of the art of percutaneous LAAO in atrial fibrillation patients with a high hemorrhagic risk.

Autori: Merella P, Lorenzoni G, Marziliano N, Berne P, Viola G, Pischedda P, Casu G | **Nome della pubblicazione**: Journal of Cardiovascular Medicine | **Volume, numero, pagine**: 2019;20(1):1-9 | **Editore**: Lippincott Williams & Wilkins

[2018] **Balloon-assisted tracking for challenging transfemoral percutaneous coronary intervention: a case report**

Riferimento: Merella P, et al. Balloon-assisted tracking for challenging transfemoral percutaneous coronary intervention: a case report. Eur Heart J Case Rep. 2018;2(2):yty054. PMID: 31020133.

An 81-year-old man with previous coronary artery bypass grafting was admitted to our hospital for non-ST-segment elevation myocardial infarction, and he was transferred to the cathlab to perform urgent coronary catheterization. Radial access was not considered because of unknown grafts number and anatomy. After a straightforward 6 Fr femoral artery access, it was not possible to advance the 0.03500 J wire in the descending aorta. Even attempts with 0.03500 hydrophilic TerumoVR RadifocusVR Guidewire M were ineffective, and the angiography showed a severe stenosis of the ipsilateral iliac artery (Figure 1A). After several efforts, we advanced a 0.01400 TerumoVR RunthroughVR NS floppy coronary wire beyond the stenosis but gentle attempts to advance the diagnostic catheter failed. After positioning the floppy guide wire in the descending aorta, a 1.5 20 mm balloon was inflated at 8 atm partially out from the tip of the diagnostic catheter. Then, the diagnostic catheter was advanced beyond the stenosis (balloon-assisted tracking technique1 ; Figure 1B, Supplementary material online, Video S1). After that, percutaneous coronary intervention was performed on degenerate venous free graft for left coronary circumflex artery (Figure 2). Finally, aortography confirmed an abdominal aortic aneurism with a tight stenosis of proximal right iliac artery (Figure 1C, Supplementary material online, Video S2). The balloon-assisted tracking (BAT) technique was developed to overcome difficulties of transradial access, where arterial spasm and tortuosity may play a major role, rather than tight focal atherosclerotic disease. The application of BAT technique in the femoral setting could be a useful technique to increase support of the 0.014-inch wire allowing a safer catheter advancement, so minimizing risk of vascular damage and reducing the need of an alternative arterial access. Its use should be limited to extreme conditions, when a more supportive guide cannot be positioned beyond a stenotic or tortuous arterial segment. To our knowledge, this is the first report of useful BAT in districts others than arteries of the arm.

Autori: Merella P, Lorenzoni G, Viola G, Marziliano N, Berne P, Meloni I, Casu G | **Nome della pubblicazione**: European Heart Journal – Case Reports | **Volume, numero, pagine**: 2018;2(2):yty054 | **Editore**: Oxford University Press

[2018]

Integration of "Omics" Strategies for Biomarkers Discovery and for the Elucidation of Molecular Mechanisms Underlying Brugada Syndrome

Riferimento: Scumaci D, et al. Integration of "Omics" Strategies for Biomarkers Discovery Underlying Brugada Syndrome. Proteomics Clin Appl. 2018. doi: 10.1002/prca.201800065.

Abstract

Purpose

The Brugada syndrome (BrS) is a severe inherited cardiac disorder. Given the high genetic and phenotypic heterogeneity of this disease, three different “omics” approaches are integrated in a synergic way to elucidate the molecular mechanisms underlying the pathophysiology of BrS as well as for identifying reliable diagnostic/prognostic markers.

Experimental design

The profiling of plasma Proteome and MiRNome is perfomed in a cohort of Brugada patients that were preliminary subjected to genomic analysis to assess a peculiar gene mutation profile.

Results

The integrated analysis of “omics” data unveiled a cooperative activity of mutated genes, deregulated miRNAs and proteins in orchestrating transcriptional and post-translational events that are critical determining factors for the development of the Brugada pattern.

Conclusions and clinical relevance

This study provides the basis to shed light on the specific molecular fingerprints underlying BrS development and to gain further insights on the pathogenesis of this life-threatening cardiac disease.

Autori: Scumaci D, Oliva A, Concolino A, Curcio A, Fiumara CV, Tammè L, Campuzano O, Pascali VL, Coll M, Iglesias A, Berne P, Casu G, Olivo E, Ausania F, Ricci P, Indolfi C, Brugada J, Brugada R, Cuda G | **Nome della pubblicazione**: Proteomics – Clinical Applications | **Volume, numero, pagine**: 2018;12(6):e1800065 | **Editore**: Wiley

[2018]

Spontaneous Retrograde Embolization From an Infarct-Related Artery to a Bystander Nonculprit Artery

Riferimento: Merella P, et al. Spontaneous Retrograde Embolization From an Infarct-Related Artery to a Bystander Nonculprit Artery. JACC Cardiovasc Interv. 2018;11(9):e69-e71. PMID: 29501543.

A 66-year-old woman was rescued by emergency medical service for acute posteroinferior myocardial infarction (Figure 1A). At the hospital, the patient was asymptomatic with regression of ST-segment elevations (Figure 1B); an echocardiogram showed hypokinesia of the lateral wall of the left ventricle with normal ejection fraction (55%). The coronary angiography showed subocclusion of the proximal left circumflex coronary (LCx) artery (Figure 2A) and a large thrombus in mid-left anterior descending (LAD) coronary artery (Figure 2B, Online Video 1). The culprit lesion on the LCx was treated with coronary angioplasty with drug-eluting stent implantation (Figure 2C). After that, optical coherence tomography confirmed a large thrombotic formation in the mid-LAD with involvement of the diagonal branch (Figure 2D, Online Video 2). Images were compatible with a red thrombus without appearance of plaque erosion or ulceration. The thrombus formation was interpreted as a retrograde embolus from the LCx to LAD.

After ineffective attempts of thromboaspiration, we chose a medical therapy strategy. The patient remained asymptomatic and was discharged at home 5 days after.

Spontaneous reperfusion in the setting of ST-segment elevation acute coronary syndrome is reported in up to 30% of patients (1). Distal embolization is frequently signaled (2). Various reports demonstrate that thrombus may embolize causing coronary occlusion downstream in the dependent vascular territory.

Although retrograde embolization during coronary angioplasty is a well-known complication, this is the first demonstration to our knowledge of retrograde embolization from an infarct-related artery to a bystander “nonculprit” artery.

Although in this anecdotal case, the retrograde embolization led to spontaneous reperfusion, in other cases, it might have more dramatic consequences.

Autori: Merella P, Lorenzoni G, Marziliano N, Viola G, Berne P, Motta G, Casu G | **Nome della pubblicazione**: JACC: Cardiovascular Interventions | **Volume, numero, pagine**: 2018;11(9):e69-e71 | **Editore**: Elsevier

[2017] **Changing place, changing future: Repositioning a subcutaneous ICD can resolve inappropriate shocks secondary to myopotential oversensing**

Riferimento: Berne P, et al. Repositioning a subcutaneous ICD can resolve inappropriate shocks secondary to myopotential oversensing. HeartRhythm Case Rep. 2017;3(10):475-478. PMID: 29062701.
Autori: Berne P, Viola G, Motta G, Marziliano N, Carboni V, Casu G | **Nome della pubblicazione**: HeartRhythm Case Reports | **Volume, numero, pagine**: 2017;3(10):475-478 | **Editore**: Elsevier

[2017] **Patients With Brugada Syndrome and Implanted Cardioverter-Defibrillators: Long-Term Follow-Up**

Riferimento: Hernandez-Ojeda J, et al. Patients With Brugada Syndrome and Implanted Cardioverter-Defibrillators: Long-Term Follow-Up. J Am Coll Cardiol. 2017;70(16):1991-2002. PMID: 29025556.

Abstract

Background:

Implantable cardioverter-defibrillator (ICD) indications for primary prevention in Brugada syndrome (BrS) are still debated.

Objectives:

The authors investigated the long-term outcome after ICD implantation in a large cohort of BrS patients.

Methods:

Of a total of 370 patients with BrS in follow-up (age 43 ± 14 years; 74% male), 104 patients (28.1%) were treated with ICDs. The authors analyzed the long-term incidence of shocks and complications.

Results:

An ICD was implanted for secondary prevention in 10 patients (9.6%) and for primary prevention in 94 patients (90.4%). After a follow-up of 9.3 ± 5.1 years, 21 patients (20.2%) experienced a total of 81 appropriate shocks (incidence rate 2.2 per 100 person-years). The rate of appropriate shocks was higher in secondary prevention patients ($p < 0.01$). However, 4 of the 45 asymptomatic patients (8.9%) experienced appropriate ICD therapy, all with a spontaneous type 1 electrocardiogram and inducible ventricular arrhythmias. In the multivariable analysis, type 1 electrocardiogram with syncope (hazard ratio: 4.96; 95% confidence interval: 1.87 to 13.14; $p < 0.01$) and secondary prevention indication (hazard ratio: 6.85; 95% confidence interval: 2.29 to 20.50; $p < 0.01$) were significant predictors of appropriate therapy. Nine patients (8.7%) experienced 37 inappropriate shocks (incidence rate 0.9 per 100 person-years). Twenty-one patients

(20.2%) had other ICD-related complications (incidence rate 1.4 per 100 person-years). Three patients (2.9%) died (1 electrical storm and 2 noncardiovascular deaths).

Conclusions:

ICD therapy is an effective therapy in high-risk patients with BrS. However, it is also associated with a significant risk of device-related complications. Special care during ICD implantation, adequate device programming, and regular follow-up may allow reducing the number of adverse events.

Autori: Hernandez-Ojeda J, Arbelo E, Borras R, Berne P, Tolosana JM, Gomez-Juanatey A, Berruezo A, Campuzano O, Sarquella-Brugada G, Mont L, Brugada R, Brugada J | **Nome della pubblicazione**: Journal of the American College of Cardiology | **Volume, numero, pagine**: 2017;70(16):1991-2002 | **Editore**: Elsevier

[2016] **Long-Term Trends in Newly Diagnosed Brugada Syndrome: Implications for Risk Stratification**

Riferimento: Autori: Casado-Arroyo R, Berne P, Rao JY, Rodriguez-Mañero M, Levinstein M, Conte G, Sieira J, Namdar M, Ricciardi D, Chierchia GB, de Asmundis C, Pappaert G, La Meir M,

Abstract

Background:

A proband of Brugada syndrome (BrS) is the first patient diagnosed in a family. There are no data regarding this specific, high-risk population.

Objectives:

This study sought to investigate the Brugada probands diagnosed from 1986 through the next 28 years.

Methods:

We included 447 probands belonging to families with a diagnostic type 1 electrocardiogram Brugada pattern. The database was divided into 2 periods: the first period identified patients who were part of the initial cohort that became the consensus document on BrS in 2002 (early group); the second period reflected patients first diagnosed from 2003 to January 2014 (latter group).

Results:

There were 165 probands in the early group and 282 in the latter group. Aborted sudden death as the first manifestation of the disease occurred in 12.1% of the early group versus 4.6% of the latter group ($p = 0.005$). Inducibility during programmed electrical stimulation was achieved in 34.4% and 19.2% of patients, respectively ($p < 0.001$). A spontaneous type 1 electrocardiogram pattern at diagnosis was present in 50.3% early versus 26.2% latter patients ($p = 0.0002$). Early group patients had a higher probability of a recurrent arrhythmia during follow-up (19%) than those of the latter group (5%) ($p = 0.007$). The clinical suspicion and use of a sodium-channel blocker to unmask BrS has allowed earlier diagnoses in many patients.

Conclusions:

Since being first described, the presentation of BrS has changed. There has been a decrease in aborted sudden cardiac death as the first manifestation of the disease among patients who were more recently diagnosed. These variations in initial presentation have important clinical consequences. In this setting, the value of inducibility to stratify individuals with BrS has changed.

Autori: Casado-Arroyo R, Berne P, Rao JY, Rodriguez-Mañero M, Levinstein M, Conte G, Sieira J, Namdar M, Ricciardi D, Chierchia GB, de Asmundis C, Pappaert G, La Meir M, Wellens F, Brugada J, Brugada P | **Nome della pubblicazione**: Journal of the American

College of Cardiology | **Volume, numero, pagine**: 2016;68(6):614-623 | **Editore**: Elsevier

[2016] **Spatio-temporal Characteristics of QRS Complexes Enable the Diagnosis of Brugada Syndrome Regardless of the Appearance of a Type 1 ECG**

Riferimento: Guillem MS, et al. Spatiotemporal Characteristics of QRS Complexes Enable the Diagnosis of Brugada Syndrome. J Cardiovasc Electrophysiol. 2016;27(5):563-570. PMID: 26799774.

Abstract

Introduction

The diagnosis of Brugada syndrome based on the ECG is hampered by the dynamic nature of its ECG manifestations. Brugada syndrome patients are only 25% likely to present a type 1 ECG. The objective of this study is to provide an ECG diagnostic criterion for Brugada syndrome patients that can be applied consistently even in the absence of a type 1 ECG.

Methods and Results

We recorded 67-lead body surface potential maps from 94 Brugada syndrome patients and 82 controls (including right bundle branch block patients and healthy individuals). The spatial propagation direction during the last r' wave and the slope at the end of the QRS complex were measured and compared between patients groups. Receiver-operating characteristic curves were constructed for half of the database to identify optimal cutoff values; sensitivity and specificity for these cutoff values were measured in the other half of the database. A spontaneous type 1 ECG was present in only 30% of BrS patients. An orientation in the sagittal plane < 101º during the last r' wave and a descending slope < 9.65 mV/s enables the diagnosis of the syndrome with a sensitivity of 69% and a specificity of 97% in non-type 1 Brugada syndrome patients.

Conclusion

Spatiotemporal characteristics of surface ECG recordings can enable a robust identification of BrS even without the presence of a type 1 ECG.

Autori: Guillem MS, Climent AM, Millet J, Berne P, Ramos R, Brugada J, Brugada R | **Nome della pubblicazione**: Journal of Cardiovascular Electrophysiology | **Volume, numero, pagine**: 2016;27(5):563-570 | **Editore**: Wiley

[2015] **Comprehensive Genetic Characterization of a Spanish Brugada Syndrome Cohort**

Riferimento: Selga E, et al. Comprehensive Genetic Characterization of a Spanish Brugada Syndrome Cohort. PLoS One. 2015;10(7):e0132888. PMID: 26173111.

Abstract

Background

Brugada syndrome (BrS) is a rare genetic cardiac arrhythmia that can lead to sudden cardiac death in patients with a structurally normal heart. Genetic variations in *SCN5A* can be identified in approximately 20-25% of BrS cases. The aim of our work was to determine the spectrum and prevalence of genetic variations in a Spanish cohort diagnosed with BrS.

Methodology/Principal Findings

We directly sequenced fourteen genes reported to be associated with BrS in 55 unrelated patients clinically diagnosed. Our genetic screening allowed the identification of 61 genetic variants. Of them, 20 potentially pathogenic variations were found in 18 of the 55 patients (32.7% of the patients, 83.3% males). Nineteen of them were located in *SCN5A*, and had either been previously reported as pathogenic variations or had a potentially

pathogenic effect. Regarding the sequencing of the minority genes, we discovered a potentially pathogenic variation in *SCN2B* that was described to alter sodium current, and one nonsense variant of unknown significance in *RANGRF*. In addition, we also identified 40 single nucleotide variations which were either synonymous variants (four of them had not been reported yet) or common genetic variants. We next performed MLPA analysis of *SCN5A* for the 37 patients without an identified genetic variation, and no major rearrangements were detected. Additionally, we show that being at the 30-50 years range or exhibiting symptoms are factors for an increased potentially pathogenic variation discovery yield.

Conclusions

In summary, the present study is the first comprehensive genetic evaluation of 14 BrS-susceptibility genes and MLPA of *SCN5A* in a Spanish BrS cohort. The mean pathogenic variation discovery yield is higher than that described for other European BrS cohorts (32.7% vs 20-25%, respectively), and is even higher for patients in the 30-50 years age range.

Figures

Autori: Selga E, Campuzano O, Pinsach-Abuin ML, Pérez-Serra A, Mademont-Soler I, Rió H, Picó F, Coll M, Iglesias A, Pangas S, Sarquella-Brugada G, Berne P, Benito B, Brugada J, et al. | **Nome della pubblicazione**: PLoS One | **Volume, numero, pagine**: 2015;10(7):e0132888 | **Editore**: PLOS

[2015] **Clinical and molecular characterization of a cardiac ryanodine receptor founder mutation causing catecholaminergic polymorphic ventricular tachycardia**

Riferimento: Wangüemert F, et al. Clinical and molecular characterization of a cardiac ryanodine receptor founder mutation causing CPVT. Heart Rhythm. 2015;12(7):1636-1643. PMID: 25814417.

Abstract

Background

Catecholaminergic polymorphic ventricular tachycardia (CPVT) is a difficult-to-diagnose cause of sudden cardiac death (SCD). We identified a family of 1400 individuals with multiple cases of CPVT, including 36 SCDs during youth.

Objectives

We sought to identify the genetic cause of CPVT in this family, to preventively treat and clinically characterize the mutation-positive individuals, and to functionally characterize the pathogenic mechanisms of the mutation.

Methods

Genetic testing was performed for 1404 relatives. Mutation-positive individuals were preventively treated with β-blockers and clinically characterized with a serial exercise treadmill test (ETT) and Holter monitoring. In vitro functional studies included caffeine sensitivity and store overload-induced calcium release activity of the mutant channel in HEK293 cells.

Results

We identified the p.G357S_RyR2 mutation, in the cardiac ryanodine receptor, in 179 family members and in 6 SCD cases. No SCD was observed among treated mutation-positive individuals over a median follow-up of 37 months; however, 3 relatives who had refused genetic testing (confirmed mutation-positive individuals) experienced SCD. Holter monitoring did not provide relevant information for CPVT diagnosis. One single ETT was unable to detect complex cardiac arrhythmias in 72% of mutation-positive individuals, though the serial ETT improved the accuracy. Functional studies showed that the G357S

mutation increased caffeine sensitivity and store overload-induced calcium release activity under conditions that mimic catecholaminergic stress.

Conclusion

Our study supports the use of genetic testing to identify individuals at risk of SCD to undertake prophylactic interventions. We also show that the pathogenic mechanisms of p.G357S_RyR2 appear to depend on β-adrenergic stimulation.

Autori: Wangüemert F, Bosch Calero C, Pérez C, Campuzano O, Beltran-Alvarez P, Scornik FS, Iglesias A, Berne P, Allegue C, Ruiz-Hernandez PM, Brugada J, Pérez GJ, Brugada R | **Nome della pubblicazione**: Heart Rhythm | **Volume, numero, pagine**: 2015;12(7):1636-1643 | **Editore**: Elsevier

[2015] **A novel mutation in lamin a/c causing familial dilated cardiomyopathy associated with sudden cardiac death**

Riferimento: Perez-Serra A, et al. A novel mutation in lamin a/c causing familial dilated cardiomyopathy associated with sudden cardiac death. J Card Fail. 2015;21(3):217-225. PMID: 25498755.

Abstract

Background

Dilated cardiomyopathy (DCM), a cardiac heterogeneous pathology characterized by left ventricular or biventricular dilatation, is a leading cause of heart failure and heart transplantation. The genetic origin of DCM remains unknown in most cases, but >50 genes have been associated with DCM. We sought to identify the genetic implication and perform a genetic analysis in a Spanish family affected by DCM and sudden cardiac death.

Methods and Results

Clinical assessment and genetic screening were performed in the index case as well as family members. Of all relatives clinically assessed, nine patients showed clinical symptoms related to the pathology. Genetic screening identified 20 family members who carried a novel mutation in *LMNA* (c.871 G>A, p.E291K). Family segregation analysis indicated that all clinically affected patients carried this novel mutation. Clinical assessment of genetic carriers showed that electrical dysfunction was present previous to mechanical and structural abnormalities.

Conclusions

Our results report a novel pathogenic mutation associated with DCM, supporting the benefits of comprehensive genetic studies of families affected by this pathology.

Key Words: Dilated cardiomyopathy; lamin A/C; novel mutation; sudden cardiac death

Autori: Perez-Serra A, Toro R, Campuzano O, Sarquella-Brugada G, Berne P, Iglesias A, Mangas A, Brugada J, Brugada R | **Nome della pubblicazione**: Journal of Cardiac Failure | **Volume, numero, pagine**: 2015;21(3):217-225 | **Editore**: Elsevier

[2015] **Genetic analysis, in silico prediction, and family segregation in long QT syndrome**

Riferimento: Riuró H, et al. Genetic analysis, in silico prediction, and family segregation in long QT syndrome. Eur J Hum Genet. 2015;23(1):79-85. PMID: 24667783.

Abstract

The heritable cardiovascular disorder long QT syndrome (LQTS), characterized by prolongation of the QT interval on electrocardiogram, carries a high risk of sudden cardiac death. We sought to add new data to the existing knowledge of genetic mutations contributing to LQTS to both expand our understanding of its genetic basis and assess the value of genetic testing in clinical decision-making. Direct sequencing of the five major contributing genes, *KCNQ1*, *KCNH2*, *SCN5A*, *KCNE1*, and *KCNE2*, was performed in a cohort

of 115 non-related LQTS patients. Pathogenicity of the variants was analyzed using family segregation, allele frequency from public databases, conservation analysis, and Condel and Provean *in silico* predictors. Phenotype-genotype correlations were analyzed statistically. Sequencing identified 36 previously described and 18 novel mutations. In 51.3% of the index cases, mutations were found, mostly in *KCNQ1*, *KCNH2*, and *SCN5A*; 5.2% of cases had multiple mutations. Pathogenicity analysis revealed 39 mutations as likely pathogenic, 12 as VUS, and 3 as non-pathogenic. Clinical analysis revealed that 75.6% of patients with QTc≥500 ms were genetically confirmed. Our results support the use of genetic testing of *KCNQ1*, *KCNH2*, and *SCN5A* as part of the diagnosis of LQTS and to help identify relatives at risk of SCD. Further, the genetic tools appear more valuable as disease severity increases. However, the identification of genetic variations in the clinical investigation of single patients using bioinformatic tools can produce erroneous conclusions regarding pathogenicity. Therefore segregation studies are key to determining causality.

Autori: Riuró H, Campuzano O, Berne P, Arbelo E, Iglesias A, Perez-Serra A, Coll-Vidal M, Partemi S, Mademont-Soler I, Picó F, Allegue C, Oliva A, Gerstenfeld E, Sarquella-Brugada G, et al. | **Nome della pubblicazione**: European Journal of Human Genetics | **Volume, numero, pagine**: 2015;23(1):79-85 | **Editore**: Springer Nature

[2014] **Stop-gain mutations in PKP2 are associated with a later age of onset of arrhythmogenic right ventricular cardiomyopathy**

Riferimento: Alcalde M, et al. Stop-gain mutations in PKP2 are associated with a later age of onset of ARVC. PLoS One. 2014;9(6):e100560. PMID: 24967631.

Abstract

Background

Arrhythmogenic right ventricular cardiomyopathy (ARVC) is a cardiac disease characterized by the presence of fibrofatty replacement of the right ventricular myocardium, which may cause ventricular arrhythmias and sudden cardiac death. Pathogenic mutations in several genes encoding mainly desmosomal proteins have been reported. Our aim is to perform genotype-phenotype correlations to establish the diagnostic value of genetics and to assess the role of mutation type in age-related penetrance in ARVC.

Methods and Results

Thirty unrelated Spanish patients underwent a complete clinical evaluation. They all were screened for *PKP2, DSG2, DSC2, DSP, JUP* and *TMEM43* genes. A total of 70 relatives of four families were also studied. The 30 patients fulfilled definite disease diagnostic criteria. Genetic analysis revealed a pathogenic mutation in 19 patients (13 in *PKP2*, 3 in *DSG2*, 2 in *DSP*, and 1 in *DSC2)*. Nine of these mutations created a truncated protein due to the generation of a stop codon. Familial assessment revealed 28 genetic carriers among family members. Stop-gain mutations were associated to a later age of onset of ARVC, without differences in the severity of the pathology.

Conclusions

Familial genetic analysis helps to identify the cause responsible for the pathology. In discrepancy with previous studies, the presence of a truncating protein does not confer a worse severity. This information could suggest that truncating proteins may be compensated by the normal allele and that missense mutations may act as poison peptides.

Autori: Alcalde M, Campuzano O, Berne P, García-Pavía P, Doltra A, Arbelo E, Sarquella-Brugada G, Iglesias A, Alonso-Pulpon L, Brugada J, Brugada R | **Nome della pubblicazione**: PLoS One | **Volume, numero, pagine**: 2014;9(6):e100560 | **Editore**: PLOS

[2014] **Use of therapeutic hypothermia and extracorporeal life support after an unusual response to the ajmaline challenge in a patient with Brugada syndrome**

Riferimento: Moreno J, et al. Therapeutic hypothermia and ECLS after unusual response to the ajmaline challenge in Brugada syndrome. J Cardiol Cases. 2014. doi: 10.1016/j.jccase.2014.04.002.

Abstract

Background

Brugada syndrome is a cardiac disorder associated with a high risk of sudden cardiac death, especially in young subjects. The incidence and prevalence are likely underestimated. The diagnosis is based on a characteristic electrocardiography (ECG) pattern. The most commonly performed confirmatory test in cases of equivocal ECG is the intravenous ajmaline challenge. Although relatively safe, it carries the risk of ventricular arrhythmias that could potentially degenerate into a refractory electrical storm.

Case report

A 27-year-old man developed sustained ventricular fibrillation after ajmaline challenge. He was rescued on extracorporeal life support after 108min of cardiopulmonary resuscitation. Extracorporeal life support allowed recovery of spontaneous circulation and resulted in a positive neurological outcome.

Learning objective: This case is an example of how extracorporeal life support was instituted after prolonged and unsuccessful cardiopulmonary resuscitation resulting in a positive central neurological outcome.

Keywords: Brugada syndrome. Ajmaline. Refractory cardiac arrest. Extracorporeal life support. Mild therapeutic hypothermia.

Autori: Moreno J, Magaldi M, Fontanals J, Gómez L, Berne P, Berruezo A, Brugada J | **Nome della pubblicazione**: Journal of Cardiology Cases | **Volume, numero, pagine**: 2014, 2014; 10, 34-38 | **Editore**: Elsevier

[2014] **Sinus rhythm detection of conducting channels and ventricular tachycardia isthmus in arrhythmogenic right ventricular cardiomyopathy**

Riferimento: Fernández-Armenta J, et al. Sinus rhythm detection of conducting channels and VT isthmus in ARVC. Heart Rhythm. 2014;11(5):747-754. PMID: 24561159.

Abstract

Background

The identification of conducting channels (CCs) based on its relative high voltage or the presence of electrograms with delayed components has been proposed for substrate-guided scar-related ventricular tachycardia (VT) ablation. The relationship of these channels with the VT isthmuses remains unclear.

Objective

To assess the link between CCs identified during sinus rhythm (SR) and VT isthmuses in patients with arrhythmogenic right ventricular cardiomyopathy (ARVC).

Methods

Twenty-two consecutive patients with ARVC undergoing substrate-guided VT ablation (scar dechanneling technique) were analyzed. High-density endocardial and epicardial electroanatomic maps were obtained during SR. Standard bipolar cutoff values (0.5-1.5 and <0.5 mV) were used to define border zone and dense scar. The CCs were identified by voltage threshold adjustment (voltage channels) or by tagging the electrograms with delayed components that are sequentially activated (late potential channels).

Results

A total of 87 CCs were identified; 65 (74.7%) of them on the epicardial surface. Twenty-four (27.6%) CCs were voltage channels, and compared with late potential CCs, these had a higher bipolar voltage (0.96 [0.48-1.29] mV vs 0.39 [0.26-0.50] mV; $P < .001$] and required more radiofrequency applications (5 [4-7] vs 3 [2-5]; $P = .048$]. Eighteen (90%) of 20 identified VT isthmuses were located on the epicardium. Only 8 (40%) VT isthmuses were related to a voltage CC. The remaining 12 (60%) VT isthmuses were linked to a late potential CC.

Conclusion

Late potential CCs more frequently act as the VT substrate in ARVC and therefore should also be considered to guide SR substrate-guided ablation.

Autori: Fernández-Armenta J, Andreu D, Penela D, Trucco E, Cipolletta L, Arbelo E, Berne P, Tolosana JM, Pedrote A, Brugada J, Mont L, Berruezo A | **Nome della pubblicazione**: Heart Rhythm | **Volume, numero, pagine**: 2014;11(5):747-754 | **Editore**: Elsevier

[2014] **Brugada syndrome and p.E61X_RANGRF**

Riferimento: Campuzano O, et al. Brugada syndrome and p.E61X_RANGRF. Cardiol J. 2014;21(2):121-127. PMID: 24142675.

Abstract

Background: Brugada syndrome is an inherited cardiac condition transmitted with an autosomal dominant pattern which can lead to sudden cardiac death from malignant ventricular arrhythmias. The *RANGRF* gene has recently been proposed to be associated with Brugada syndrome. This gene encodes the MOG1 protein, a co-factor required for the full functioning of the cardiac sodium channel Nav1.5. The nonsense p.E61X genetic variation in the *RANGRF* gene has been postulated as responsible for Brugada syndrome although no clear association has been established.

Methods: We clinically and genetically evaluated a Spanish family diagnosed with Brugada syndrome. A comprehensive genetic analysis of all genes to date responsible for Brugada syndrome was performed in the index case.

Results: The index case was clinically diagnosed with Brugada syndrome after flecainide test. We identified a nonsense variation (p.E61X) in the index case and in other five family members. All of them showed a normal electrocardiogram in basal conditions. Flecainide test unmasked a type 1 Brugada syndrome electrocardiogram only in two of the relatives.

Conclusions: We suggest that p.E61X_*RANGRF* is a rare genetic variation with an uncertain role in Brugada Syndrome. Further studies must be performed to elucidate the potential pathogenic role of p.E61X_*RANGRF* in Brugada Syndrome.

Keywords: sudden cardiac deathBrugada syndromeRANGRF genenonsense mutation

Full content:

Autori: Campuzano O, Berne P, Selga E, Allegue C, Iglesias A, Brugada J, Brugada R | **Nome della pubblicazione**: Cardiology Journal | **Volume, numero, pagine**: 2014;21(2): 121-127 | **Editore**: Via Medica

[2013] **Role of novel DSP_p.Q986X genetic variation in arrhythmogenic right ventricular cardiomyopathy**

Riferimento: Campuzano O, et al. Role of novel DSP_p.Q986X genetic variation in arrhythmogenic right ventricular cardiomyopathy. Eur J Med Genet. 2013;56(10):541-545. PMID: 23954618.

Abstract

Introduction

Arrhythmogenic right ventricular cardiomyopathy is an inherited disease characterized by a progressive myocardium fibrofatty replacement. This abnormality disrupts electrical transmission causing ventricular arrhythmias and sudden cardiac death. This genetic disease is transmitted mainly with an autosomal dominant pattern. Our aim was to identify the genetic defect responsible for the pathology in a Spanish family, and to perform its phenotype connotations.

Material and methods

A total of 15 individuals in a three-generation Spanish family were screened after the sudden cardiac death of one family member. All underwent a complete physical examination, 12-lead electrocardiogram, 2-dimensional echocardiography, magnetic resonance imaging, exercise stress test, 24-h Holter and genetic testing.

Results

Autopsy revealed the presence of biventricular arrhythmogenic dysplasia in the deceased member. Six family members showed clinical symptoms but only three of them fulfilled definite diagnostic criteria of the disease. Genetic analysis showed a novel nonsense genetic variation in nine family members. All family members with clinical symptoms carried the genetic variation.

Conclusions

Genetic testing in families affected by arrhythmogenic right ventricular cardiomyopathy helps to identify the genetic cause responsible for the disease. The incomplete penetrance and variable phenotypic expression highlight the need for comprehensive genetic analysis and further phenotype implications of genetics to clarify the pathophysiology of the disease.

Keywords

Arrhythmogenic right ventricular cardiomyopathy; Desmoplakin; Genetic testing; Sudden cardiac death

Autori: Campuzano O, Alcalde M, Berne P, Zorio E, Iglesias A, Navarro Manchon J, Brugada J, Brugada R | **Nome della pubblicazione**: European Journal of Medical Genetics | **Volume, numero, pagine**: 2013;56(10):541-545 | **Editore**: Elsevier

[2013] **Genetics of arrhythmogenic right ventricular cardiomyopathy**

Riferimento: Campuzano O, et al. Genetics of arrhythmogenic right ventricular cardiomyopathy. J Med Genet. 2013;50(5):280-289. PMID: 23468208.

Abstract

Arrhythmogenic right ventricular cardiomyopathy is a rare clinical entity characterised by fibro-fatty replacement of myocardium, mainly involving right ventricular free wall, leading to malignant electrical instability and sudden cardiac death. The disease is inherited in up to 50% of cases, with incomplete penetrance and variable phenotypic expression. To date, more than 300 pathogenic mutations have been identified in 12 genes, mainly with autosomal dominant inheritance. Here, we focus on recent advances in the genetics of arrhythmogenic right ventricular cardiomyopathy. Despite continuous improvements, current genotype-phenotype studies have not contributed yet to establish a genetic risk stratification of the disease.

Autori: Autori: Campuzano O, Alcalde M, Allegue C, Iglesias A, García-Pavía P, Partemi S, Oliva A, Pascali VL, Berne P, Sarquella-Brugad | **Nome della pubblicazione**: Journal of Medical Genetics | **Volume, numero, pagine**: 2013;50(5):280-289 | **Editore**: BMJ Publishing Group

[2013] **Analysis of the arrhythmogenic substrate in human heart failure**

Riferimento: Partemi S, et al. Analysis of the arrhythmogenic substrate in human heart failure. Cardiovasc Pathol. 2013;22(2):133-140. PMID: 23036686.

Abstract

Background

The mechanism of sudden cardiac death in patients with heart failure (HF) is uncertain. Both electrical instability and structural remodelling could be factors that lead to fatal arrhythmias. We sought to analyse the expression of the sodium (SCN5A) and potassium (KCND3) channels as well as the fibrosis content in the ventricles of human HF and of non-diseased hearts under different post-mortem intervals.

Methods and Results

We analysed normal human hearts as controls (n=20 for the right ventricle [RV] and n=13 for the left ventricle [LV]) and human hearts from HF patients, which were obtained at the time of cardiac transplantation, as cases (n=48 for RV and n=34 for LV). Transcription of the SCN5A (probes SCN5A E4-5, E11-12, and E28) and KCND3 channels and of COLLAGEN I and III were assayed by real-time polymerase chain reaction. In addition, paraffin sections were used to analyse the percentage of collagen deposition in both cases and controls. KCND3 mRNA expression in the LV was lower in the cases than in controls (P<.001). Higher levels of SCN5A mRNA were found in the HF samples when analysed with probe SCN5A E4-5 (P<.05). SCN5A expression was lower in the controls with longer post-mortem interval (n=4) than in the controls with a shorter post-mortem interval (n=16, P<.01). KCND3 mRNA levels were also different between the two control groups (P<.05). Collagen deposition was higher in the LV tissues of the cases when compared to controls (P<.001), and it was higher in the LV from HF patients than in the RV (P<.05). Furthermore, collagen deposition was higher in the LV samples from patients with implanted cardiac defibrillator (ICD) therapy than in the LV of patients with no ICD therapy (P<.05).

Conclusions

These data indicate that ionic and structural remodelling could be pathophysiological mechanisms of cardiac arrhythmias in HF patients.

Autori: Partemi S, Batlle M, Berne P, Berruezo A, Campos B, Mont L, Rió H, Roig E, Pérez-Villa F, Ortiz J, Pascali VL, Oliva A, Brugada R, Brugada J | **Nome della pubblicazione**: Cardiovascular Pathology | **Volume, numero, pagine**: 2013;22(2):133-140 | **Editore**: Elsevier

[2012] **Genetic testing of candidate genes in arrhythmogenic right ventricular cardiomyopathy/dysplasia**

Riferimento: Campuzano O, et al. Genetic testing of candidate genes in arrhythmogenic right ventricular cardiomyopathy/dysplasia. Eur J Med Genet. 2012;55(4):225-234. PMID: 22421524.

Abstract

Arrhythmogenic right ventricular cardiomyopathy/dysplasia (ARVC/D) is a rare cardiac genetic disease characterized by the presence of structural alterations in the right ventricle which may cause ventricular arrhythmias and may induce sudden cardiac death. ARVC/D has been associated with mutations in genes encoding myocyte adhesion proteins. However, only 30%-50% of patients have mutations in these genes. Genetic testing is useful in obtaining a diagnosis, particularly in individuals who do not completely fulfill clinical criteria, thereby also enabling the undertaking of preventive strategies in family members.

The main goal of this study was to identify mutations in candidate genes associated with intercalated disks that could be potentially involved in ARVC/D pathogenesis. We analyzed a cohort of 14 Spanish unrelated patients clinically diagnosed with ARVC/D without any

genetic alteration in all previously known responsible genes. Thus, a genetic screening was performed in 7 additional potential candidate genes (ACTC1 -actin alpha cardiac muscle 1-, CDHN -cadherin 2 type 1 or N-cadherin-, CTNNA1 -catenin alpha 1-, Cx43 or GJA1 -gap junction protein alpha 1-, MVCL -Metavinculin-, MYL2 -myosin light chain 2- and MYL3 -myosin light chain 3-) by direct sequencing analysis.

Our genetic analysis did not identify any disease-causing mutation. Thirty single nucleotide polymorphisms were found, six of them novel. In conclusion, our ARVC/D Spanish cohort has not shown any mutations in the analyzed candidate genes despite their involvement in formation and maintenance of the intercalated disk.

Keywords

Sudden cardiac death; Arrhythmogenic right ventricular cardiomyopathy/dysplasia; Genetic testing

Autori: Campuzano O, Alcalde M, Berne P, Castro V, Guzzo G, Iglesias A, Alonso-Pulpon L, Garcia-Pavia P, Brugada J, Brugada R | **Nome della pubblicazione**: European Journal of Medical Genetics | **Volume, numero, pagine**: 2012;55(4):225-234 | **Editore**: Elsevier

[2012] **Brugada Syndrome 2012**

Riferimento: Berne P, Brugada J. Brugada Syndrome 2012. Circ J. 2012;76:1563-1571. PMID: 22789973. doi:10.1253/circj.cj-12-0717

Brugada syndrome (BS) is a cardiac disorder characterized by typical ECG alterations, and it is associated with a high risk for sudden cardiac death (SCD), affecting young subjects with structurally normal hearts. The prevalence of this disorder is still uncertain, presenting marked geographical differences. The syndrome has a genetic basis, and several mutations have been identified in genes encoding subunits of cardiac sodium, potassium, and calcium channels, as well as in genes involved in the trafficking or regulation of these channels. Most BS patients are asymptomatic, but those who develop symptoms present with syncope and/or SCD secondary to polymorphic ventricular tachycardia and/or ventricular fibrillation. Risk stratification is still challenging, especially in cases of asymptomatic BS patients. This is a brief review of recent advances in our understanding of the genetic and molecular bases of BS, arrhythmogenic mechanisms and clinical course, as well as an update of the tools for risk stratification and treatment of the condition. (Circ J 2012; 76: 1563-1571)

Keywords: Brugada syndrome; Channelopathies; Implantable cardioverter-defibrillator; Sudden death; Ventricular fibrillation

Autori: Berne P, Brugada J | **Nome della pubblicazione**: Circulation Journal | **Volume, numero, pagine**: 2012;76:1563-1571 | **Editore**: Japanese Circulation Society

[2011] **Characteristics of inverse-computed epicardial electrograms of Brugada syndrome patients**

Riferimento: Pedrón-Torrecilla J, et al. Characteristics of inverse-computed epicardial electrograms of Brugada syndrome patients. Conf Proc IEEE Eng Med Biol Soc. 2011;2011:235-238. PMID: 22254293

Abstract:

Brugada syndrome (BrS) causes sudden death in patients with structurally normal hearts. Manifestation of BrS in the ECG is dynamic and most patients do not show unequivocal signs of the syndrome during ECG screening. Electrograms (EGMs) of BrS patients show conduction delay and fractionation at the right ventricular outflow tract area (RVOT) and thus could be used for diagnosis, but their recording requires an invasive procedure. We have obtained 67-lead body surface potential mapping recordings (BSPM) of 6 BrS patients and 6 controls and computed their EGMs by solving the inverse problem of electrocardiography by using Tikhonov's regularization method. Inverse-computed EGMs

presented similar activation times and durations in controls and BrS patients for apex and septum. However, RVOT EGMs showed a later activation in BrS patients than in controls (58 ± 7 vs. 39 ± 5 ms, p<0.01) and EGMs were longer (122 ± 22 vs. 85 ± 8 ms, p<0.01). Inverse-computed EGMs of BrS patients showed abnormalities consistent with those observed in electrophysiological studies and could be used for a non-invasive diagnosis and characterization of Brugada syndrome.

Autori: Pedrón-Torrecilla J, Climent AM, Millet J, Berne P, Brugada J, Brugada R, Guillem MS | **Nome della pubblicazione**: Conference Proceedings IEEE Engineering in Medicine and Biology Society | **Volume, numero, pagine**: 2011;2011:235-238 | **Editore**: IEEE

[2010] **Brugada Syndrome 2010**

Riferimento: Berne P, Brugada J. Brugada Syndrome 2010. Card Electrophysiol Clin. 2010;2(4):533-549. PMID: 28770717.

The syndrome of right bundle branch block (BBB), persistent ST-segment elevation, and sudden cardiac death (from polymorphic ventricular tachycardia [PVT] or ventricular fibrillation [VF]) in the absence of structural heart disease, currently known worldwide as Brugada syndrome (BS), was first described in 1992 by Pedro and Josep Brugada. Since this first report, this rare, although potentially lethal disease affecting young and apparently healthy individuals, has attracted great interest from scientists and practitioners worldwide, resulting in a geometric increase in studies and scientific publications on the matter.

This article briefly reviews recent advances in understanding the syndrome's genetic and molecular basis, arrhythmogenic mechanisms, and clinical course, as well as updates on tools for risk stratification and treatment of the condition.

Keywords

Brugada syndrome; Channelopathies; Inherited arrhythmias; Ventricular fibrillation; Sudden cardiac death; Implantable cardioverter-defibrillator

Autori: Berne P, Brugada J | **Nome della pubblicazione**: Cardiac Electrophysiology Clinics | **Volume, numero, pagine**: 2010;2(4):533-549 | **Editore**: Elsevier

[2010] **Conduction abnormalities in the right ventricular outflow tract in Brugada syndrome detected by body surface potential mapping**

Riferimento: Guillem MS, et al. Conduction abnormalities in the RVOT in Brugada syndrome detected by body surface potential mapping. Conf Proc IEEE EMBS. 2010;2010:2537-2540. PMID: 21096440.

Abstract:

Brugada syndrome (BrS) causes sudden death in patients with structurally normal hearts. Manifestation of BrS in the ECG is dynamical and most patients do not show unequivocal signs of the syndrome during ECG screening. We have obtained 67-lead body surface potential mapping recordings of 25 patients with BrS and analyzed their spatial distribution of surface potentials during ventricular activation. Six patients presented spontaneous type I ECGs during the recording. These patients showed non-dipolarities in isopotential maps at the right ventricular outflow tract (RVOT) region during the development of terminal R waves in right precordial leads. Same finding was observed in 95% of BrS patients not presenting a type I ECG. Conduction delay in the RVOT may be a consistent finding in BrS patients that can be identified by Body Surface Potential Mapping.

Autori: Guillem MS, Climent AM, Millet J, Berne P, Ramos R, Brugada J, Brugada R | **Nome della pubblicazione**: Conference Proceedings IEEE Engineering in Medicine and Biology Society | **Volume, numero, pagine**: 2010;2010:2537-2540 | **Editore**: IEEE

[2010] **Analysis of mRNA from human heart tissue and putative applications in forensic molecular pathology**

Riferimento: Partemi S, et al. Analysis of mRNA from human heart tissue and putative applications in forensic molecular pathology. Forensic Sci Int. 2010;203(1-3):99-105. PMID: 20705404.

Abstract

The usefulness of post-mortem mRNA analysis and its potential applications in forensic casework is currently of interest, especially because of several factors affecting the quality of RNA samples that are not practically predictable. In fact, post-mortem RNA degradation is a complex process that has not been studied systematically. The purpose of this work is to establish whether RNA analysis from post-mortem heart tissue could be used as a forensic tool to investigate the cause of death, with special regard to those cases where a cardiac disease is suspected as the manner of death. We analysed heart tissue from 16 individuals with normal cardiac function, 9 with long post-mortem intervals (L-PMI) and 7 from organ donors with very short PMIs (S-PMIs). Right ventricle tissue was homogenised, and the RNA was isolated and reverse transcribed. The resulting cDNA was used in real-time PCR reactions to quantify the gene expression of beta-glucuronidase (GUSB), Nitric Oxide Synthase 3 (NOS3), Collagen 1 (COL1A1) and Collagen 3 (COL3A1). The percentage of samples with high-quality RNA was higher in samples with S-PMI (7 out of 7) than in samples with L-PMI (4 out of 9, $p < 0.05$). No differences in PMI time or cause of exitus were found between samples with degraded or non-degraded RNA in the L-PMI group. When comparing mRNA levels in samples with non-degraded RNA, we found similar values between the L-PMI and S-PMI groups for GUSB, COL1A1 and COL3A1. The NOS3 gene expression in the L-PMI subgroup was less than half that in the S-PMI. These results suggest that high-quality mRNA can be extracted from post-mortem human hearts only in some cases. Moreover, our data show that mRNA levels are independent from the PMI, even though there are mRNAs in which the expression levels are very susceptible to ischemia times. Clear knowledge about the relationship between mRNA integrity and expression and PMI could allow the use of several mRNAs as forensic tools to contribute to the determination of the cause of death with special regard to cardiovascular diseases.

Autori: Partemi S, Berne P, Batlle M, Berruezo A, Mont L, Riuró H, Ortiz JT, Roig E, Pascali VL, Brugada R, Brugada J, Oliva A | **Nome della pubblicazione**: Forensic Science International | **Volume, numero, pagine**: 2010;203(1-3):99-105 | **Editore**: Elsevier

[2009] **Preparation for pacemaker or implantable cardiac defibrillator implants in patients with high risk of thrombo-embolic events: oral anticoagulation or bridging with intravenous heparin**

Riferimento: Tolosana JM, et al. Preparation for device implants in high thrombo-embolic risk patients: oral anticoagulation or IV heparin. Eur Heart J. 2009;30:1880-1884. PMID: 19487235.

Abstract

Aims

Current guidelines recommend stopping oral anticoagulation (OAC) and starting heparin infusion before implanting/replacing a pacemaker/implantable cardioverter-defibrillator (ICD) in patients with high risk for thrombo-embolic events. The aim of this study was to demonstrate that the maintenance of OAC during device implantation/replacement is as safe as bridging to intravenous heparin and shortens in-hospital stay.

Methods and results

A cohort of 101 consecutive patients with high risk for embolic events and indication for implant/replacement of a pacemaker/ICD were randomized to two anticoagulant strategies: bridging from OAC to heparin infusion (n = 51) vs. maintenance of OAC to reach an INR = 2 ± 0.3 at the day of the procedure (n = 50). Haemorrhagic and thrombo-embolic complications were evaluated at discharge, 15 and 45 days after the procedure. A total of 4/51 patients (7.8%) from heparin group and 4/50 (8.0%) from the OAC group developed pocket haematoma following the implant (P = 1.00). One haematoma in each group required evacuation (1.9 vs. 2%, P = 1.00). No other haemorrhagic events or embolic complications developed during the follow-up. Duration of the hospital stay was longer in the heparin group [median of 5 (4–7) vs. 2 (1–4) days; P < 0.001].

Conclusion

Implant of devices maintaining OAC is as safe as bridging to heparin infusion and allows a significant reduction of in-hospital stay.

Autori: Tolosana JM, Berne P, Mont L, Heras M, Berruezo A, Monteagudo J, Tamborero D, Benito B, Brugada J | **Nome della pubblicazione**: European Heart Journal | **Volume, numero, pagine**: 2009;30:1880–1884 | **Editore**: Oxford University Press

[2008] **Gender differences in clinical manifestations of Brugada syndrome**

Riferimento: Benito B, et al. Gender differences in clinical manifestations of Brugada syndrome. J Am Coll Cardiol. 2008;52(19):1567–1573. PMID: 19007594.

Abstract

The usefulness of post-mortem mRNA analysis and its potential applications in forensic casework is currently of interest, especially because of several factors affecting the quality of RNA samples that are not practically predictable. In fact, post-mortem RNA degradation is a complex process that has not been studied systematically. The purpose of this work is to establish whether RNA analysis from post-mortem heart tissue could be used as a forensic tool to investigate the cause of death, with special regard to those cases where a cardiac disease is suspected as the manner of death. We analysed heart tissue from 16 individuals with normal cardiac function, 9 with long post-mortem intervals (L-PMI) and 7 from organ donors with very short PMIs (S-PMIs). Right ventricle tissue was homogenised, and the RNA was isolated and reverse transcribed. The resulting cDNA was used in real-time PCR reactions to quantify the gene expression of beta-glucuronidase (GUSB), Nitric Oxide Synthase 3 (NOS3), Collagen 1 (COL1A1) and Collagen 3 (COL3A1). The percentage of samples with high-quality RNA was higher in samples with S-PMI (7 out of 7) than in samples with L-PMI (4 out of 9, p < 0.05). No differences in PMI time or cause of exitus were found between samples with degraded or non-degraded RNA in the L-PMI group. When comparing mRNA levels in samples with non-degraded RNA, we found similar values between the L-PMI and S-PMI groups for GUSB, COL1A1 and COL3A1. The NOS3 gene expression in the L-PMI subgroup was less than half that in the S-PMI. These results suggest that high-quality mRNA can be extracted from post-mortem human hearts only in some cases. Moreover, our data show that mRNA levels are independent from the PMI, even though there are mRNAs in which the expression levels are very susceptible to ischemia times. Clear knowledge about the relationship between mRNA integrity and expression and PMI could allow the use of several mRNAs as forensic tools to contribute to the determination of the cause of death with special regard to cardiovascular diseases.

Autori: Benito B, Sarkozy A, Mont L, Henkens S, Berruezo A, Tamborero D, Arzamendi D, Berne P, Brugada R, Brugada P, Brugada J | **Nome della pubblicazione**: Journal of the American College of Cardiology | **Volume, numero, pagine**: 2008;52(19):1567–1573 | **Editore**: Elsevier

[2008] **Predictors of arrhythmia recurrence in patients with lone atrial fibrillation**

Riferimento: Arriagada G, et al. Predictors of arrhythmia recurrence in patients with lone atrial fibrillation. Europace. 2008;10(1):9-14. PMID: 17998251. DOI: 10.1093/europace/eum233

Abstract

Aims

The need for antiarrhythmic drugs (AAD) after a first episode of atrial fibrillation (AF) is determined by the probability of recurrence. The aim of this study was to asses the probability of relapse and the predictors of recurrence in patients with idiopathic AF.

Methods and results

A cohort of 98 consecutive patients younger than 65 years admitted at the emergency room because of an episode of symptomatic idiopathic (lone) AF was included in this study. On admission, a complete medical history was taken, and an echocardiogram and 24-h Holter monitoring were performed. Patients were seen at 3 and 6 months after the index episode. There were 35 (35.7%) patients with a new-onset AF episode and 63 (64.3%) with a recurrent AF episode. A majority of them were male (71%), with a mean age of 48±11 years. Patients with new-onset AF episodes did not receive AAD. At 6 month follow-up, 57% of all patients suffered at least one symptomatic AF relapse. Patients with AF relapses belong more often to the recurrent group vs. new-onset group of AF (65.1 vs. 34.9%, respectively, $P = 0.03$); they had larger LA diameter indexed for body surface area (BSA) (22.6±3.7 vs. 19.8±3.2 mm/m ^{2} , $P = 0.001$), larger left ventricular end-systolic diameter (18.4±3.1 vs. 17.2±2.5 mm/m ^{2} , $P = 0.05$) and a tendency towards a higher proportion of atrial tachycardia runs on Holter (66.7 vs. 50%, $P = 0.09$). Logistic regression analysis showed that the presence of previous episodes of AF (OR: 3.2; 95% CI; 1.0-8.0, $P = 0.04$) and a larger anteroposterior LA diameter (OR: 1.3; 95% CI; 1.1-1.6, $P = 0.001$) were independent predictors of AF recurrences at 6 months.

Conclusions

The recurrence rate in lone AF patients is high. The presence of previous episodes and a mildly enlarged anteroposterior LA diameter increase the probability of relapse of lone AF.

Autori: Arriagada G, Berruezo A, Mont L, Tamborero D, Molina I, Coll-Vinent B, Vidal B, Sitges M, Berne P, Brugada J | **Nome della pubblicazione**: Europace | **Volume, numero, pagine**: 2008;10(1):9-14 | **Editore**: Oxford University Press

[2007] **Low exposure radiation with conventional guided radiofrequency catheter ablation in pregnant women**

Riferimento: Berruezo A, et al. Low exposure radiation with conventional guided radiofrequency catheter ablation in pregnant women. Pacing Clin Electrophysiol. 2007;30(10):1299-1302. PMID: 17897139. DOI: 10.1111/j.1540-8159.2007.00858.x

Abstract

Cardiac arrhythmias in pregnant women are a common entity and often drug-refractory. The major concern about using radiofrequency (RF) catheter ablation guided by fluoroscopy to treat arrhythmias during pregnancy is the potential consequences of exposing the fetus to radiation. We present two pregnant patients with incessant and life-threatening supraventricular tachycardias successfully treated by conventional RF ablation under strict radioactive dosimeter surveillance. The availability of better fluoroscopy and lead shielding techniques allows to perform RF ablation of drug-refractory and poorly tolerated supraventricular arrhythmias at any stage of pregnancy, with an appropriate tracking of the radiation dose received by both mother and fetus.

Autori: Berruezo A, Diez GR, Berne P, Esteban M, Mont L, Brugada J | **Nome della pubblicazione**: Pacing and Clinical Electrophysiology | **Volume, numero, pagine**: 2007;30(10):1299-1302 | **Editore**: Wiley

PATENTE DI GUIDA

Automobile:	B	13/05/2017 – 17/08/2027

Autorizzo il trattamento dei miei dati personali presenti nel CV ai sensi dell'art. 13 d. lgs. 30 giugno 2003 n. 196 - "Codice in materia di protezione dei dati personali" e dell'art. 13 GDPR 679/16 - "Regolamento europeo sulla protezione dei dati personali".

Alghero, 24/06/2026