вено-артериальная ЭКМО в терапии фульминантного миокардита: клинический случай

И.В.Пономаренко, А.И.Максимов, Е.В.Шишнёва, К.А.Петлин, В.В.Затолокин, В.В.Рябов, В.А.Марков

НИИ кардиологии, Томск

S.Gupta, D.Markham, M.Drazner, P.Mammen

CME

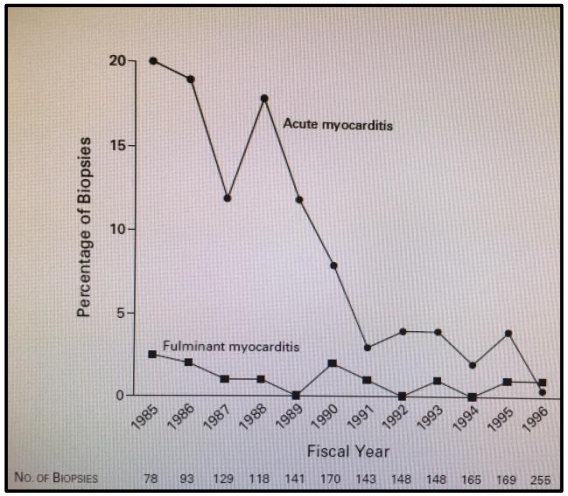
Fulminant Myocarditis:

Epidemiology

Approximately 6-10% of cases of recent-onset, dilated cardiomyopathy are secondary to myocarditis.[3-6] In addition, nearly 20% of sudden deaths among young adults and athletes are the consequence of myocarditis.[7,8] As a result of i rarity, however, the incidence and prevalence of fulminant myocarditis is not well characterized. A single-center study reported the incidence in the US to be approximately one case per year.[4] The observed prevalence was 10% among patients with biopsy-proven myocarditis and 0.9% among patients with new-onse heart failure.

< Page 2 of 11 NEXT >

Pathophysiology



[4] McCarthy RE III et al. (2000) Long-term outcome of fulminant myocarditis as compared with acute (nonfulminant) myocarditis. ***N Engl J Med 342: 690-695***

THE ANNALS OF THORACIC SURGERY

Official Journal of The Society of Thoracic Surgeons and the Southern Thoracic Surgical Association

March 2016 Volume 101, Issue 3, Pages 919–926

Venoarterial Extracorporeal Membrane Oxygenation for Acute Fulminant Myocarditis in Adult Patients: A 5-Year Multi-Institutional Experience

Roberto Lorusso, MD, PhD, Paolo Centofanti, MD, Sandro Gelsomino, MD, PhD, Fabio Barili, MD, PhD, Michele Di Mauro, MD, Parise Orlando, MS, Luca Botta, MD, Filippo Milazzo, MD, Guglielmo Actis Dato, MD, Riccardo Casabona, MD, Giovanni Casali, MD, Francesco Musumeci, MD, Michele De Bonis, MD, Alberto Zangrillo, MD, Ottavio Alfieri, MD, Carlo Pellegrini, MD, Sandro Mazzola, MD, Giuseppe Coletti, MD, Enrico Vizzardi, MD, Roberto Bianco, MD, Gino Gerosa, MD, Massimo Massetti, MD, PhD, Federica Caldaroni, MD, Emanuele Pilato, MD, Davide Pacini, MD, Roberto Di Bartolomeo, MD, Giuseppe Marinelli, MD, Sandro Sponga, MD, PhD, Ugolino Livi, MD, Rinaldi Mauro, MD, Giovanni Mariscalco, MD, PhD, Cesare Beghi, MD, Antonio Miceli, MD, PhD, Mattia Glauber, MD, Federico Pappalardo, MD, Claudio Francesco Russo, MD
on behalf of the GIROC Investigators

Table 5. Review of Published Studies That Included 6 or More Adults Patients Affected by Acute Fulminant Myocarditis and Supported by ECMO

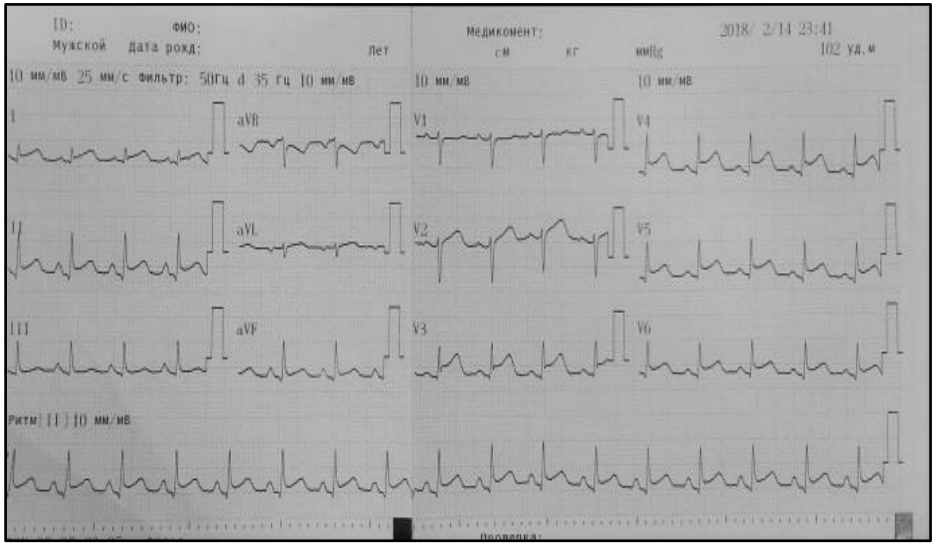
Reference	Time Span	Patients, n	ECMO Weaning, n (%)	Survival to Hospital Discharge, n (%)	Postoperative Survival, % (follow-up, years)
Kawahito et al [19]	1991–1997	6	5 (80)	5 (80)	NA
Aoyama et al [5]	1989–2000	52	42 (80.7)	31 (59.6)	NA
Chen et al [9]	1994–2001	15	14 (93)	11 (73)	NA
Asaumi et al [13]	1993–2001	6	4 (67)	4 (67)	NA
Maejima et al [14]	1991–2000	8	NA	6 (75)	100 (range, 1.4–5.9)
Sezai et al [20]	1999–2006	7	7 (100)	7 (100)	NA
Pages et al [6]	2001–2006	6	5 (83)	5 (83)	80% (1)
Thiagarajan et al [21]	1992–2007	16	NA	9 (56)	NA
Hsu et al [10]	1994–2009	51	NA	31 (61)	NA
Mirabel et al [12]	2002–2009	35	NA	24 (69)	100 (1.5)
Beurtheret et al [22]	2005–2009	14	NA	9 (65)	NA
Diddle et al [6]	1995–2014	147	101 (69)	90 (61)	NA

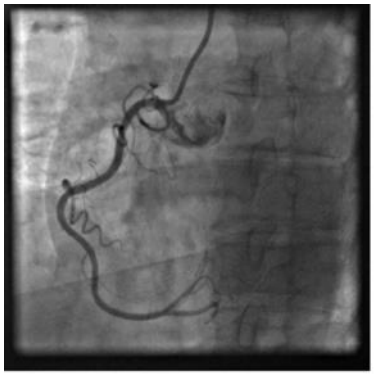
ECMO = extracorporeal membrane oxygenation; NA = not available.

patients [4, 7, 8, 12]. Acute renal failure with need of dialysis, neurologic deficits, bleeding, hemolysis, sepsis, and lower limb-related complications occur in a substantial percentage of patients. We observed major adverse events in 70% of our patients during hospitalization, taking into account that 21% of the subjects were in cardiac arrest at VA-ECMO implantation, remarkably in accordance to the extracorporeal cardio-pulmonary resuscitation rate shown in the ELSO Registry report [6]. In our series, cerebral events and acute renal failure were the most frequent complications, as again shown by

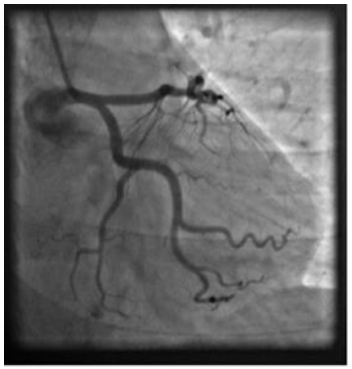
different configurations as observed in our and other's experiences [10, 12]. This variability reflects the lack of agreement or the ongoing debate about these peculiar aspects in VA-ECMO [25, 26] and underlines that further investigations in this respect would be highly advisable.

Predicting the likelihood of native cardiac recovery or dismal outcome is of paramount importance, particularly for resource allocation or for planning more definitive treatments in these patients. Our data highlighted the relevance of peripheral perfusion impairment before and its improvement after VA-ECMO application. Indeed,





ПКА



ЛКА

пациентка 40 л

14.02 ИМ? ФВ =40%

↓ *КВГ*

острый миокардит

↓ *МРТ* ~~X~~

интубация,
инотропная терапия

↓ *ухудшение*

17.02 ВАБК ФВ=36%

СИ=1,2 л/мин/м^2

↓ *ухудшение*

19.02 ЭКМО ФВ=15%

21.02 *улучшение*

начат диализ *26.02 убран ВАБ*

↓

28.02 отключение ФВ=42%

↓

29.03 выписана ФВ=51%

ЭКМО: канюляция

вены: правая наружная яремная (19 Fr)

правая бедренная (28 Fr)

артерия: левая общая бедренная (18 Fr)

+ линия для дистальной перфузии (8Fr)

+ВАБК

М. Р. БАХЧОЯН [1,2], Е. Д. КОСМАЧЕВА [1,2], А. А. СЛАВИНСКИЙ [2], А. А. СКОПЕЦ [1], Л. М. ЧУПРИНЕНКО [1], В. А. ПОРХАНОВ [1]

ФУЛЬМИНАНТНЫЙ МИОКАРДИТ В ПРАКТИКЕ ВРАЧА

[1] ГБУЗ «НИИ - ККБ№1 им. проф. С. В. Очаповского», Россия, 350086, г. Краснодар, ул. 1 мая, 167.
[2] кафедра патологической анатомии ФГБОУ ВО КубГМУ Минздрава России. Россия, 350063, г. Краснодар, ул. Седина,4. Тел. 8-952-853-99-54. E-mail: marbach1988@mail.ru

Статья посвящена особенностям диагностики и лечения фульминантного миокардита у молодой женщины. Описанный клинический случай подтверждает, что этиопатогенетическая комплексная терапия в специализированном кардиореанимационном отделении в сочетании с необходимыми диагностическими и инвазивными процедурами являются оптимальными опциями диагностики и лечения пациентов с острым миокардитом.

Ключевые слова: Миокардит, экстракорпоральная мембранная оксигенация, сердечная недостаточность.

M. R. BAKHCHOYAN [1,2], E. D. KOSMACHEVA [1,2], A. A. SLAVINSKY [2], A. A. SKOPETS [1], L. M. CHUPRINENKO [1], V. A. PORHANOV [1]

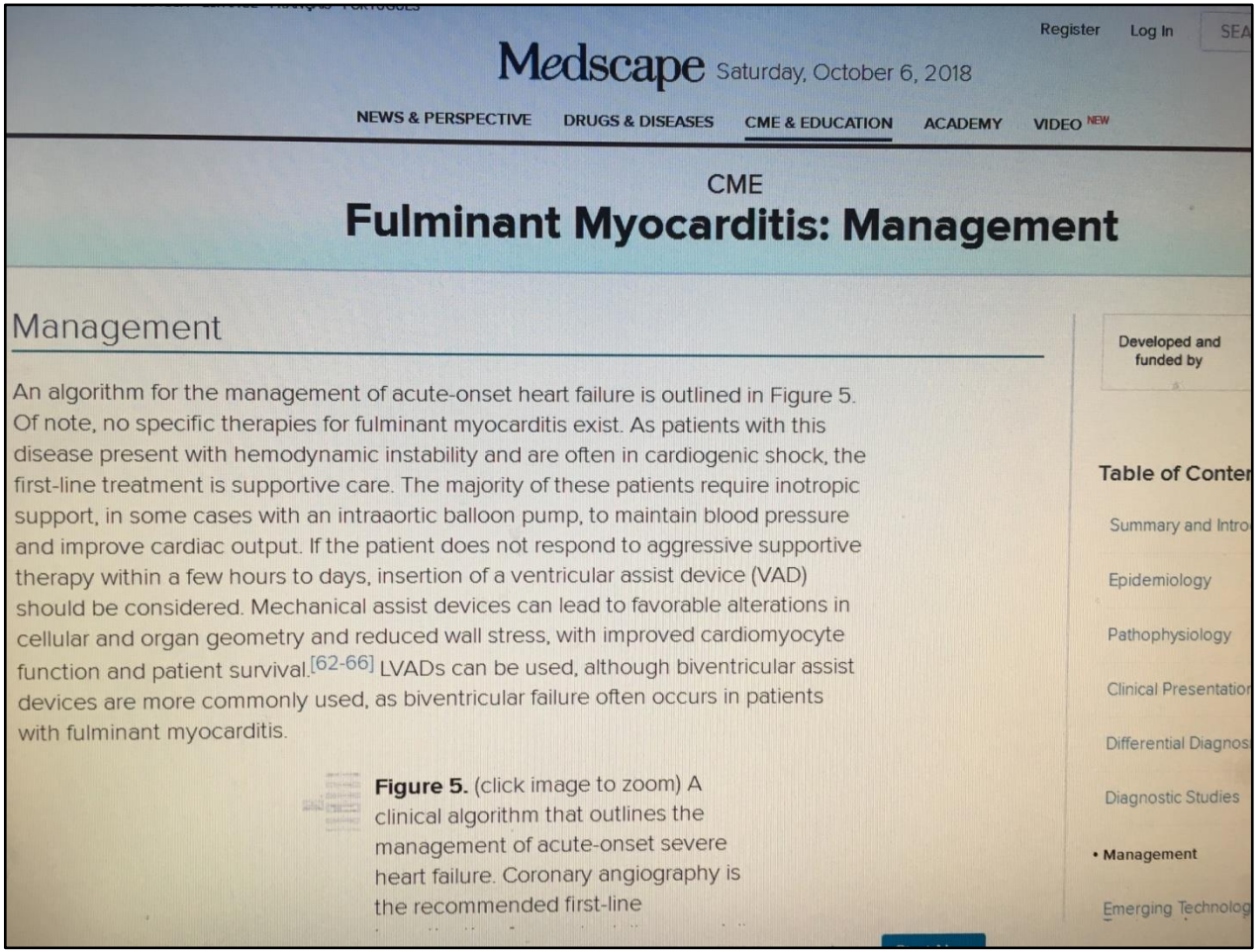
FULMINANT MYOCARDITIS IN THE DOCTOR'S PRACTICE

[1] Research Institute - Clinical Regional Hospital No1 named by prof. S.V. Ochapovsky, 167, 1 Maya str., Krasnodar, 360086, Russian Federation.
[2] Department of pathological anatomy the Kuban State Medical University Ministry of Health of Russian Federation. Sedina str.,4, Krasnodar, 360063, Russian Federation.

The article is devoted to the peculiarities of diagnosis and treatment of fulminant myocarditis in young women. This clinical case confirms that etiopathogenetic complex therapy was implemented in a specialized Cardiac Intensive Care Department in conjunction with the necessary diagnostic and invasive procedures that are the optimal options for the diagnosis and treatment of patients with acute myocarditis.

Key words: Myocarditis, extracorporeal membrane oxygenation, heart failure.

	Краснодар	Томск	Lorusso et al. n=57
возраст, л	25	40	38±12 (65% ж)
ФВ перед ЭКМО, %	13	15	-
СИ, л/мин/м^2	1,3	1,2	-
ДЗЛК	24	18	-
тропонин I, нг/мл	>50	5,8	155±181
лактат, ммоль/л	7	4,8	10,8±4,3
pH$_{арт.}$ перед ЭКМО	7,2-7,25	7,2	7,2±0,1
ОПН	+	+	+
ДН	+	+	+
биопсия эндомиокарда	+	-	25%
начало ЭКМО, сут после госпитализации	2	5	-
Дистальная перфузия a.femoralis	-	+	63%
ВАБК	-	+ (на 3 сут)	65%
продолжительность ЭКМО, сут	7	10	9,2±3,7
ФВ перед отключением ЭКМО, %	46	42	-
иммуносупрессивная терапия	+	+	18%
продолжительность госпиталтизации, сут	52	43 (+10)	?



Register Log In SEA

Medscape Saturday, October 6, 2018

NEWS & PERSPECTIVE DRUGS & DISEASES CME & EDUCATION ACADEMY VIDEO NEW

CME

Fulminant Myocarditis: Management

Management

An algorithm for the management of acute-onset heart failure is outlined in Figure 5. Of note, no specific therapies for fulminant myocarditis exist. As patients with this disease present with hemodynamic instability and are often in cardiogenic shock, the first-line treatment is supportive care. The majority of these patients require inotropic support, in some cases with an intraaortic balloon pump, to maintain blood pressure and improve cardiac output. If the patient does not respond to aggressive supportive therapy within a few hours to days, insertion of a ventricular assist device (VAD) should be considered. Mechanical assist devices can lead to favorable alterations in cellular and organ geometry and reduced wall stress, with improved cardiomyocyte function and patient survival.[62-66] LVADs can be used, although biventricular assist devices are more commonly used, as biventricular failure often occurs in patients with fulminant myocarditis.

Figure 5. (click image to zoom) A clinical algorithm that outlines the management of acute-onset severe heart failure. Coronary angiography is the recommended first-line

Developed and funded by

Table of Conter

Summary and Intro

Epidemiology

Pathophysiology

Clinical Presentatio

Differential Diagnos

Diagnostic Studies

• Management

Emerging Technolog

Data from observational studies indicate that fulminant myocarditis is distinct from nonfulminant myocarditis in that patients with fulminant myocarditis have an excellent long-term survival with supportive therapy alone;[4] this finding implies that these patients do not require immunosuppressive therapy.

заключение

в случаях кардиогенного шока, вызванного фульминантным миокардитом, ЭКМО является методом выбора и позволяет спасти от 56 до 100% пациентов