



CONSENSUS STATEMENT

Summary of the consensus document: ‘‘Clinical practice guide for the management of low cardiac output syndrome in the postoperative period of heart surgery’’^{☆,☆☆}

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Abstract Low cardiac output syndrome (LCOS) is a potential complication in cardiac surgery patients and is associated with increased morbidity and mortality. This guide provides recommendations for the management of these patients, immediately after surgery and following admission to the Intensive Care Unit (ICU). The recommendations are grouped into different sections, addressing from the most basic concepts such as definition of the disorder to the different sections of basic and advanced monitoring, and culminating with the complex management of this syndrome. We propose an algorithm for initial management, as well as two others for ventricular failure (predominantly left or right). Most of the recommendations are based on expert consensus, due to the lack of randomized trials of adequate design and sample size in patients of this kind. The quality of evidence and strength of the recommendations were based on the Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology. The guide is presented as a list of recommendations (with the level of evidence for each recommendation) for each question on the selected topic. For each question, justification of the recommendations is then provided.

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PALABRAS CLAVE

Síndrome de bajo
gasto cardiaco;
Fracaso ventricular;
Cirugía cardíaca;
Metodología GRADE

Resumen del documento de consenso «Guías de práctica clínica para el manejo del síndrome de bajo gasto cardiaco en el postoperatorio de cirugía cardíaca»

Resumen El síndrome de bajo gasto cardiaco es una potencial complicación de los pacientes intervenidos de cirugía cardíaca y asocia un aumento de la morbilidad y mortalidad. La presente guía pretende proporcionar recomendaciones para el manejo de estos pacientes, en el postoperatorio inmediato, ingresados en UCI. Las recomendaciones se han agrupado en diferentes apartados, tratando de dar respuesta desde los conceptos más básicos como es la definición a los diferentes apartados de monitorización básica y avanzada, y terminando con el complejo manejo de este síndrome. Se propone un algoritmo de manejo inicial, así como otros de fracaso ventricular predominantemente izquierdo o derecho. La mayor parte de las recomendaciones están basadas en el consenso de expertos, debido a la falta de estudios clínicos aleatorizados, de adecuado diseño y tamaño muestral en este grupo de pacientes. La calidad de la evidencia y la fuerza de las recomendaciones se realizó siguiendo la metodología GRADE. La guía se presenta como una lista de recomendaciones (y nivel de evidencia de cada recomendación) para cada pregunta del tema seleccionado. A continuación, en cada pregunta, se procede a la justificación de las recomendaciones.

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Glossary of abbreviations and terms

ACC/AHA	American College of Cardiology/American Heart Association
IABP	intraaortic counterpulsation balloon pump
PAC	pulmonary artery catheter
HS	heart surgery
ECC	extracorporeal circulation
EG	echocardiogram
ESC	European Society of Cardiology
TEE	transesophageal echocardiogram
TTE	transthoracic echocardiogram
LVEF	left ventricle ejection fraction
CO	cardiac output
GRADE	Grading of Recommendations Assessment, Development and Evaluation (working group)
PHT	pulmonary hypertension
CI	cardiac index
AHF	acute heart failure
PCI	percutaneous coronary intervention
CVP	central venous pressure
RIFLE/AKIN	Risk, Injury, Failure, Loss of kidney function, and End-stage renal failure/Acute Kidney Injury Network
LCOS	postoperative low cardiac output syndrome (in heart surgery)
CS	cardiogenic shock
SEMICYUC	<i>Sociedad Española de Medicina Intensiva, Crítica y Unidades Coronarias</i>
ALS	advanced life support
ScvO ₂	central venous oxygen saturation
SvO ₂	venous oxygen saturation
BP	blood pressure
MBP	mean blood pressure
SBP	systolic blood pressure
LCT	left common trunk
ICU	Intensive Care Unit

Concept

Low cardiac output syndrome (LCOS) in the postoperative period of heart surgery (PHS) is a potential complication in heart surgery (HS) patients. Its reported incidence varies between 3 and 45%, depending on the literature source, and the syndrome is associated to an increase in morbidity–mortality, a prolongation of stay in the Intensive Care Unit (ICU), and an increase in resource utilization.^{1–3} LCOS is a broad concept, and the literature also offers other terms or designations such as postoperative myocardial dysfunction, postoperative cardiocirculatory dysfunction, acute cardiovascular dysfunction, postsurgery heart failure, heart failure or postcardiotomy shock. The origin and form of presentation of LCOS differ from those of medical acute heart failure (AHF). Consequently, the AHF classifications of the European Society of Cardiology (ESC) and of the American College of Cardiology (ACC) are not directly applicable to the postoperative PHS.⁴

Morbidity–mortality in the postoperative phase of HS has evolved favorably in recent years. This is probably a result of improvements at all implicated healthcare levels, including surgery (surgical technique, myocardial protection, etc.), anesthesia, monitorization, and postoperative management and treatment. The sum of these improvements has encouraged surgeons to operate upon increasingly older patients and with greater comorbidity, i.e., individuals more likely to develop complications, including hemodynamic problems.

Objectives of the guide

The present guide aims to offer recommendations for the management of adult patients with LCOS in the immediate postoperative period of HS, admitted to the ICU. The recommendations are based on consensus among experts in Intensive Care Medicine with special dedication to PHS, as well as an intensivist with expertise in methodological issues. The guide is transparent in reference to the literature

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