

¹ Instituto do Coração, Hospital das Clínicas,
Universidade de São Paulo, São Paulo, SP,
Brazil.

² Santa Casa de Marília, Marília, SP, Brazil.

Same-day discharge percutaneous coronary intervention. Where are we?

Intervenção coronária percutânea com alta no mesmo dia.
Onde estamos?

Felipe Mateus Teixeira Bezerra^{1ID}, Pedro Beraldo de Andrade^{2ID},
Alexandre Antonio Cunha Abizaid^{1ID}

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ABSTRACT - With the evolution of percutaneous coronary intervention techniques and their greater safety, the use of radial access, the greater need to optimize resources in health management and the greater demand from patients for an agile service to solve their problems, the discharge on the same day after percutaneous coronary interventions have been gaining ground in the global scenario as a feasible strategy. The objective of this article was to demonstrate that there is already a scientific basis for this, which extends from the financial aspect, and the patient's experience, to the technical details related to the safety of the strategy. A structured protocol based on evidence and on the most recent recommendations from two major medical societies is also proposed. Selecting patients well, training the multidisciplinary team and educating the patient are fundamental parts for the success of the strategy.

Keywords: Percutaneous coronary intervention; Health care costs; Health management; eHealth strategies; Equipment safety; Process optimization

RESUMO - Com a evolução das técnicas de intervenção coronária percutânea e sua maior segurança, o uso do acesso radial, a maior necessidade de otimização dos recursos na gestão em saúde e a maior cobrança por parte dos pacientes por um serviço ágil para resolução de seus problemas, a alta no mesmo dia após as intervenções coronárias percutâneas vem ganhando espaço no cenário global como uma estratégia factível. O objetivo deste artigo foi demonstrar que já há base científica para o assunto, a qual se estende desde aspectos financeiros, à experiência do paciente até à questão técnica relacionada à segurança da estratégia. Propõe-se, ainda, um protocolo estruturado baseado em evidências e nas recomendações mais recentes de duas grandes sociedades médicas. Selecionar bem os pacientes, treinar a equipe multiprofissional e educar o paciente são partes fundamentais para o sucesso da estratégia.

Descritores: Intervenção coronária percutânea; Custos de cuidados de saúde; Gestão em saúde; Estratégias de saúde; Segurança de equipamentos; Otimização de processos

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Corresponding author:

Felipe Mateus Teixeira Bezerra
Avenida Dr. Enéas de Carvalho Aguiar,
n – Cerqueira César
Zip code: 05403-904 – São Paulo, SP, Brazil.
Tel.: 55 (85) 996332626
E-mail: felipemateusbezerra@gmail.com

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INTRODUCTION

The growing volume of elective percutaneous coronary interventions (PCI) in cath labs in recent years requires management measures to optimize costs and patient comfort. The transradial access approach plays a fundamental role in this aspect, as it has been shown to correlate with lower cost and faster discharge, including same-day discharge (SDD).¹⁻⁴ Much of the benefit of the access route is due to the safety of the route and its lower rate of complications, which could extend the patient's hospital stay.^{5,6} Different series globally have evaluated SDD after elective PCI.⁷⁻¹⁰ There is a natural movement of migration towards the use of this care strategy, and its adoption has been accelerated due to the recent 2019 coronavirus disease (COVID-19) pandemic.¹¹ The SDD protocol-eligible patient profile must follow certain requirements, which are described in two main guidelines.^{12,13}

The definition of SDD implies discharge within 12 hours of the procedure, with the patient not staying overnight at the health service. The body of evidence stands out

in the elective PCI setting, but experiences with unstable angina have been described as successful.¹⁴

FINANCIAL IMPACT

The financial impact of using this protocol in Brazil remains unknown, but international experiences suggest cost reductions.¹⁻⁴ The most recent meta-analysis on cost-effectiveness estimates savings of US\$ 3,567.58 (95%CI US\$ 2,303.39-US\$ 4,831.78) per PCI performed in an SDD setting. In the subgroup analysis, it was identified that the cost of hospitalization is the only one that has a statistically significant impact on cost savings.

CONDITIONS FOR IMPLEMENTING THE PROTOCOL FOR DISCHARGE ON THE SAME DAY

In planning for SDD, several authors suggest that clinical and technical aspects should be considered before performing the procedure and/or the patient's hospitalization. Different clinical studies^{3,7-10} and single-center experiences demonstrate the feasibility and safety of SDD within certain criteria, which are shared between studies. The two most recent documents from societies^{12,13} summarize these aspects, classifying them differently, but with similar content. Contraindications to SDD can be divided as shown in tables 1 and 2.

Considering these factors, planning for patient admission and discharge must be carried out, involving the entire multidisciplinary team, the clinical cardiologist and the interventional cardiologist.

Table 1. Clinical aspects not favorable for same-day discharge

Decompensated heart failure (NYHA III and IV)
Recent TIA or stroke (<8 weeks)
Left ventricular ejection fraction < 30%
Chronic kidney disease with CrCl < 45mL/min/1.73 m ²
Anemia (Hb < 9g/dL) or coagulopathy (INR > 1.5 or platelets < 100,000)
Acute coronary syndrome
Unprotected left main or three-vessel coronary artery disease
Peripheral arterial disease that renders vascular access difficult
Severe aortic stenosis
Allergy to contrast
Any sign of clinical instability or judgment of the treating physician
Significant pulmonary hypertension

SDD: same-day discharge; NYHA: New York Heart Association; TIA: transient ischemic attack; CrCl: creatinine clearance; Hb: hemoglobin; INR: International Normalized Ratio.

Table 2. Unfavorable aspects related to the procedure

Bifurcations with important lesions in side branches
Major calcification
Lesions in places with extremely angled segment or significant tortuosity
Intervention in surgical grafts
Residual thrombus
Last remaining vessel
Use of mechanical support

SDD: same-day discharge

LOGISTICS AND SOCIAL ASPECTS

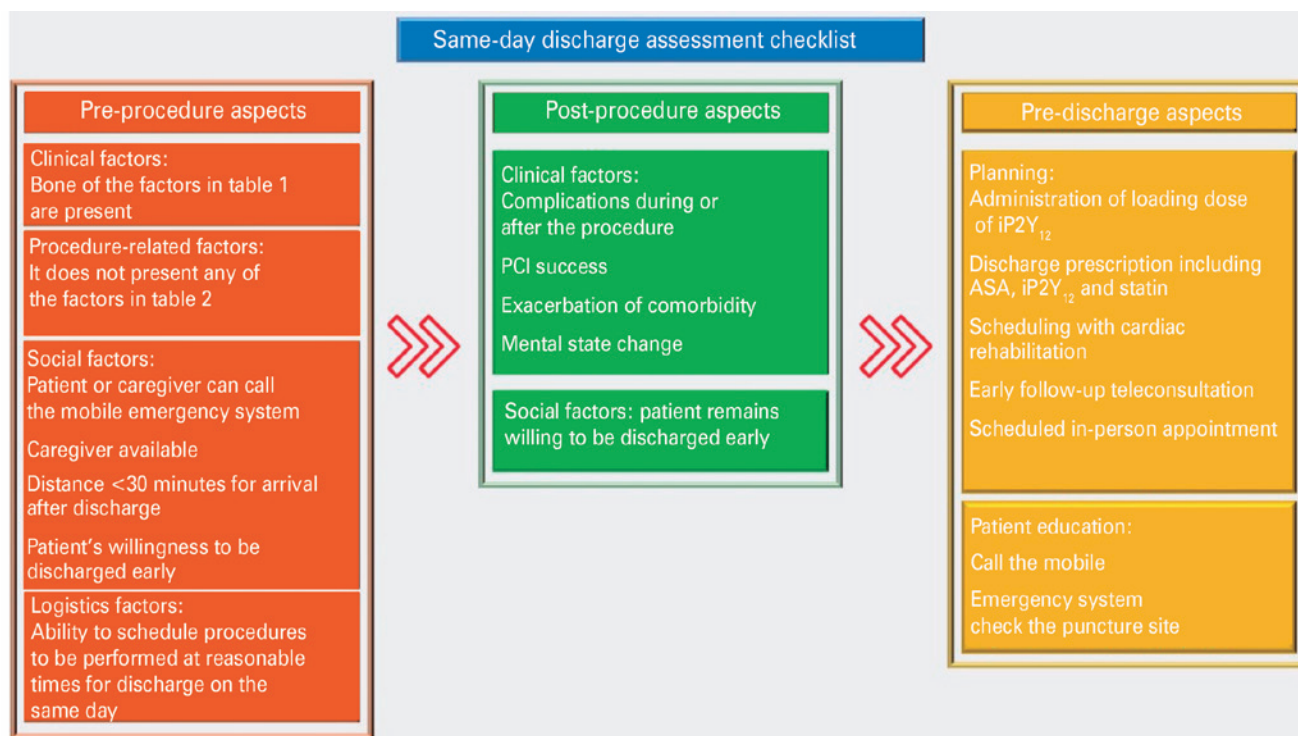
It is important to keep in mind that the social aspect has a fundamental role, and it is not possible to implement the protocol if there are any remaining doubts regarding the level of understanding of the patient or his companion about the criteria that ensure that the patient will return to the health unit, as well as if they have the means to get there quickly. Figure 1 shows a flowchart for performing SDD.

PATIENT'S EXPERIENCE

Same-day discharge has both economic benefits and is also in line with patients' expectations.^{15,16} It has been identified that up to 80% of patients have high levels of discharge anxiety after the procedure. When compared, SDD and next-day discharge groups show that patient satisfaction at the time of discharge was 79% *versus* 49%, respectively.¹⁵

ACCESS ROUTE

The access route is also a relevant aspect in this regard, due to the solid evidence of a lower rate of bleeding complications with the use of the radial approach.^{5,17-21} The observation time after the procedure is, on average, 4 to 6 hours.²²⁻²⁴ The start of the intervention should be scheduled for the early hours of the day, allowing time for the patient to be discharged. The preferential use of the radial approach is recommended. However, the femoral approach does not necessarily prevent the application of the protocol, especially when vascular closure devices are used. In these cases, there is a need to check the puncture site prior to discharge, counseling about complications, and the possibility of returning to the service with the support of cardiological care. The use of a 6F introducer requires an observation period of at least 6 to 9 hours after completion of the intervention, which makes SDD more challenging. The use of introducers ≥7F via femoral route, on the other hand, makes SDD difficult, due to the increased rate of vascular complications.²⁵



Source: adapted from Rao et al.¹³

PCI: percutaneous coronary intervention; ASA: acetylsalicylic acid.

Figure 1. Flowchart for same-day discharge planning.

DISCHARGE PLANNING

It is important that the institutional flow is aligned since the reception of the patient. Standardized guidelines should be provided by the medical, nursing and clinical pharmacy staff.

Telemedicine has an important role from before the patient's arrival, to ensure the use of antiplatelet agents prior to arrival and, in the follow-up, after discharge, ensuring the absence of vascular complications and new symptoms and medication adherence. All SDD experiences ideally require contact in 24 hours and 7 to 14-day outpatient follow-up.

Same-day discharge strategy has shown to be promising and feasible, in addition to aligning with patients' expectations and the need to make the healthcare system more financially viable. It is still a practice little explored in Brazil and, therefore, deserves to be encouraged, both in the scope of supplementary health care and public health.

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DECLARATION OF CONFLICTS OF INTEREST

The authors declare there are no conflicts of interest.

CONTRIBUTION OF AUTHORS

Conception and design of the study: FMTB and AACA; data collection: FMTB; data interpretation: AACA and PBA; text writing: FMTB; approval of the final version to be published: AACA and PBA.

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