Wolters Kluwer Health | Lippincott Williams & Wilkins

EUROPEAN SOCIETY OF CARDIOLOGY®

Editorial

Cardiac rehabilitation after cardiac surgery: a valuable opportunity that should not be missed

Pier Luigi Temporelli and Pantaleo Giannuzzi

Division of Cardiology, Salvatore Maugeri Foundation, IRCCS, Veruno (NO), Italy

European Journal of Cardiovascular Prevention and Rehabilitation 2008, **15**:128–129

Patients who have undergone coronary artery bypass graft surgery and heart valve repair or replacement are prime candidates for cardiac rehabilitation (CR) services [1–4]. Leading published reports have clearly documented that CR results in superior patient outcomes compared with usual care provided in clinical practice, probably owing to the fact that CR programs focus specialized resources and attention on cardiac risk factor modification, optimal medication, education and counselling and thereby enhance the changes of lifestyle to a greater degree. In addition, inpatient CR after cardiac surgery provides a bridge between acute care discharge and independent living at home and helps put the patient back on the road to clinical stability and functional independence, while initiating the process of secondary prevention.

Unfortunately, as for the other cardiac diseases, CR services after cardiac surgery are greatly underutilized, with an estimated participation rate of only 10–20% in the United States [2,5] and of approximately 35% in Europe [6,7]. Multiple and complex barriers have been described to explain this underuse. Both physician referral and availability of comprehensive CR and prevention programmes are still inadequate throughout Europe, and this may negatively affect *per se* the systematic provision of CR services to cardiac patients after an acute event. Furthermore, at the healthcare-system level in many countries, competing demands for resources in acute care settings often take priority over resource needs for chronic care services like CR.

Luckily, from time to time some good news emerges from this disheartening scenario. In March 2006, Medicare [5], the primary health insurer for people in the United States aged $\geq$65 years, expanded coverage for CR services to include heart valve surgery and heart transplant (coverage for coronary artery bypass graft surgery had already existed since 1982). In Europe, the UK National Service Framework for coronary heart disease stated that CR should be provided to all patients who can benefit, and that priority should be given to those who have undergone surgical revascularization [7].

Meanwhile, the clinical characteristics of patients who undergo cardiac surgery have changed radically over the last decade. Owing to the continuous advances in operative techniques, myocardial protection and perioperative care, which have led to a steady decline in operative mortality, cardiac surgery can now be performed safely in patients aged 75 years and above. In Italy, the proportion of patients with recent cardiac surgery aged above 75 years rose from 13% in 1999 to 25% in 2004 [8]; more up-to-date German data report that 39% of all heart operations are performed in patients above 70 years of age [6]. In addition, coronary patients with severe left ventricular systolic dysfunction and/or comorbid illnesses are now routinely referred to cardiac surgery.

In these patients, the functional recovery is clearly delayed but, despite this, the postoperative length of stay has been significantly reduced to 7 days or less. Indeed, most of the United States and European hospitals standard care practice for low to moderate-risk patients undergoing routine cardiac surgical procedures includes discharge by the 7th postoperative day [9–11]. This short time frame is not sufficient to address the needs for functional recovery of elderly patients or younger people with preoperative comorbidities and disabilities [10,11]. We should clearly keep in mind that functional status after cardiac surgery is influenced not only by clinical cardiac conditions, but also by comorbidity, cognitive decline and degree of disability. Inpatient

Correspondence to Pier Luigi Temporelli, MD, Fondazione Salvatore Maugeri, IRCCS, Via Revislate, 13, 28010 Veruno (NO), Italy
Tel: +39 0322 884711; fax: +39 0322 884966;
e-mail: pierluigi.temporelli@fsm.it

CR on one hand offers an alternative to delayed discharge, especially for elderly patients who live alone or are without a caregiver. On the other hand, it enhances the improvement and stabilization of surgical and medical issues in all patients and, through a multidisciplinary integrated team approach to comprehensive coronary risk reduction, it helps prolong the benefits of coronary revascularization. Furthermore, there is evidence indicating that the functional impairment assessed on admission in more comorbid and disabled patients is improved by inpatient CR, and that elderly patients gain an increase of functional ability proportionally comparable with that of younger patients [1,2,9,11]. The same benefits are not obtained from home health nursing and rehabilitation services, which lack the intensity, frequency and duration necessary to provide elderly or more complex patients with adequate support for improving functional independence. In spite of this, it is precisely older individuals, women and patients with comorbidities who are the ones least likely to receive inpatient CR.

Thus, in spite of the compelling evidence and leading reports supporting the role and the need for CR after cardiac surgery, too many patients do not receive inpatient CR rehabilitation or any CR service at all. Once again, there is a discrepancy between what the literature recommends and what happens in reality. As there is more than one good reason why most, if not all, individuals should receive CR benefits after cardiac surgery, providers of cardiovascular healthcare should make every effort to find a solution to this problem, and make sure that the patients who can benefit do not miss this train.

References

1 Giannuzzi P, Saner H, Björnstad H, Fioretti P, Mendes M, Cohen-Solal A, *et al*. Secondary prevention through cardiac rehabilitation. Position paper of the Working Group on Cardiac Rehabilitation and Exercise Physiology of the European Society of Cardiology. *Eur Heart J* 2003; **24**:1273–1278.

2 Leon AS, Franklin BA, Costa F, Balady GJ, Berra KA, Stewart KJ, *et al*. Cardiac rehabilitation and secondary prevention of coronary artery disease: an American Heart Association scientific statement from the Council on Clinical Cardiology (Subcommittee on Exercise, Cardiac Rehabilitation, and Prevention) and the Council on Nutrition, Physical Activity, and Metabolism (Subcommittee on Physical Activity), in collaboration with the American association of Cardiovascular and Pulmonary rehabilitation. *Circulation* 2005; **111**:369–376.

3 Smith SC, Allen J, Blair SN, Bonow RO, Brass LM, Fonarow GC, *et al*. AHA/ACC guidelines for secondary prevention for patients with coronary and other atherosclerotic vascular disease: 2006 update endorsed by the National Heart, Lung, and Blood Institute. *J Am Coll Cardiol* 2006; **47**:2130–2139.

4 Thomas RJ, King M, Lui K, Oldridge N, Piña IL, Spertus J. AACVPR/ACC/AHA 2007 performance measures on cardiac rehabilitation for referral to and delivery of cardiac rehabilitation/secondary prevention services. *Circulation* 2007; **116**:1611–1614.

5 Suaya JA, Shepard DS, Normand S-LT, Ades P, Prottas J, Stason WB. Use of cardiac rehabilitation by Medicare beneficiaries after myocardial infarction or coronary bypass surgery. *Circulation* 2007; **116**:1653–1662.

6 Karoff M, Held K, Bjarnason-Wehrens B. Cardiac rehabilitation in Germany. *Eur J Cardiovasc Prev Rehabil* 2007; **14**:18–27.

7 Rees K, Victory J, Beswick AD, Turner SC, Griebsch I, Taylor FC, *et al*. Cardiac rehabilitation in the UK: uptake among under-represented groups. *Heart* 2005; **91**:375–376.

8 Available at: http://www.ministerosalute.it/programmazione/sdo/ric_informazioni/default.jsp. Accessed December 20, 2007.

9 Peterson ED, Coombs LP, Ferguson TB, Shroyer AL, DeLong ER, Grover FL, *et al*. Hospital variability in length of stay after coronary bypass surgery: results from the Society of Thoracic Surgeon's National cardiac Database. *Ann Thorac Surg* 2002; **74**:437–441.

10 Anderson JA, Petersen NJ, Kistner C, Soltero ER, Wilson P. Determining predictors of delayed recovery and the need for transitional cardiac rehabilitation after cardiac surgery. *J Am Acad Nurse Pract* 2006; **18**:386–392.

11 Macchi C, Fattirolli F, Molino Lova R, Conti AA, Luisi MLE, *et al*. Early and late rehabilitation and physical training in elderly patients after cardiac surgery. *Am J Phys Med Rehabil* 2007; **86**:826–834.