

## Evidence or faith? Coronary artery bypass grafting in elderly patients

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In a recent commentary MacDonald and colleagues<sup>1</sup> asked whether the decision to perform coronary artery bypass grafting (CABG) in elderly patients is supported by evidence or merely by (blind) faith that we are helping these patients by providing the therapy. This is an important question, considering the general trend toward increased use of this invasive and costly treatment in elderly patients<sup>2</sup> and the rapid expansion of elderly populations in most Western countries. MacDonald and colleagues rightly pointed out that the published clinical trials comparing CABG with medical therapy<sup>3-5</sup> all excluded patients over 65–67 years of age. They also cited a number of studies demonstrating higher perioperative mortality rates<sup>6-8</sup> and complication rates<sup>9-11</sup> and lower long-term survival rates<sup>7,8</sup> among elderly patients than among younger patients undergoing CABG. In addition, other published studies have demonstrated that short-term treatment costs are higher for elderly patients than for younger patients.<sup>12</sup>

In this issue (page 759) the article by Kelly Smith and colleagues<sup>13</sup> adds to the growing body of literature evaluating outcomes of revascularization therapies in the elderly population. Using a cohort of elderly patients who underwent isolated CABG at a single hospital, Smith and colleagues report that short-term outcomes among octogenarians were similar to those among both young septuagenarians (aged 70–74 years) and old septuagenarians (aged 75–79 years). In-hospital death rates among the young septuagenarians, the old septuagenarians and the octogenarians were 3.3%, 5.7% and 4.2% respectively. However, there were only 71 octogenarians, as compared with 579 young and 384 old septuagenarians. This limits our ability to make strong conclusions; even a single additional death would increase the death rate in the oldest group to 5.6%. For other outcomes measured — complications, length of stay and cost of hospital care — the trend was toward higher rates, longer stays and higher costs for the octogenarians than for the younger patients, but the differences across groups were not statistically significant perhaps because of the relatively small numbers of patients studied. In focusing primarily on statistical significance in their conclusions, the authors are de-emphasizing the probable reality that death rates, complications, length of stay and costs may be somewhat higher among older patients than among younger patients.

Their results are nonetheless encouraging, because they

demonstrate that earlier reports of markedly increased rates of adverse events and resource use for CABG among elderly patients may not reflect the current state. Indeed, other recent studies have shown that the risks associated with CABG in elderly patients have decreased. In a 1994 study using US Medicare data, Peterson and colleagues<sup>14</sup> showed an 18% decline in the 30-day mortality rate over 4 years for all CABG patients over 65 years of age. In a study that mirrors the one in this issue, Alexander and colleagues<sup>15</sup> used data from the National Cardiovascular Network to demonstrate that the rates of adverse outcomes of CABG among octogenarians were lower than those previously reported.<sup>15</sup> In fact, among octogenarians with no comorbidities, the short-term death rate approached that among younger patients.

Although such comparisons of outcomes across age groups are informative, a more important comparison is that between elderly patients who undergo revascularization and those who are treated only medically despite severe coronary artery disease. Fortunately, new evidence is beginning to emerge here as well. Sollano and colleagues<sup>16</sup> compared the outcomes of a cohort of octogenarians undergoing CABG with those of a cohort of octogenarians treated medically and a subset of that cohort who were offered CABG but declined the procedure. Their results show that the rate of survival to 3 years was significantly higher in the CABG group (80% v. 64% in the medically managed group). Also, Graham and colleagues<sup>17</sup> recently reported that elderly patients undergoing revascularization procedures (CABG or angioplasty) in Alberta had more favourable outcomes than did those treated medically and that these findings persisted in analyses that addressed potential selection biases.

Whether the results of such observational studies should be viewed as sufficient evidence to advocate aggressive revascularization in elderly patients is a matter for debate. Some will probably feel that the observational data published to date are sufficiently compelling to make a case (now) for the widespread adoption of aggressive treatment strategies, while others will undoubtedly continue to call for well-designed randomized controlled trials of revascularization in elderly patients.<sup>1</sup> Society will, of course, also need to consider the economic questions surrounding aggressive cardiac care in this segment of the population — specifically, the cost-effectiveness of such treatments as well

as the opportunity costs (e.g., lost opportunities for spending in other important areas such as population-based prevention programs).

In deciding whether to use CABG in elderly patients, we are clearly relying on more than just faith, as there is an increasing volume of published evidence suggesting reasonable safety of the procedure in elderly patients and probable benefit over medical therapy alone. Given the existing data, we hope that there will now be open discussion and debate regarding the need for, and ethical considerations of, randomized controlled trials of revascularization therapies in elderly patients.

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