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B-TYPE NATRIURETIC PEPTIDE IN CHILDREN UNDERGOING PEDIATRIC CARDIAC SURGERY: JUST A MARKER OF DISEASE SEVERITY STRONGLY RELATED TO AGE OR MUCH MORE?

To the Editor:

We read with interest the article of Radman and colleagues¹ entitled, "The effect of preoperative nutritional status on postoperative outcomes in children undergoing surgery for congenital heart defects in San Francisco (UCSF) and Guatemala City (UNICAR)," recently published in the Journal. We agree with Radman and colleagues¹ that body fat mass and acute and chronic malnourishment are important determinants of worse outcome in children undergoing surgery¹⁻⁴; the relationship of these factors to preoperative B-type natriuretic peptide (BNP) values, however, merits further consideration.

Actually, Radman and colleagues¹ included in their study a wide

spectrum of ages (interquartile range, 3.2-47.1 months) and congenital heart diseases (from simple septal defects to univentricular heart). It has been widely demonstrated that preoperative BNP values as well as postoperative BNP variations should be interpreted as the consequences of 2 major factors: disease severity and age.^{2,3} The influence of these variables is particularly remarkable in the neonatal and infant setting, because neonatal cardiac surgery usually carries a higher surgical risk as a result of the severity of the disease²⁻⁴ and many maturational variations in endocrine function within the first month of life.^{2,3} The cardiac natriuretic peptide system is a relevant component of a complex and integrated network that includes the endocrine, nervous, and immune systems.⁵ For the same age and disease severity, a huge number of biologic substances, environmental factors, and physiologic parameters contribute to BNP response⁵; body fat mass and malnutrition are only 2 factors among these. Unfortunately, the small sample size (only 71 patients) of the study by Radman and colleagues¹ does not allow a risk stratification analysis that includes all these parameters. In particular, low body fat mass and malnutrition, frequently observed in children with more severe cardiac defects,^{1,4} are important factors that contribute to the severity of the disease state and in turn to the rise in BNP values.

In conclusion, recent data support the use of BNP as a useful adjunct prognostic and disease severity marker in children undergoing cardiac surgery. Both preoperative values and postsurgical variations in BNP should be interpreted first according to age and disease severity^{2,3} and only secondarily as the consequence of additional factors, including malnutrition and body fat mass.

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TAVI WITHOUT SURGICAL STANDBY: IS HISTORY REPEATING ITSELF? A WORD OF CAUTION

To the Editor:

Current practice guidelines require that transcatheter aortic valve implantation (TAVI) be performed by a heart team composed of interventional cardiologists and surgeons in a hybrid operating room.¹ The occurrence of a case, treated in a hospital without cardiac surgery on site, in which the implanted prosthesis migrated into the left ventricle and required surgical removal, prompted this report.

A 69-year-old woman underwent TAVI in a facility without on-site cardiac surgery. Shortly after transfemoral implantation, the prosthesis

migrated into the left ventricle. Because of hemodynamic instability, our cardiac surgery team intervened locally and placed the patient on extracorporeal membrane oxygenation, before transferring her to our institution, where she underwent aortic valve replacement. After a complicated course, she was sent to a rehabilitation facility in good condition.

During the late 1980s and the beginning of the 1990s, at the onset of the coronary interventional era, all procedures were performed only in institutions with cardiac surgery on site and strictly with surgical standby. Later, with the increasing confidence of the interventional cardiologists, more sophisticated technology, and a very low need for surgical rescue, the procedure also gained widespread application in hospitals without cardiac surgery on site.

Similarly, because the need for surgical rescue has been low in all series, it is understandable that some interventional cardiologists have been tempted to perform TAVI without surgical standby. Approximately one third of centers performing TAVI in Germany do not have cardiac surgery on site, and in Italy, at least 1 other institution currently performs TAVI without cardiac surgery on standby.

Not surprisingly, the invasive cardiologists are already in turmoil, and the discussion on whether TAVI can be performed without on-site cardiac surgery has been continuing in the published studies. In response to a plea for a same-institution interdisciplinary approach,² Eggebrecht and colleagues³ cautioned against considering the use of the heart team concept as being synonymous with an on-site cardiac surgery program. They also claimed that some centers have embraced a different “heart team” interpretation by collaborating with cardiac surgeons who would come to their hospitals, participate in the procedure, and rescue the patient when complications occurred.³

Through our experience with the patient we have described, others would now argue that, provided the expertise is available to promptly institute extracorporeal membrane oxygenation, this could be another acceptable method to salvage patients with complicated cases. Finally, let us not forget that the entire dispute could become merely academic if someone asked why bother to try to rescue, with slight chances of success, that very rare patient already deemed inoperable by the surgeon from the beginning. Our patient’s good outcome was probably more the exception than the rule.

Notwithstanding any of these arguments, we and the surgical community remain convinced that to achieve the best possible result, any major complication should be managed by a surgical team immediately after the occurrence and that any other creative arrangements can only put the patient’s life at greater risk and subject the hospital and operating team to a malpractice suit. That statement becomes even more persuasive if we look at the future, when this procedure could be offered to an increasing number of patients who are low-risk surgical candidates.

Accordingly, the recent European Society of Cardiology/European Association for Cardio-Thoracic Surgery guidelines⁴ have considered the absence of cardiac surgery on site a contraindication. Hopefully, also in Europe and Italy, just as in the United States, procedure reimbursement will be authorized only for those institutions at which TAVIs are performed in an interventional suite or hybrid operating room by a heart team. Only then we could consider applying this revolutionary procedure even in lower risk patients.

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FREESTYLE XENOGRFT FOR AORTIC VALVE ENDOCARDITIS

To the Editor:

It was with great interest that we read the article by Heinz and colleagues¹ reporting the long-term outcomes after Freestyle (Medtronic Inc, Minneapolis, Minn) root replacement for complex destructive aortic valve endocarditis. They included 32 patients (median age, 61 years) who underwent the procedure between 1997 and 2012 and found that 5-year survival was 62%, and 5-year freedom from short- and long-term cardiac events was 56%. They concluded that the Freestyle xenograft is a comparable alternative to homograft for treatment of complex aortic valve endocarditis.

We congratulate Heinz and colleagues on their excellent results in a challenging patient group and we wish to offer some additional data supporting the use of the Freestyle