Are there cardiological differences between autologous and allogenic Hematopoietic stem cell transplantation?

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BACKGROUND

Hematopoietic stem cell transplantation (HSCT) is one of the treatments for hematological malignancies. Both autologous and allogenic patients share potentially cardiotoxic chemotherapy treatments. A follow-up was carried out to assess if there were differences on cardiological toxicity between both therapies.

METHODS

An ambiespective study was carried out of all patients who received HSCT by the hematology service of our hospital between January 2018 and January 2021. Epidemiological, analytical, and echocardiographic data were collected. .

RESULTS

Of 178 patients who received HSCT, 53.9% (n 96) were allogenic while 46.1% (n 82) were autologous. Gender distribution was similar but mean ages were different (49.7±14.8 vs 56±11.4; p 0.005).

A higher prevalence of atrial fibrilation was observed in allogenic patients (6.3% vs 0; p value 0.021), with no other differences in terms of comorbidities.

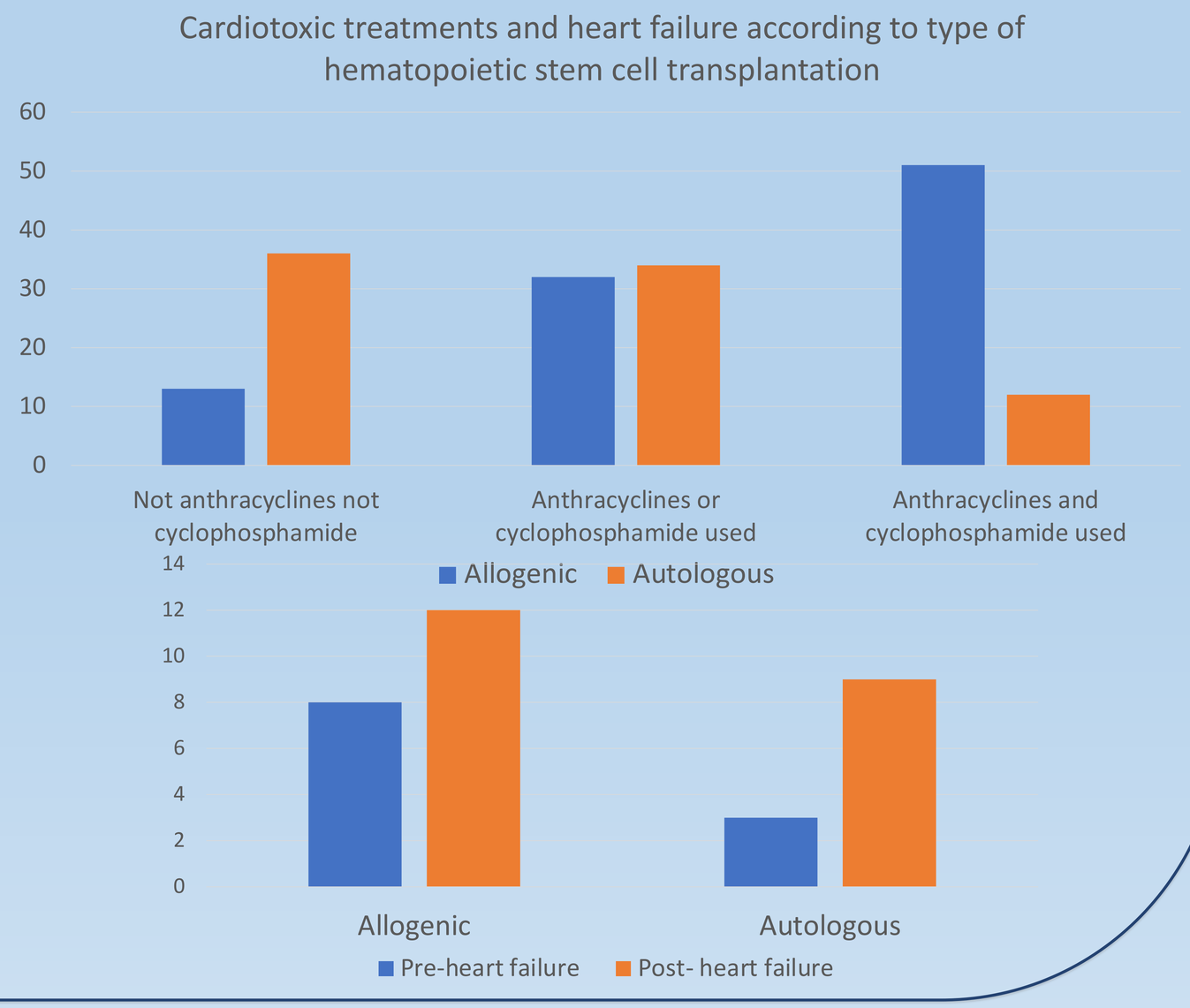
Regarding chemotherapeutic treatment, the use of anthracyclines was higher in the allogenic than in the autologous (67.4% vs 50%, p <0.019), as so the use of cyclophosphamide (71.9% vs 20.7%, p < 0.001).

No differences were found at analytical data (cardiac biomarkers and renal function) or echocardiography during follow-up. Despite this, it should be noted that in allogenic patients a higher prevalence in the reduction of ventricular function (> 10 points) was observed than in autologous patients, without statistical significance (8 vs 4; p 0.355).

The heart failure prevalence prior to HSCT is greater in allogenic patients (8.3% vs 3.7%, p 0.197) while the incidence after treatment was similar (12.5% vs 11%; p 0.753).

Mortality was higher in allogenic HSCT (40.6% vs 18.6%, p 0.001), due to cardiovascular causes in only two patients.

	Allogenic HSCT N = 96 (53.9%)	**Autologus HSCT N = 82 (46.1%)**	**P valor**
Demographic data			
Male Female	52 (54.2%) 44 (45.8%)	49 (59.8%) 33 (40.2%)	0,453
Comorbidities			
High blood presure	26 (27.1%)	29 (35.4%)	0,233
Diabetes mellitus	13 (13.5%)	7 (8.5%)	0,292
Dyslipidemia	15 (15.6%)	11 (13.4%)	0,677
Atrial fibrilation	6 (6.3%)	0	0,021
Previous neoplasm	13 (13.5%)	12 (14.6%)	0,834
Echocardiographic data			
Previous LVEF Post LVEF	62.8 ± 6.5 65.2 ± 7.8	64.3 ± 6.3 65.9 ± 8.1	0,348 0,399
Reduction > or = 10% LVEF	8 (10.7%)	4 (6.3%)	0,355
Prognostic			
HF previous HSCT	8 (8.3%)	3 (3.7%)	0,197
HF post HSCT	12 (12.5%)	9 (11%)	0,753
Death	39 (40.6%)	15 (18.3%)	0,001



CONCLUSION

In our population no significant differences were observed in the follow-up of both groups, despite the differences in chemotherapy protocols between both transplants. Studies with a larger sample size would be necessary to assess the cardiovascular impact of these therapies.