

Objective

To compare cost savings from avoided complications with treosulfan + fludarabine (Flu/Treo) vs. busulfan + fludarabine (Flu/Bu2) conditioning regimens in patients undergoing allogeneic haematopoietic stem cell transplantation (allo-HSCT) for acute myeloid leukemia (AML) or myelodysplastic syndrome (MDS).

Methods

The Phase III trial¹ comparing Flu/Treo vs. Flu/Bu2 conditioning regimen was used to gather outcomes data: event free survival (EFS), overall survival (OS), non-relapse mortality (NRM), and rate of key complications: acute and chronic graft vs. host disease (aGVHD/cGVHD), relapse, graft failure, severe veno-occlusive disease (VOD) and mucositis (Table 1).

Table 1: Rate of key survival outcomes and key complications: Flu/Bu2 vs Flu/Treo

Rate of key survival outcomes ¹	Flu/Treo	Flu/Bu2	Difference
Event Free Survival (EFS) (%)	65.7%	51.2%	14.5%
Overall Survival (OS) (%)	72.7%	60.2%	12.5%
Non-Relapse Mortality (NRM) (%)	12.0%	20.4%	-8.4%
Rate of key complications ¹	Flu/Treo	Flu/Bu2	Difference
aGvHD	52.8%	57.2%	-4.4%
Extensive cGvHD	19.8%	28.6%	-8.8%
Relapse	22.0%	25.2%	-3.2%
Graft failure	0.4%	3.2%	-2.8%
Severe VOD	0.0%	0.4%	-0.4%
Grades 3-4 Mucositis	5.9%	7.4%	-1.5%

Cost of key complications except graft failure retrieved from peer reviewed literature and inflation adjusted to 2024 (Table 2). Graft failure costs estimated using EncoderPro “adjusted total” payment rates for allo-HSCT (DRG 014) for 30 hospitals (excluding PPS exempt hospitals) based on total number of allogeneic transplants as reported by National Marrow Donor Program. Patients with graft failure often receive second HSCT therefore DRG payment for allo-HSCT used to calculate costs assuming ~38.5% patients undergo second allo-HSCT following graft failure².

Table 2: Cost of complications

Severe VOD ³	Mucositis ⁴ (Grades 3-4)	aGvHD ^{5,6}	cGvHD ^{7,8}	Graft failure ⁹	Relapse ¹⁰
\$172,323	\$173,747	\$108,222	\$379,874	\$144,802	\$547,354

Costs associated with complications of allo-HSCT calculated by multiplying costs/payment rates by rate of complications with Flu/Treo vs. Flu/Bu2 regimens from a health system perspective (Figure 1).

Figure 1: Calculation of cost savings to the healthcare system

