DIFFERENT CLEARANCE OF KIT MUTATION AND TRYPTASE LEVELS AFTER HEMATOPOIETIC CELL TRANSPLANTATION IN PATIENTS WITH SYSTEMIC MASTOCYTOSIS WITH ASSOCIATED HEMATOLOGIC NEOPLASM

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Systemic mastocytosis (SM) with associated hematologic neoplasm (SM-AHN) is, a subgroup of Systemic Mastocytosis [SM, 2022 classification of the World Health Organization (WHO)], a neoplasm with complex biology, pathology and a variable clinical course. Pathognomonic for the disease in >90% of patients, are somatic gain-of-function mutations in KITmut (D816V), which acts as weak oncogene regarding proliferation, but as a strong inducer of Mast Cell differentiation, maturation and survival. Tryptase is a secretory granule-derived serine proteinase of mast cells and used as a marker for mast cell activation and of mastocytosis activity in general.

Out of >4200 Hematopoietic cell transplantations at the University Medical Center Hamburg between 2006 and 2022, 13 patients with SM-AHN were identified. After a median follow-up of 26.4 (3.4-189.2) months, OS resulted in 82% (95%CI: 59-100%), DFS 77% (95%CI: 64-100%) and RI 23% (95%CI:0-46%) all at 3 years without NRM.

Kinetic of normalization of serum tryptase and clearance of KITmut in SM-AHN are unknown after HCT. Molecular markers of SM (KITmut) simultaneously disappeared with establishment of donor chimerism after a median of 36 (range 26-100) and 31 (range 26-100) days after-HCT, respectively. Tryptase normalized median 228 (57-719) days after HCT. KITmut and donor cell chimerism showed a strong negative correlation ($p<0.001$). The difference between normalization of tryptase and normalization of KIT (measurable residual disease <=0.05%, $p=0.01$) and establishment of chimerism was significant ($p=0.04$). Persistence of tryptase was not associated with remaining hematological disease and relapse in these patients with favorable outcome.