

## **Invasive fungal disease (IFD) in patients after allogeneic hematopoietic stem cell transplantation: single center experience**

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### **Abstract**

**Aim:** The objective was to evaluate the incidence of IFD, to determine risk factors of IFD, and to study its influence on OS in patients undergoing allo-HSCT.

**Patients and methods:** The study included 221 post-allo-HSCT patients (pts) between October 2000 and July 2008. The age range was 1–66 years old (median 21 y.o.) There were 150 AL pts; 27 CML, CMF and CLL pts; 11 AA pts; 8 congenital disorder pts; 17 NHL/HD pts; 6 MDS pts; and 3 solid tumor pts. Eighty-six pts underwent myeloablative conditioning, while 135 pts underwent non–myeloablative conditioning (RIC) followed by allo-HSCT. At the time of allo-HSCT, 134 pts were in CR, and 87 in relapse. Types of donor: 77 MRD pts, 135 MUD pts, and 9 haploidentical pts. Sources of HSC: 142 PBSC pts, 67 BM pts, and 12 BM+PBSC pts. Median: CD34+ 8 x10<sup>6</sup>/kg. Acute GVHD prophylaxis was standard.

**Results:** The incidence of IFD until D+100 was 27%; after D+100, 36%. Possible IFDs were detected in 27 pts, probable IFDs in 37 pts, and proven IFDs in 2 pts. The onset of IFD was on D+1–940 (median D+86). In a multivariable analyses the following risk factors were revealed: age older than 10 years (RR=1.2; 95%CI, 1.01–1.6), usage of ATG in conditioning in pts older than 21 y.o. (RR=0.7; 95% CI, 0.59–0.88, P<0.05), mucositis I–IV (RR=2.1; 95% CI, 1.2–3.8), chGVHD extensive form in patients younger than 21 y.o. (RR= 2.1; 95% CI, 1.3–3.4, P<0.05). Conditioning, time of engraftment, stage of disease, and source of HSC were not independent risk factors for IFD. In pts younger than 21 y.o., synergistic effect of the following factors was detected: relapse, myeloablative conditioning, and BM as a source of HSC (RR=0.4; 95% CI, 0.21–0.76, P<0.05). In pts older than 21 y.o. with MRD after RIC and a source of HSC PBSC, the incidence of IFI was lower (RR=1.59; 95% CI, 1.01–2.51, P<0.05). Overall survival (OS) in pts undergoing HSCT with IFD versus without IFD is 25% vs 53% (p<0.005).

**Conclusion:** The rates of IFD after HSCT remain high and impair OS.

**Keywords:** related allo-HSCT, unrelated allo-HSCT, allo-HSCT invasive fungal disease