Minimal Residual Disease

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I stayed in Frankfurt 8 months, during this time I worked in MRD and chimerism laboratory and I learned MRD analysis

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My work

During my stay in Frankfurt I employed real-time quantitative polymerase chain reaction analysis (Real Time PCR) to examine minimal residual disease (MRD) in 28 patients with ALL, 36% receiving transplantation from related donors and 64% receiving transplantation from nonrelated donors.

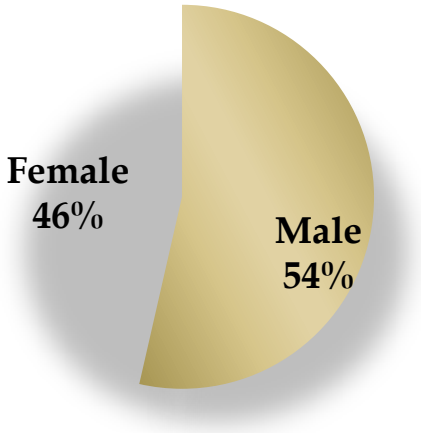
In the second part of my stay I had the chance to gather all the data from my work and I learned how to do the statistics.

About Minimal Residual Disease

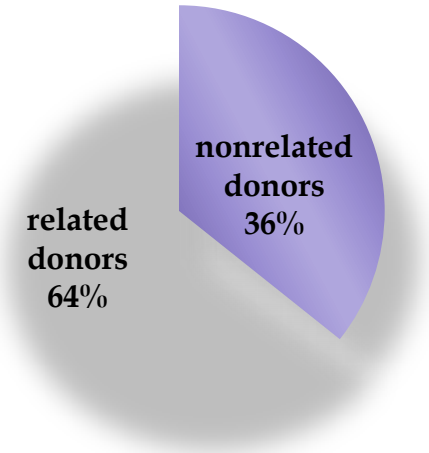
- **Minimal residual disease *(MRD)* is the name given to small numbers of leukemic cells that remain in the patient during treatment, or after treatment when the patient is in remission (no symptoms or signs of disease). It is the major cause of relapse in cancer and leukemia.**

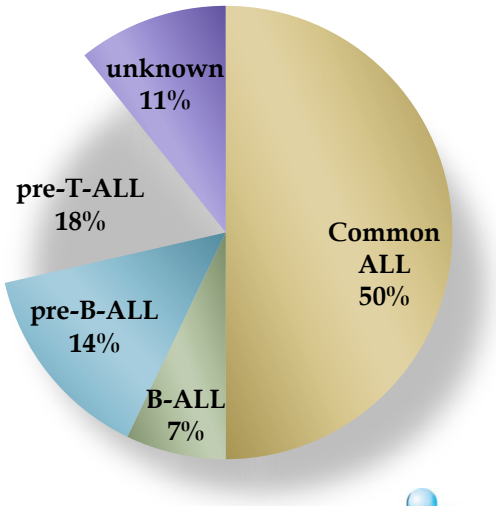
- **In cancer treatment, particularly leukemia, MRD testing has several important roles: determining whether treatment has eradicated the cancer or whether traces remain, comparing the efficacy of different treatments, monitoring patient remission status and recurrence of the leukemia or cancer and choosing the treatment that will best meet those needs (personalization of treatment).**

STATISTICS



Transplant





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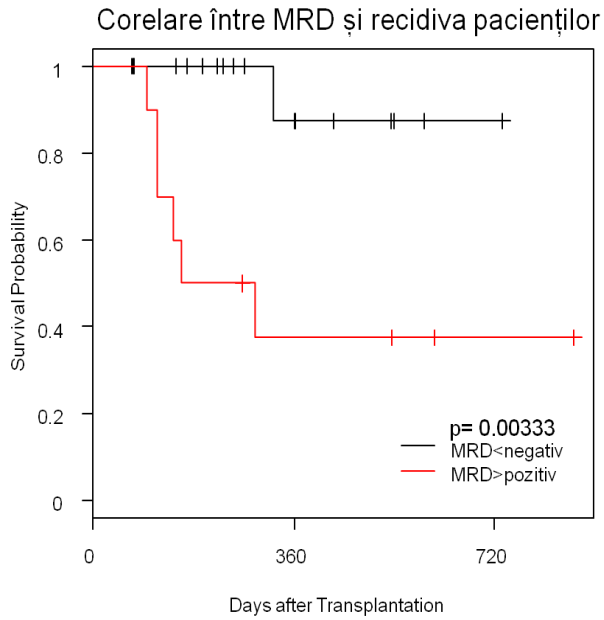
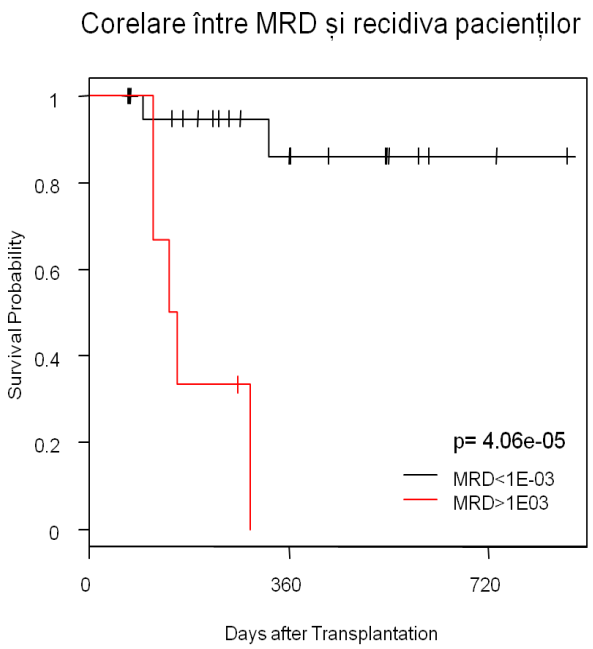
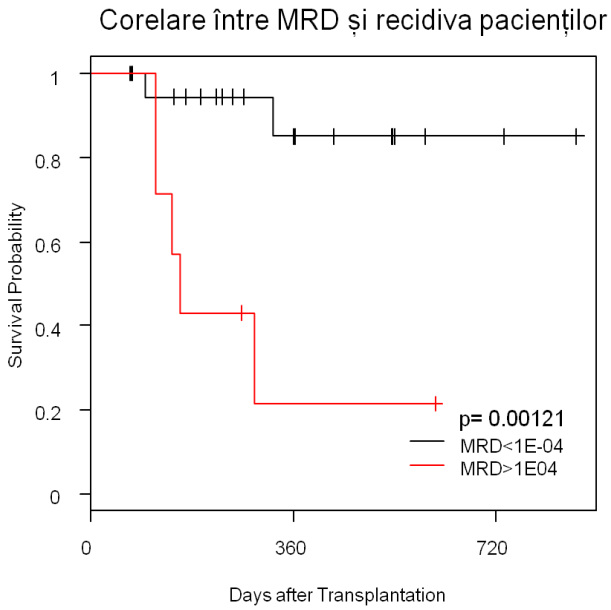
Kaplan-Meier Analysis







Analiza Kaplan-Meier

Relapse probability 37,5% is If MRD is negative, and if MRD is positive the relapse probability is 80% .

Relapse probability is 86.1% if MRD is <1E-03, and relapse probability is ≈ 100% if MRD is >1E-03.

Relapse probability is 21% if MRD is <1E-04, and relapse probability is 85% if MRD is >1E-04.

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Conclusions

- Quantitative MRD data can be obtained with realtime quantitative PCR (RQ-PCR) analysis of immunoglobulin and T-cell receptor gene rearrangements, breakpoint fusion regions of chromosome aberrations, fusion-gene transcripts of aberrant genes

- Using immunoglobulin and T-cell receptor gene rearrangements to target MRD is the most comprehensive methods with respect to the entity "ALL". More than 90% of all patients with ALL carry such rearrangements, this is the advantage compared to other methods which target chromosomal translocations and breakpoints.

Farewell party

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Thank you!

Director of Stem Cells transplant center- Prof.Dr.med. Bader Peter and Dr Hermann Kreyenberg - chief of MRD and chimerism laboratory

POSDRU/88/1.5/S/63117 and Prof.Dr. Drăgan Simona

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