

Cerebrospinal fluid chimerism analysis in patients with neurological symptoms after allogeneic cell transplantation

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Neurological complications after allogeneic cell transplantation

Incidence 8%-42%

Central nervous system relapse 2.9%-11%

CSF Analysis

Gold standard method: cerebrospinal fluid (CSF) cytological analysis → Low sensitivity

Flow cytometry plus morphology → Improved sensitivity

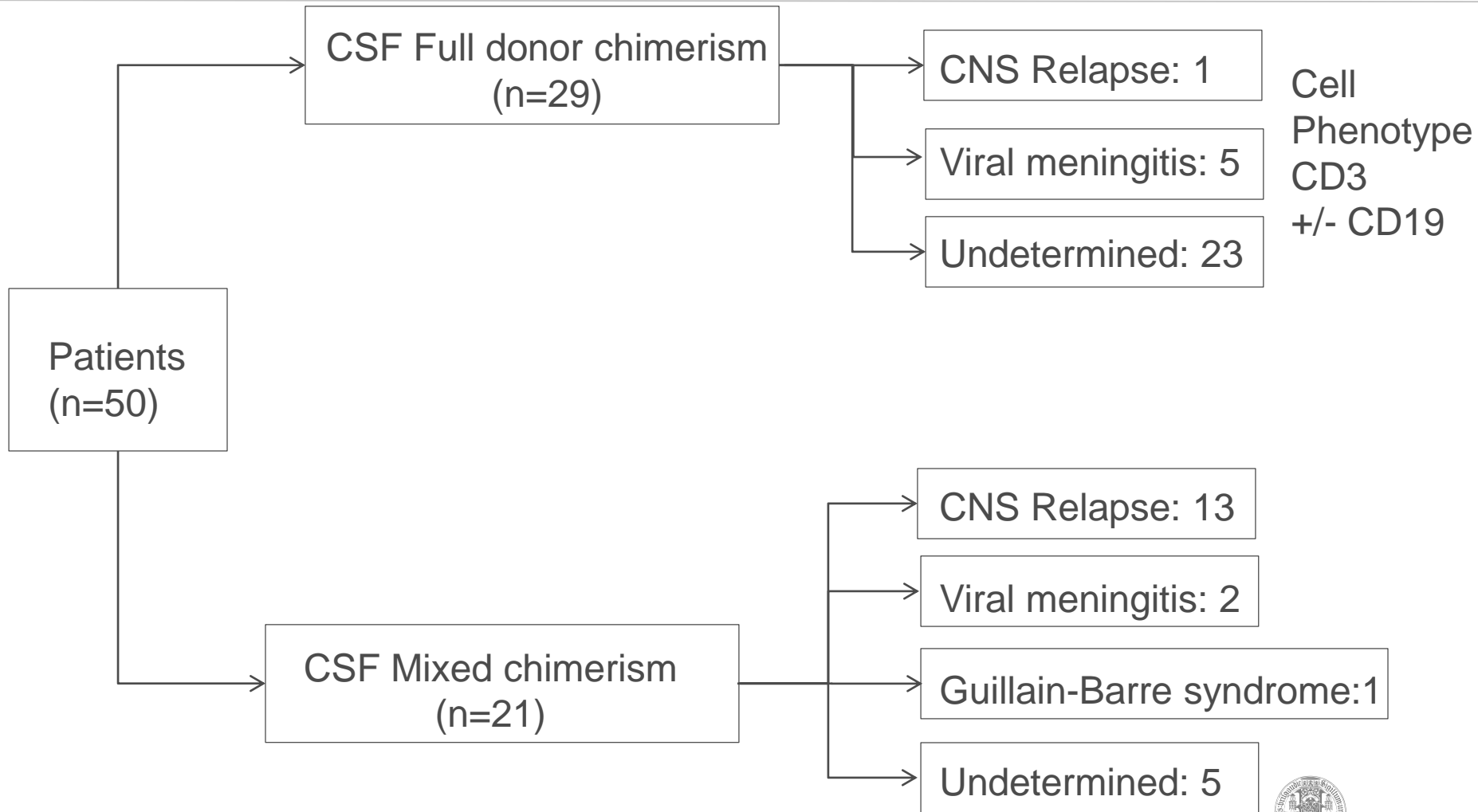
CSF chimerism analysis → Few reports
Small patients series

Study population 50 patients
(85 samples)

Exclusion criteria

CNS prophylaxis
Samples > 10 red blood cells/uL

CSF chimerism findings

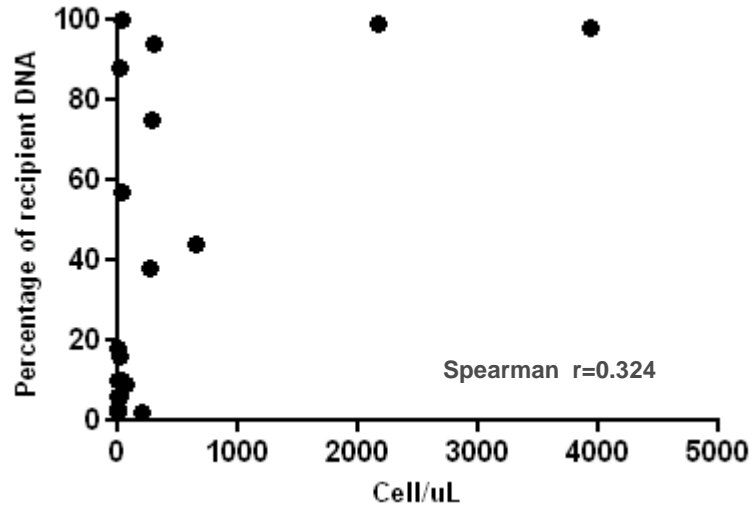


Patient characteristics according chimerism status in CSF

	Patients with MC in CSF (n=21)	Patients with CC in CSF (n=29)
Gender Male/Female	14/7	16/13
Mean age at Tx (range)	50 (21-75)	53 (22-75)
Mean follow up in days (range)	740 (82-2533)	929 (45-3501)
Mean time to LP in days (range)	341 (17-1388)	315 (19-3310)
Remission status at Tx		
CR	12	15
Non-CR	9	14
Initial diagnosis		
AML	10	12
ALL	3	2
NHL	4	5
CLL	2	2
Others	2	8
Conditioning regimen		
Reduced Intensity	13	20
Standard	8	9
Acute GvHD		
Grade 0-I	19	25
Grade II-IV	2	4

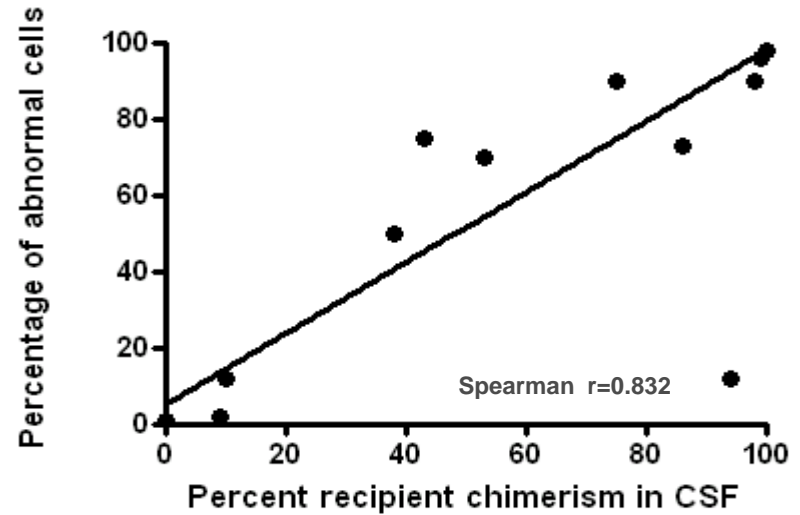
Correlation analysis

Cell content-Recipient DNA



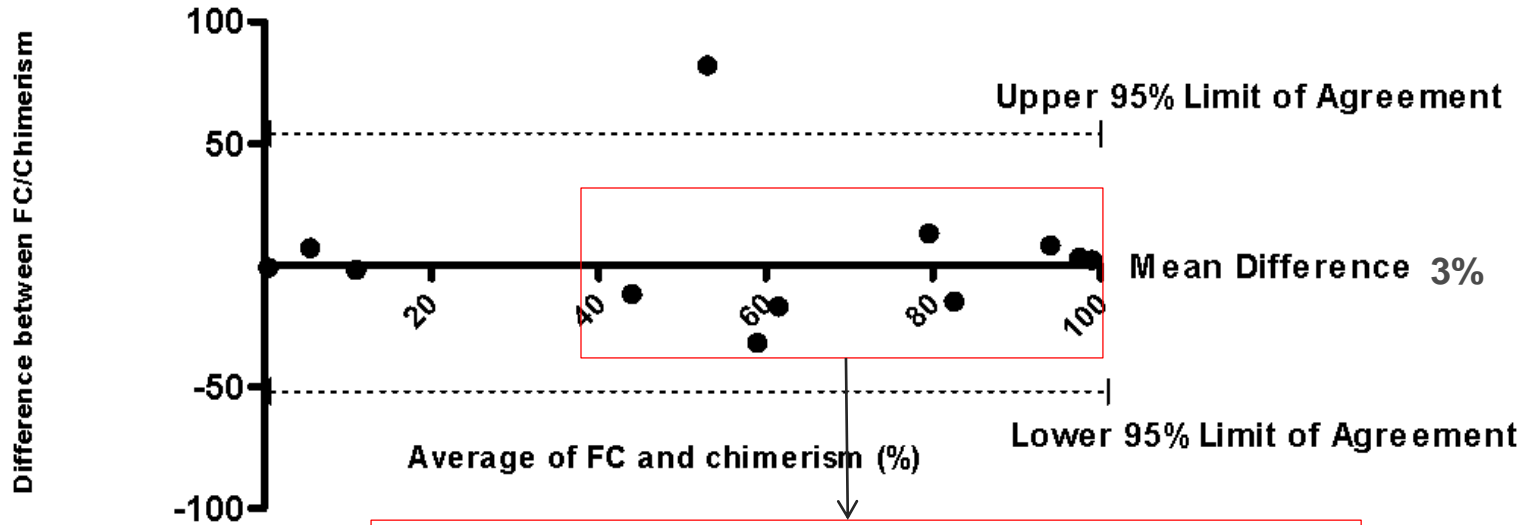
All CSF MC patients

FACS-Recipient DNA



CNS relapsed patients

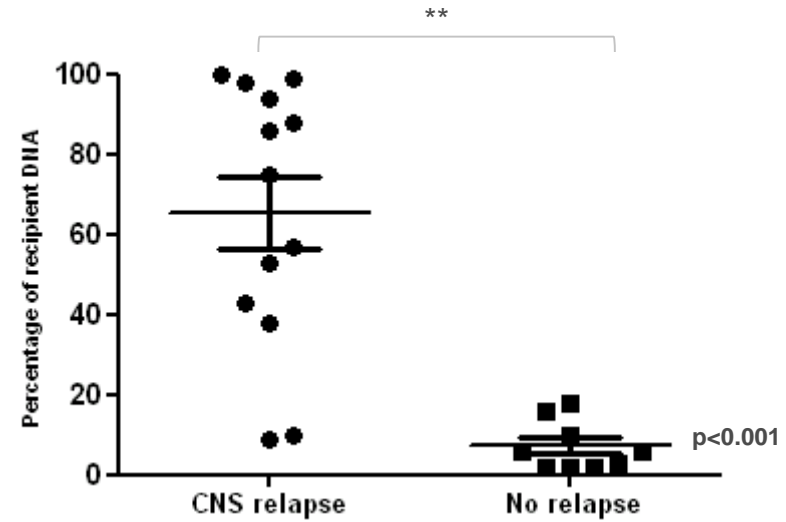
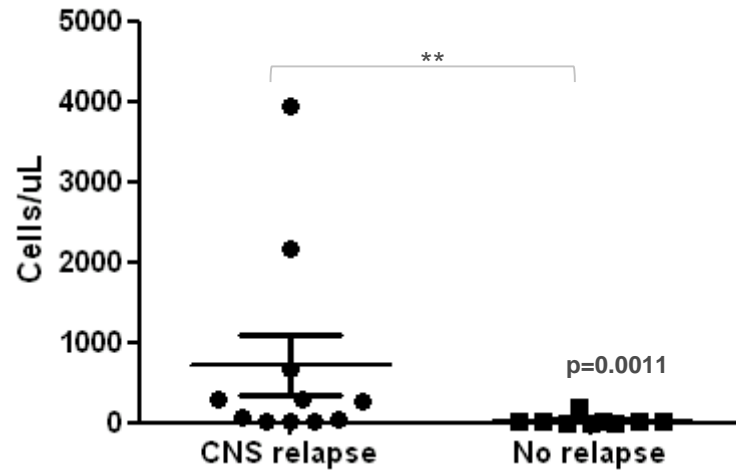
Agreement analysis: Bland-Altman



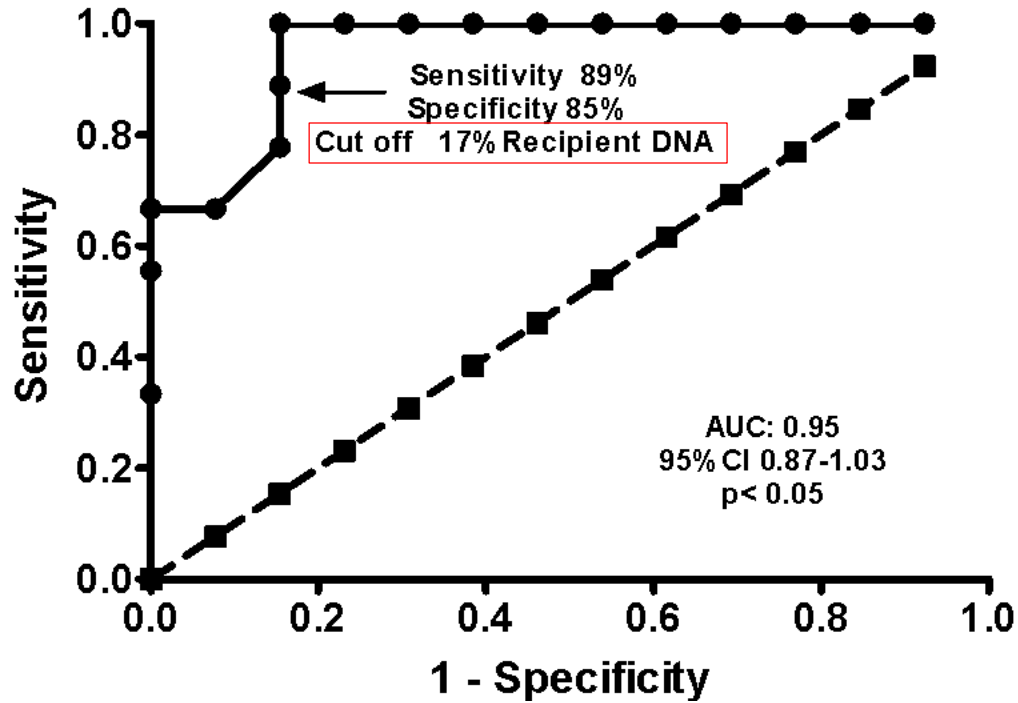
Fluctuations not dependent on the magnitude of measurement

Both methods may be used interchangeably

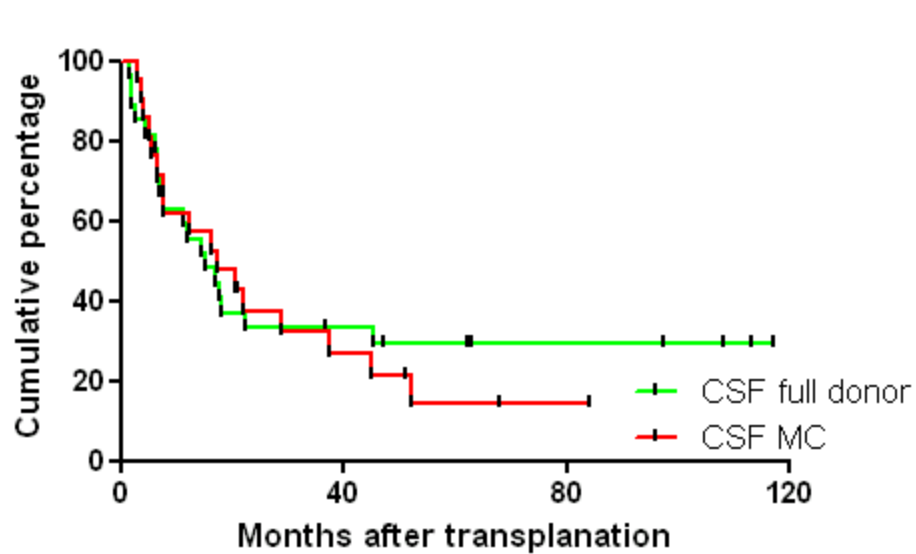
CNS relapse cell content. Chimerism analysis



Receiver-operating characteristics (ROC) of chimerism performance for CNS relapse



Progression-free survival



	Alive	Dead
CSF full donor CHM:	10	19
CSF mixed CHM:	4	17

Logrank $p= 0.72$

Conclusions

CSF chimerism analysis can be used as a complementary method in the diagnostics work-up

CSF chimerism analysis and FACS can be used interchangeably for patients with CNS relapse

ROC curve analysis shows that CSF chimerism is a reliable test for CNS relapse

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