

COMPARISON OF FXIII ACTIVITY AND ANTIGEN MEASUREMENT DURING PREGNANCY

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BACKGROUND & AIMS

The main functions of FXIII are in three areas: Haemostasis, wound healing, and maintaining pregnancy. Other physiological functions of FXIII include immune defence, angiogenesis, and bone metabolism. There are limited data on the changes of factor XIII (FXIII) during pregnancy and comparability of different assay systems of FXIII. Here, we compare the courses of FXIII activity (FXIII:Act) and antigen (FXIII:Ag) throughout pregnancy.

PATIENTS & METHODS

Samples were collected during first (T1, weeks 0-12), second (T2, weeks 13-28) and third trimester (T3, weeks 29-40) during 82 pregnancies in 67 patients with either early pregnancy losses or bleeding during pregnancy (mean age: 31.2; 20-46). Pregnancies were divided into groups of patients with FXIII concentrate administration (FXIII-Adm) due to pregnancy related bleeding complications and FXIII deficiency (n=36, age: 31.2; 20-46) and without (n=46, age: 31.2; 22-43), resp. FXIII activity was assayed on BCS-XP (Siemens) using chromogenic reagent. FXIII antigen was determined on ACL TOP (IL) using automated latex enhanced immunoassay.

Epidemiological data (N = 67)

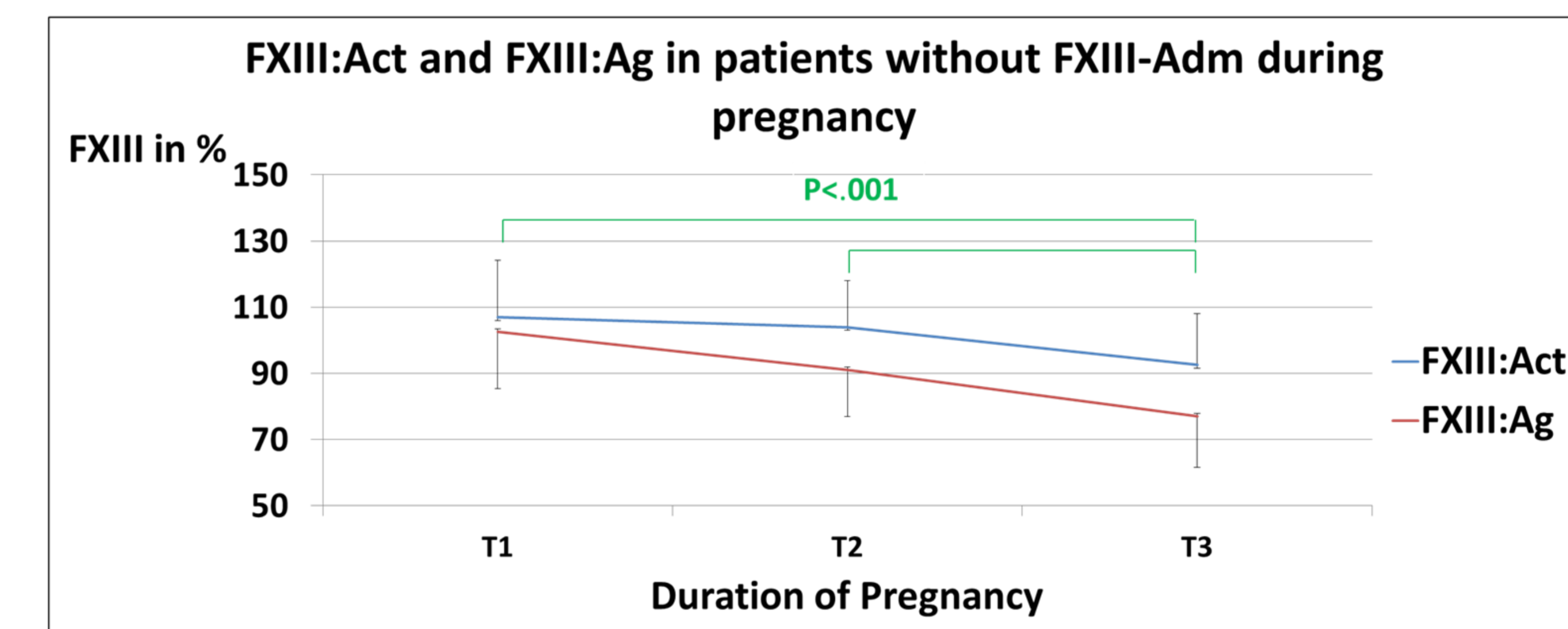
Age	31.2 ± 5.5 (range: 20-46)
Pregnancies	82
FXIII-Administration during pregnancy	Without Adm: 46 With Adm: 36

CONCLUSIONS

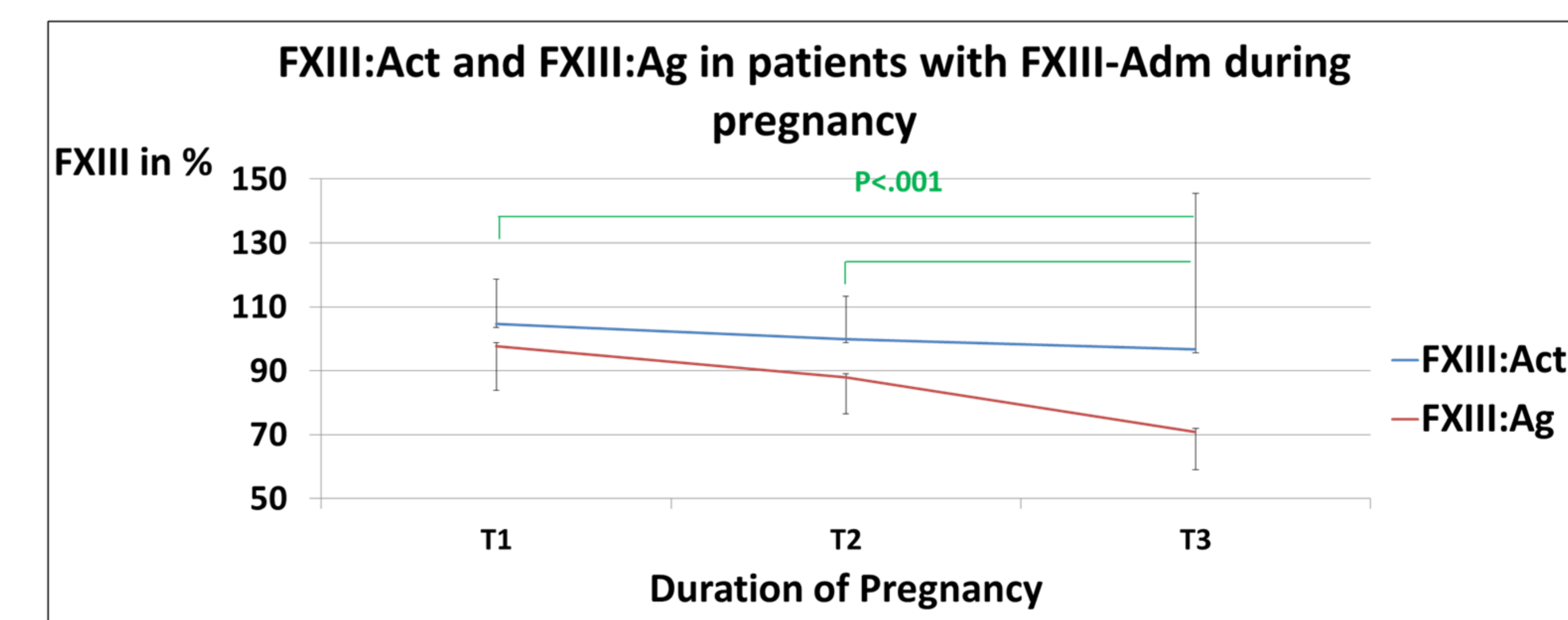
FXIII:Act shows a biphasic decrease throughout the whole pregnancy with the strongest drop during the last trimester, whereas FXIII:Ag drop was monophasic. FXIII:Act levels were higher than FXIII:Ag during whole pregnancy. However, the discrepancy between activity and antigen during pregnancy increased from mean 5 IU/dL in T1 to mean 15 IU/dL in T3 regardless of FXIII-Adm. Thus, comparability of different assay systems is variable during pregnancy with or without FXIII administration.

RESULTS

There was no significant difference between FXIII:Act and FXIII:Ag in both groups throughout all trimesters. In patients without FXIII-Adm mean ± SD FXIII:Act was 106.9 ± 17.1% during T1, 104.0 ± 14.1% during T2 and 92.6 ± 15.5% during T3, resp. Mean ± SD FXIII:Ag was 102.5 ± 14.5% during T1, 91.0 ± 12.1% during T2 and 77.0 ± 15.4% during T3. There was a significant decrease of mean FXIII:Act from T1 and T2 compared to T3 (P< .001). Mean FXIII:Ag significantly decreased from T1 throughout T3 (P< .001). Correlation (R²) between FXIII:Act and FXIII:Ag was .708 for T1, .605 for T2 and .793 for T3.



In patients with FXIII-Adm mean ± SD FXIII:Act was 104.6 ± 13.9% during T1, 99.8 ± 13.6% during T2 and 88.0 ± 14.5% during T3. Mean ± SD FXIII:Ag was 97.7 ± 13.9% during T1, 88.0 ± 11.5% during T2 and 70.9 ± 11.9% during T3. There was a significant decrease of mean FXIII:Act from T1 and T2 compared to T3 (P< .001) only, whereas mean FXIII:Ag decreased throughout all trimesters (P< .005). R² was .480 for T1, R²=.458 for T2 and R²=.774 for T3.



References

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Clotting Factor Concentrates
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