



THE EVOLUTION OF THE LEVELS OF **PIGF**, **sFlt-1** AND THE **sFlt-1/PIGF RATIO** DURING PREGNANCY IN THE GROUP OF WOMEN WITHOUT AND WITH PREECLAMPSIA.



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Objective:

Angiogenic factors such as soluble fms-like tyrosine kinase 1 (sFlt-1) and placental growth factor (PIGF) play a key role in the pathogenesis of preeclampsia (PE). The aim of our study was to assess the evolution of the levels of PIGF, sFlt-1 and sFlt-1/PIGF ratio in women without any type of placental disorders and to compare the results with women who develop PE during three gestational period: 9 - 13 gestational weeks (GW), 30 - 32 GW and 36 - 37 GW.

Method:

In this retrospective study, using the Thermo Fisher assays, sFlt-1 and PIGF were determined in the group of 368 women with singleton pregnancies on Kryptor Compact platform. PIGF was measured in serum samples three times during pregnancy (9 - 13 GW, 30 - 32 GW and 36 - 37 GW). sFlt-1 was measured in serum samples two times during pregnancy (30 - 32 GW and 36 - 37 GW) and the sFlt-1/PIGF ratio was calculated. Women were divided into two groups. Group 1 of 338 women without PE and the group 2 of 4 women with PE. For statistical analysis, the Excel program was used.

Results:

Median levels of all the parameters showed a relationship with gestational age in both groups. Levels of PIGF increased in the 9 – 13 GW and 30 – 32 GW and in contrary to 36 – 37 GW the levels were significantly decreased (Figure 1, Tab. 1). Levels of sFlt-1 and sFlt-1/PIGF ratio showed only increased relationship with GW. Significantly higher levels of sFlt-1 (1134 vs 3183 and 2213 vs 9358) and levels of sFlt-1/PIGF ratio (3 vs 18 and 12 vs 229) were found in group 2 when compared to group 1 (Figure 2 and 3, Tab. 1). Nevertheless, a median of sFlt-1/PIGF ratio at 30 – 32 GW did not exceed cut-off level 38 and any of women with PE did not cross cut-off level 85. Lower levels of PIGF were found in the group 2, but only after 20 GW (425 vs 115,8 and 180 vs. 33,1). During the first trimester significant difference for PIGF levels between groups was not found (26,3 vs. 21,1).

Fig. 1 Levels of PIGF in group 1

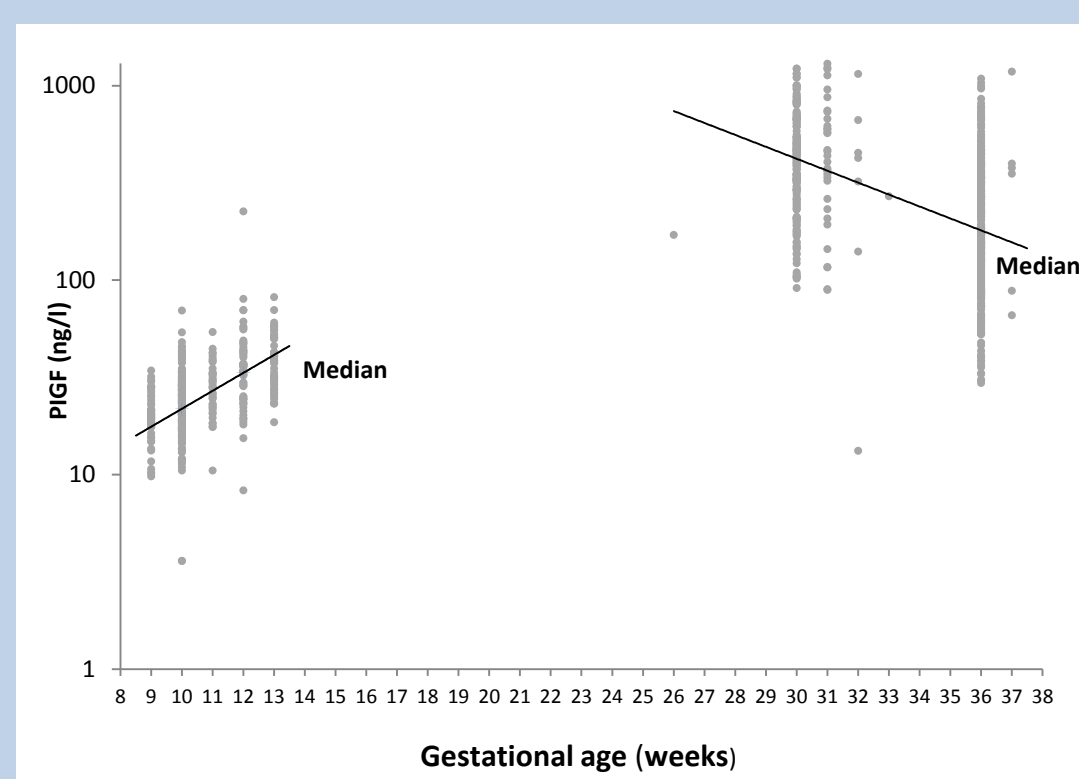


Fig. 2 Levels of sFlt - 1 in group 1

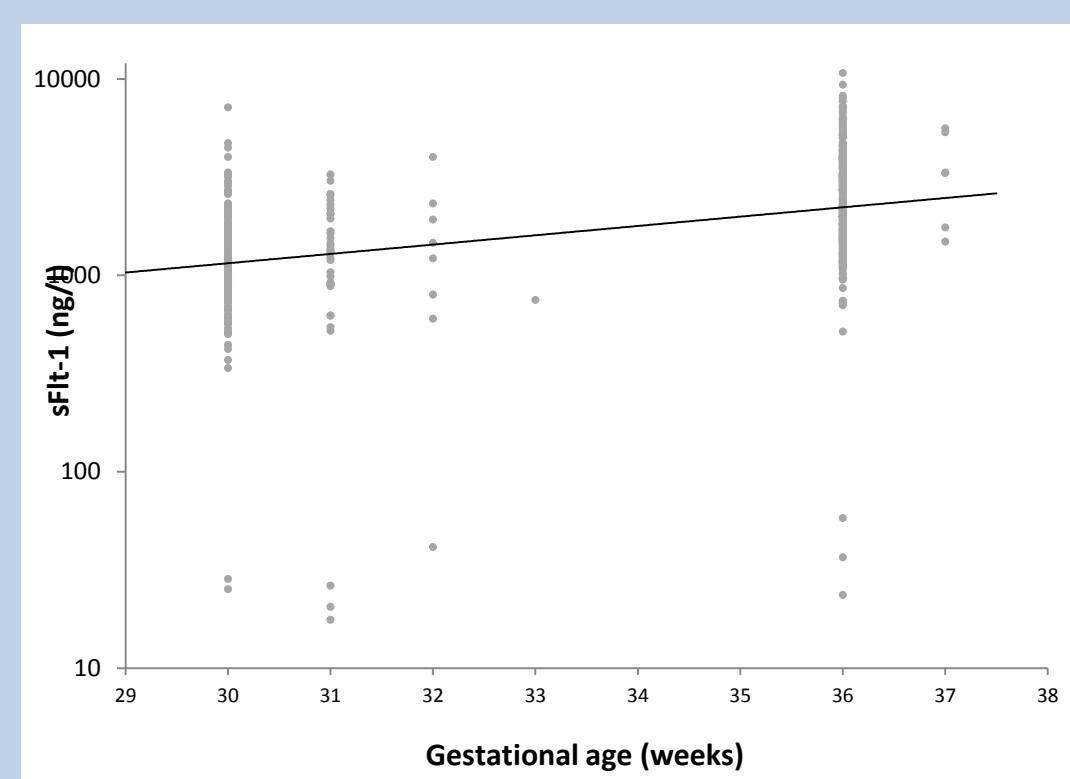
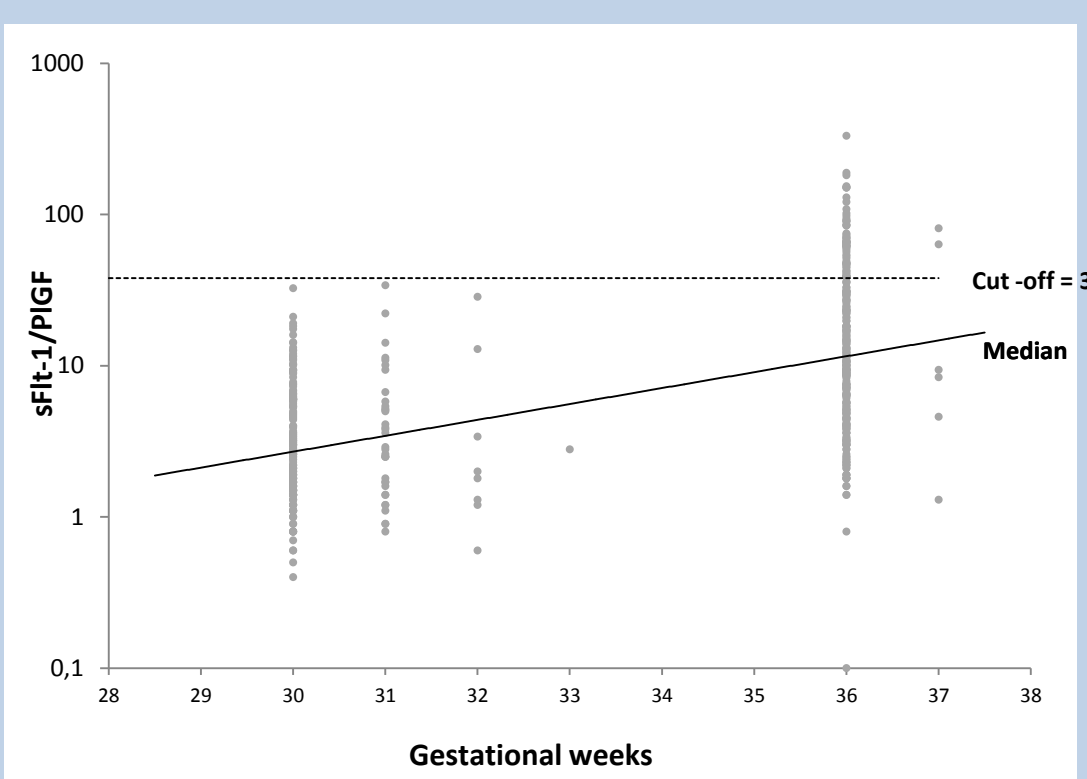


Fig. 3 Levels of sFlt – 1/ PIGF in group 1



Tab. 1 Median of all parameters for both groups

	PIGF ng/l			sFlt-1 ng/l		sFlt-1/PIGF ratio	
Gestational Week	9 – 12 GW	30 – 32 GW	36 – 37 GW	30 – 32 GW	36 – 37 GW	30 – 32 GW	36 – 37 GW
Group 1 (without preeclampsia)							
Median	26,3	425	180	1134	2213	3	12
Interval	3,6 – 225,7	13,3 - 1685	29,6 - 1181	17,6 - 7176	23,6 - 12430	0,4 – 34,1	0,1 – 332,4
Group 2 (with preeclampsia)							
Median	21,1	115,8	33,1	3183	9358	18	229
Interval	13,7 – 30,7	73,7 – 250,9	27,7 - 72	2669 – 4267	6355 - 11120	12,7 – 57,9	111,8 - 336

Conclusion:

We assessed the evolution of the levels of PIGF, sFlt-1 and the sFlt-1/PIGF ratio during pregnancy in the group of women without PE – group 1 and with PE – group 2. We determined levels of PIGF, sFlt-1 and the sFlt-1/PIGF ratio in particular gestational weeks during pregnancy in group 1. We found a relationship between levels of all parameters and gestational age and we also found significantly higher levels of sFlt-1, sFlt-1/PIGF ratio and lower levels of PIGF in group 2.