

# Protein C as a marker of venous insufficiency for erysipelas of the leg

**Background** In erysipelas we often show defects in the cutaneous barrier caused by microorganisms. In some cases, venous insufficiency (VI) may be the cause of deep venous thrombosis and delaying recovery period in erysipelas. It is important to diagnose VI at once.

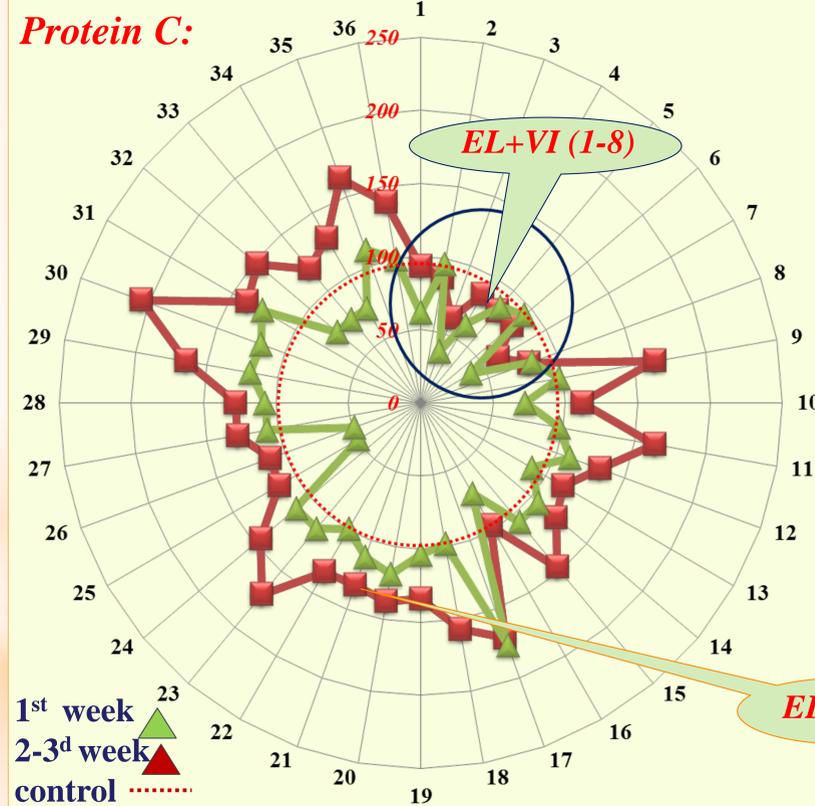
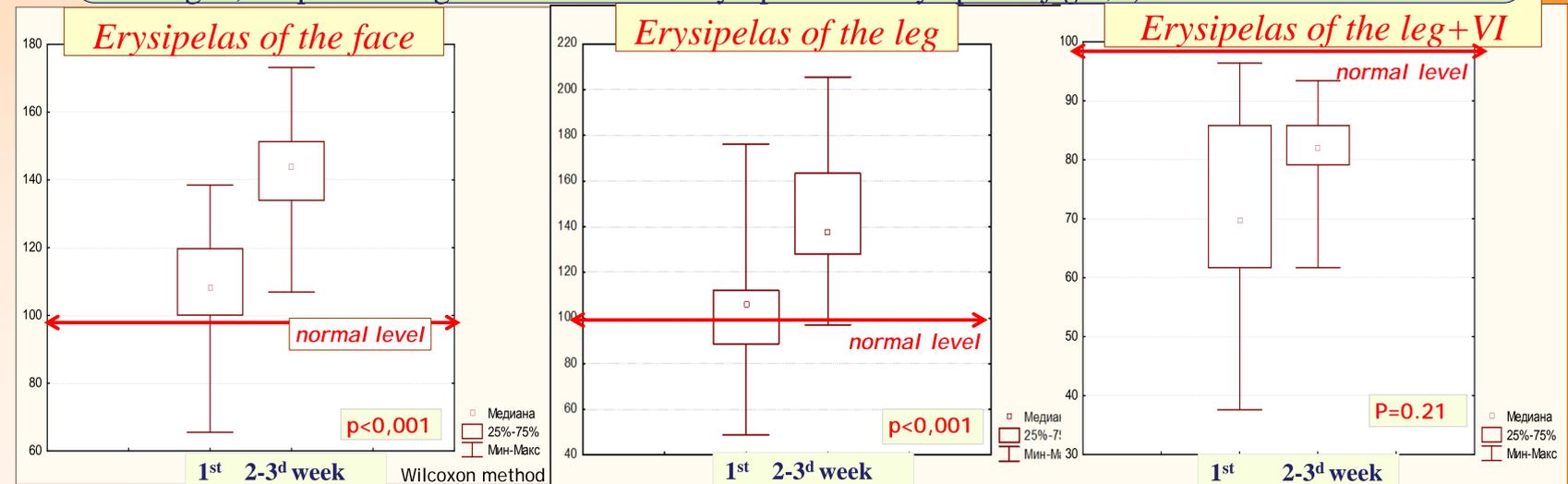
## Objective

The study of the native anticoagulant protein C for patients with erysipelas of the face and erysipelas of the leg (in some cases with the chronic venous insufficiency).

## Materials & Methods

1. Patients were treated at the Infectious Diseases Hospital № 2 (Moscow). A total of 60 people diagnosed with «erysipelas of the face» (n=24) and «erysipelas of the leg» (n=36). Control group - 32 people.
2. Primary erysipelas of the leg (EL) detected rare (50%) than re - 31% and recurrent - 19% of cases. When erysipelas of the face (EF) opposite: primary erysipelas - 92%, re - 4% and recurrent - 4% of cases.
3. A lighter form - erythematous EF was 52% of cases. More severe (hemorrhagic & erythematous-bullous-hemorrhagic) EL forms were 71% of cases. Hemorrhagic disorders occurred more frequently (78%) in EL cases compared with the face (20%); odds ratio 23.8; 95% confidence interval [2.8; 34.7]. Comorbidities in EL were: interdigital tinea pedis (80%) and chronic venous insufficiency in 8 out of 36 people. Hospital treatment: EL-11.9+4.1; EF-8.4+1.6 days.
4. Protein C in plasma (in the beginning of the disease (1<sup>st</sup> week) & in the recovery period (2-3<sup>d</sup> week of illness)) was determined on the Sysmex® CA-500 System («Siemens Healthcare» USA; diagnostics «Siemens AG» Germany).

**Results** We observed positive dynamics of protein C in patients with erysipelas of the face & leg. However, in patients with erysipelas of the leg with chronic venous insufficiency it remained unchanged, despite the regression of clinical symptoms of erysipelas (fig.1,2)



At the beginning of disease protein C was below the control value (97.3 + 0.38%) in group of patients with erysipelas of the leg & in group of patients with erysipelas of the face. In the recovery period protein C activity increased in both groups. In chronic venous insufficiency cases the level of protein C was below norm: 1<sup>st</sup> week/2-3<sup>d</sup> week of illness (tab.1). When protein C in the normal range - the possibility for a quick recovery higher (OR = 2.89 [0.15, 55]) - comparing with EL with VI patients.

EL+VI (n)	Protein C 1 <sup>st</sup> week of illness (%)	Protein C 2-3 <sup>d</sup> week of illness (%)
1	61,7	93,4
2	96,4	86,6
3	37,6	61,7
4	61,7	85,8
5	85,8	82,1
6	93,4	82,1
7	39,9	61,7
8	82,1	79,8

**Conclusions** The results allow us to consider the low level of protein C as a predictor for venous insufficiency, and the normal value - as a sign for favorable course of erysipelas of the leg.

**References:** 1. Erovichenkov A.A. Clinical and pathogenetic significance of hemostatic disorders and their correction in patients with hemorrhagic erysipelas: Dr. Med. Diss. Moscow, 2003 (Rus). 2. Denis F., Martin C., Ploy M.C. Erysipelas: microbiological and pathogenic data. Annales de Dermatologie et de Venereologie, 2001, vol. 128; No 3-C2; 317-326. 3. Egorova V. V., Titova M. I., Demidova V.S. Modern methodological aspects of laboratory diagnosis of protein C and the value of its research in surgery. Medical alphabet. Modern laboratory. - 2013. - №3.; 12 -17 (Rus). 4. Liaw P. C.Y., Neuenschwander P. F., Smirnov M. D. Mechanisms by which soluble endothelial cell protein C receptor modulates protein C and activated protein C function. J. Biol. Chem, 2000, vol. 275, № 8; 5447-5452. 5. Fokina E.G., Roslyy I.M. Laboratory evaluation of erysipelas. Epidemiology and Infectious Diseases. Topical issues. - 2014: №1: 28-32 (Rus).