The correlation between vaginal infection during pregnancy, the emergence of perinatal infections and their outcome

Author: Kovács Árpád Ferenc[1]
Supervisor: Prof. Dr. Szabó Béla[2]

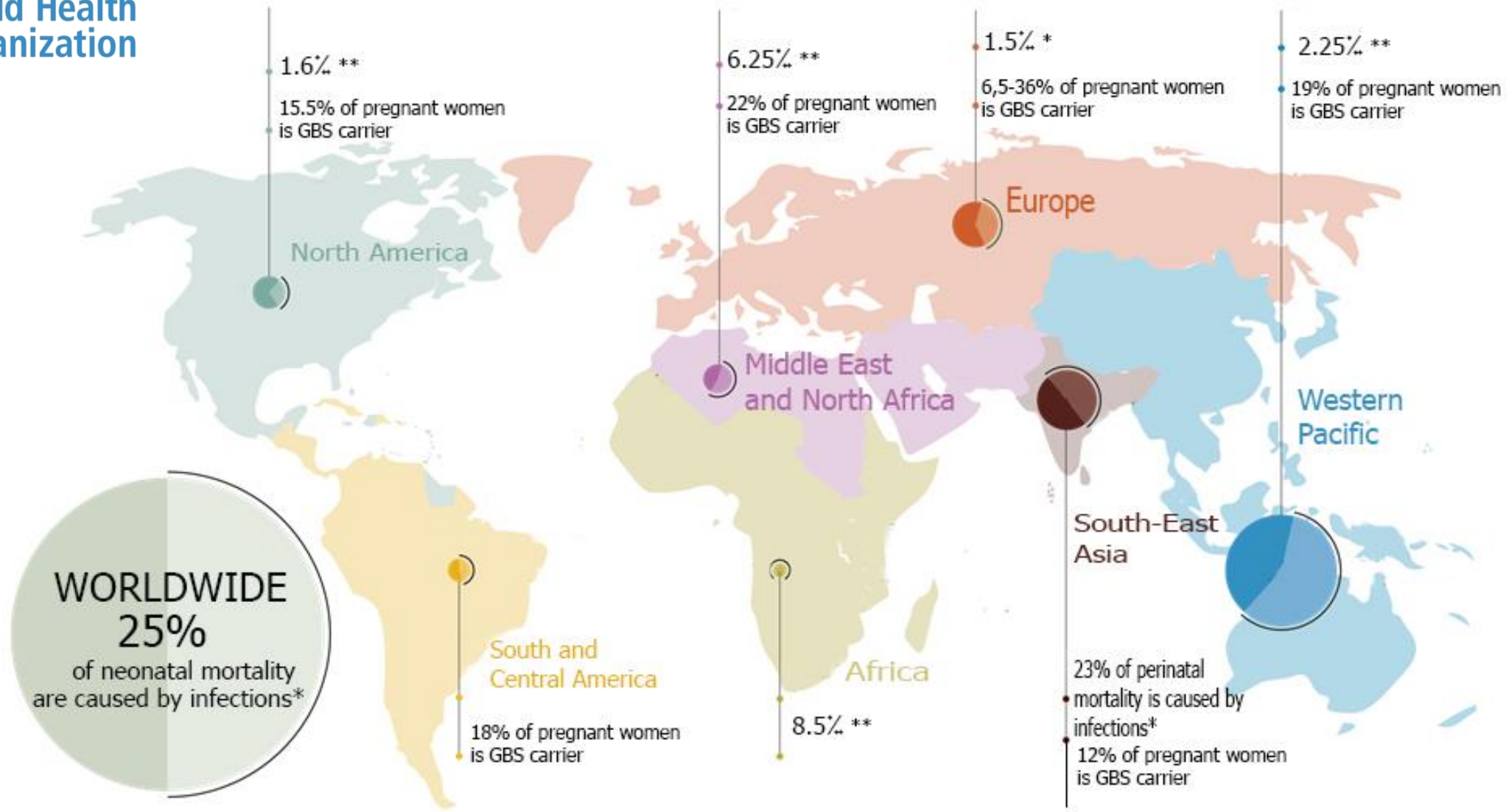
[1] Faculty of Medicine VI. Year , University of Medicine and Pharmacy of Tirgu Mures [2] Professor, University of Medicine and Pharmacy of Tirgu Mures

11. July 2014.

Frequency of Perinatal Infections

World Health Organization

Perinatális infekciók
Kovács Árpád Ferenc



*Bulletin of the World Health Organization ** Mortality caused by infections, World Health Statistics, WHO, 2013

Studies

Emma L. Barber et al. – Interpretation of 2002 Centers for Disease Control Guidelines for Group B Streptococcus and Evolving Provider Practice Patterns, Am J Perinatol. 2011 February ;

Towers, Craig V et al. – The Accuracy of Late Third-Trimester Antenatal Screening for Group B Streptococcus in Predicting Colonization at Delivery, American Journal of Perinatology, Volume 27, issue 10 (2010);

Rasa Tamelienė et al. – Escherichia coli Colonization in Neonates: Prevalence, Perinatal Transmission, Antimicrobial Susceptibility, and Risk Factors, Medicina (Kaunas) 2012;

Melissa S. Bauserman et al – Group B Streptococcus and Escherichia coli Infections in the Intensive Care Nursery in the Era of Intrapartum Antibiotic Prophyaxis, The Pediatric Infectious Disease Journal, 2013;

Sen Sarbatama et al. – Obesity impairs cell-mediated immunity during the second trimester of pregnancy, American Journal of Obstetrics & Gynecology, 2013.

Objective

Finding a correlation between the perinatal infections caused by identified vaginal infection during pregnancy and the evolution of puerperal period

Material and Methods (1)

Inclusion criteria

Pregnancy

Vaginal swab test

Knowledge of pre-pregnancy weight and weight gain during pregnancy

Eligible patients

211 mothers

Mean age: 29.8 ±6.3 year

Postpartum evolution
Follow up for 7 days

Data storage

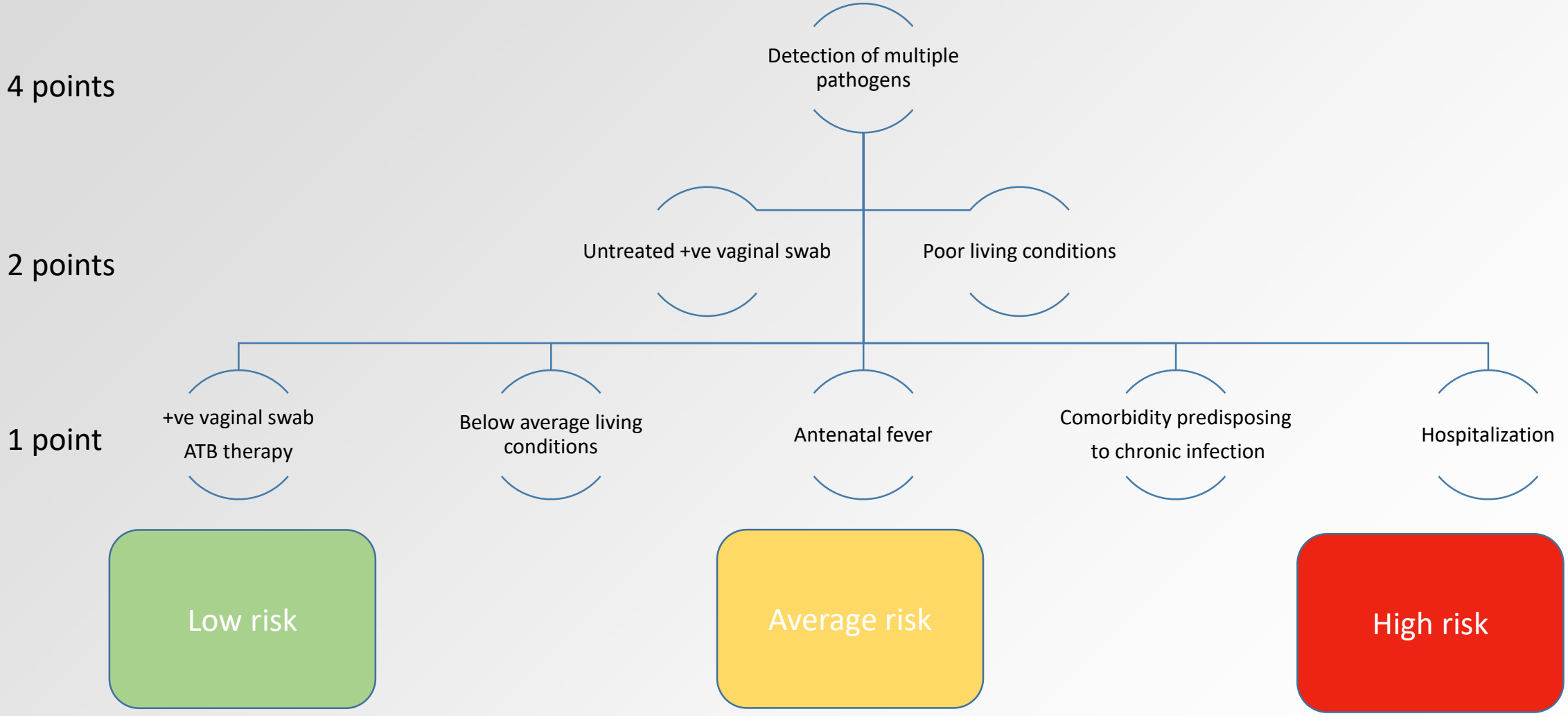
Statistical processing

EPI INFO 7

StatSoft STATISTICA

Material and Methods (2)

Score system:



Material and Methods (3)

Birth weight percentile :

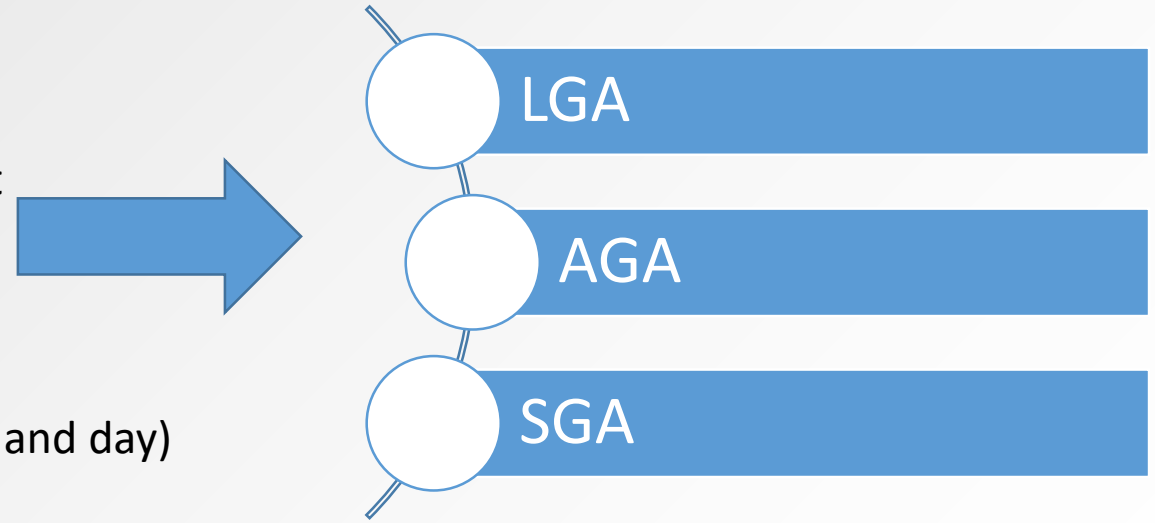
Material and Methods (4)

Gestational age and birth weight

http://www.gestation.net

Parameters used for the calculation:

- ✓ Parity
- ✓ Maternal height
- ✓ Maternal body weight
- ✓ Ethnic origin
- ✓ Newborn gender
- ✓ Gestational age(week and day)
- ✓ Birth weight

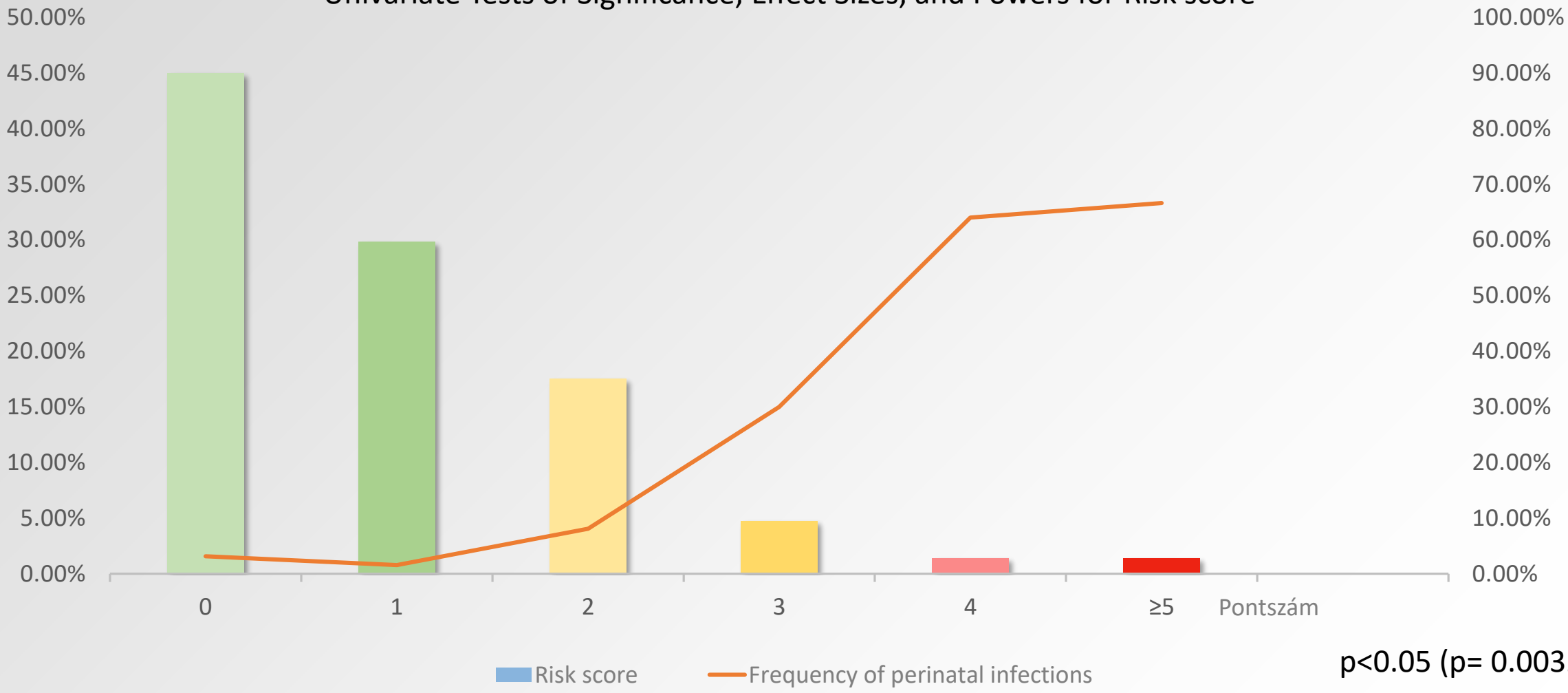


* With the permission of Perinatal Institute UK

Results (1)

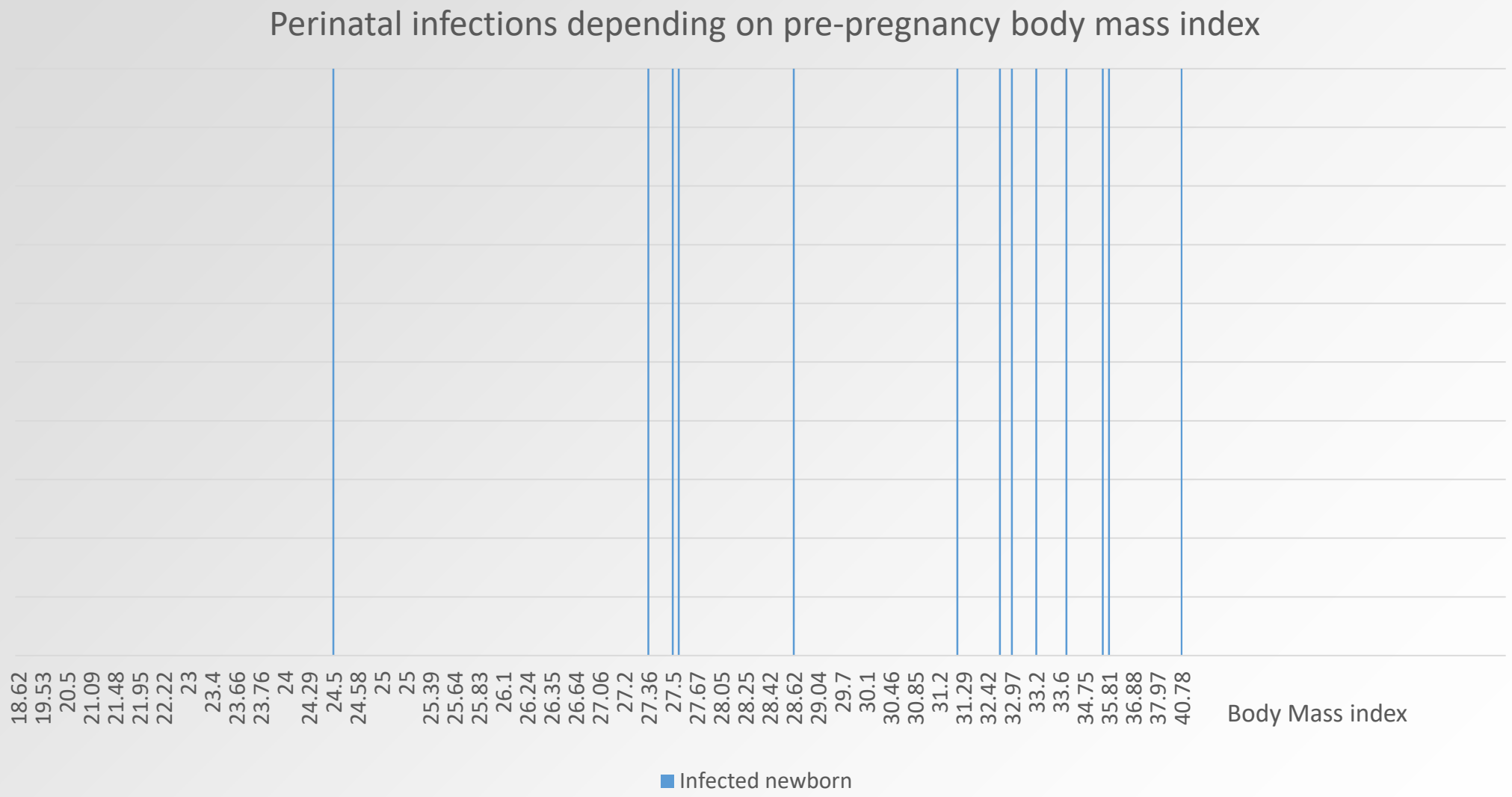
Distribution of group risks according to score:

Univariate Tests of Significance, Effect Sizes, and Powers for Risk score

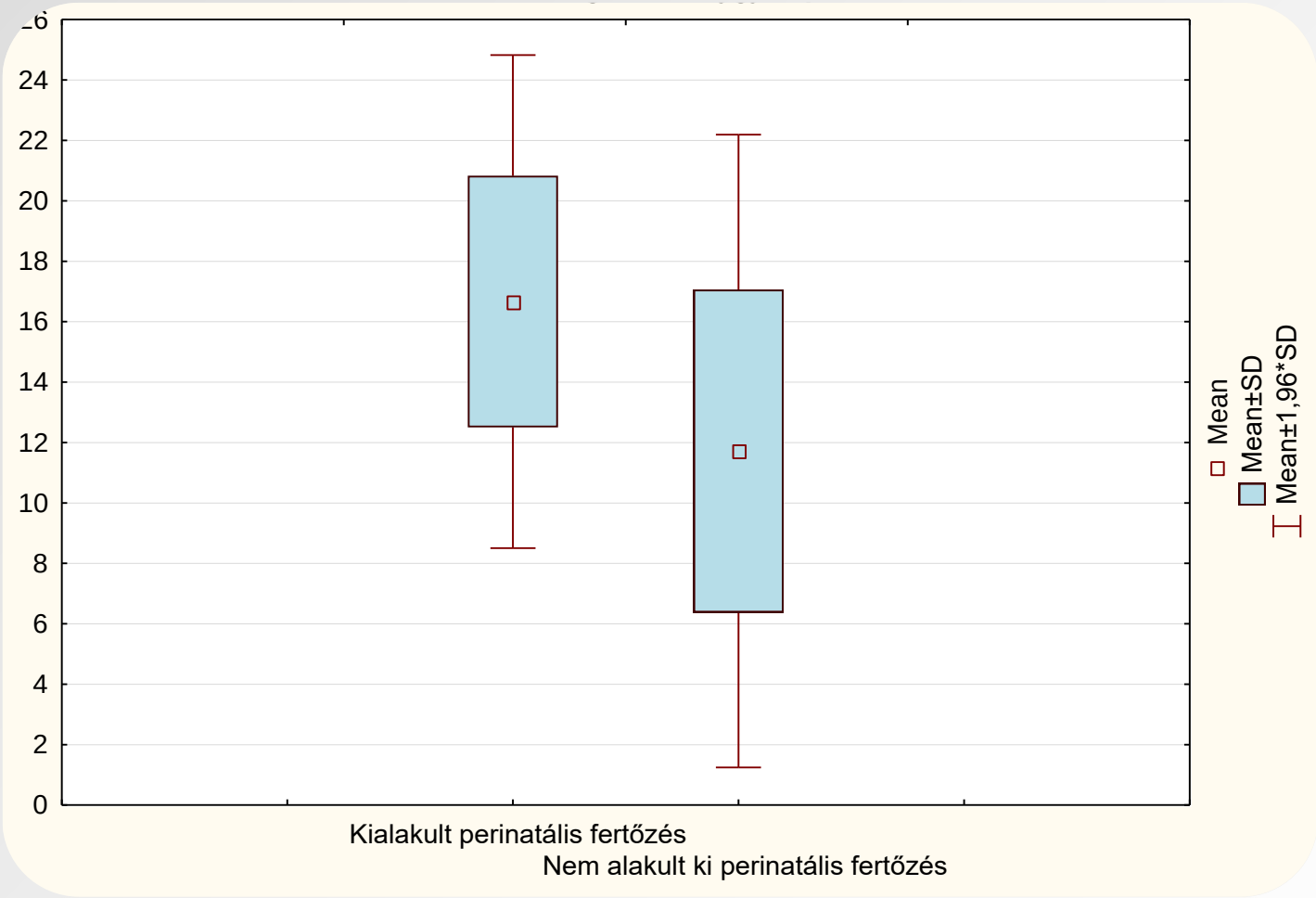


p<0.05 (p= 0.0032)

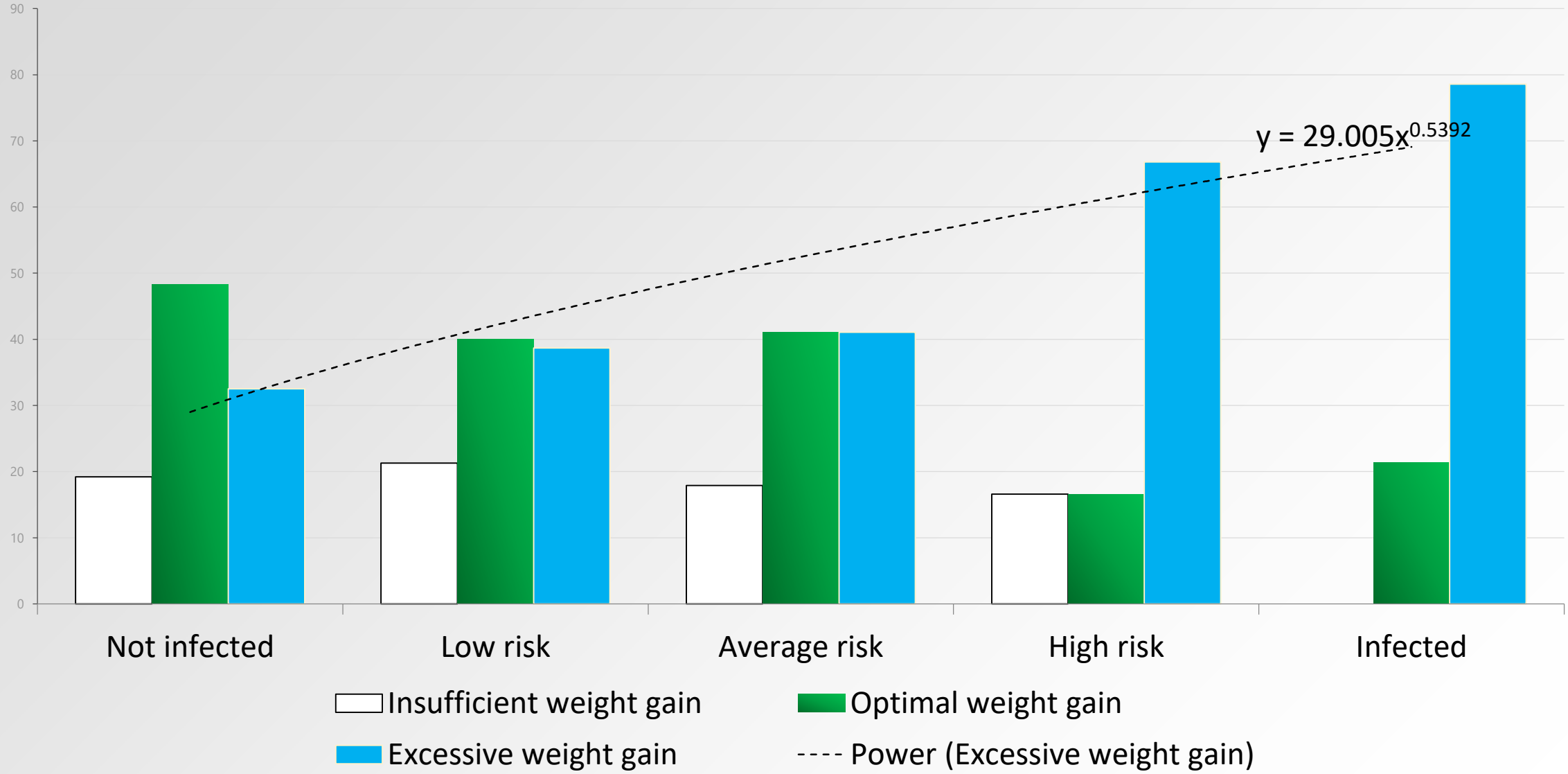
Results (2)


Perinatal infections depending on pre-pregnancy body mass index
18.62
19.53
20.5
21.09
21.48
21.95
22.22
23
23.4
23.66
23.76
24
24.29
24.5
24.58
25
25
25.39
25.64
25.83
26.1
26.24
26.35
26.64
27.06
27.2
27.36
27.5
27.67
28.05
28.25
28.42
28.62
29.04
29.7
30.1
30.46
30.85
31.2
31.29
32.42
32.97
33.2
33.6
34.75
35.81
36.88
37.97
40.78
Body Mass index
Infected newborn

Results (3)


26
24
22
20
18
16
14
12
10
8
6
4
2
0
Kialakult perinatális fertőzés
Nem alakult ki perinatális fertőzés
Mean
Mean±SD
Mean±1,96*SD

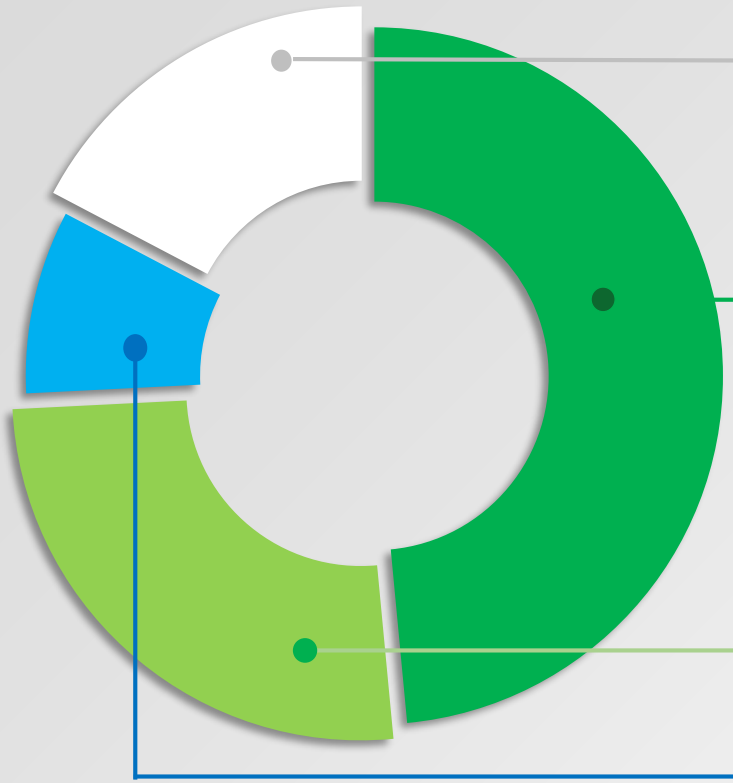
Results (4)



OR: 5.72 RR:2.84 p<0.05 (p=0.002)

Results (5)

Modified vaginal flora of the mother



17.3% OTHER PATHOGENS

48.5% GROUP B STREPTOCOCCUS

24.7% ESCHERICHIA COLI

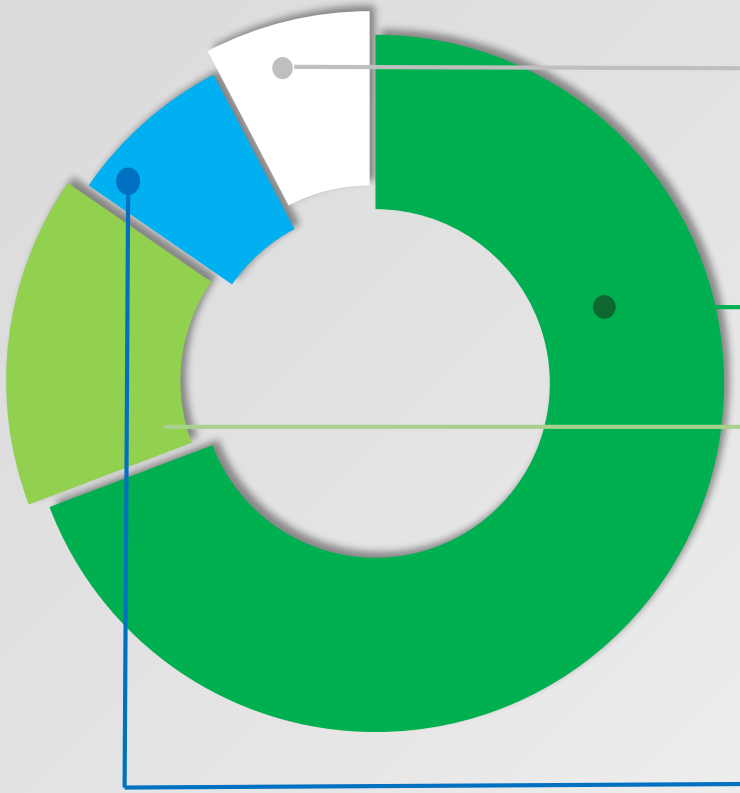
8.5% ENTEROCOCCUS

Identified pathogen
19.5%

Antibiotic therapy
48.5%

Results (6)

Infected Newborn



7.7% KLEBSIELLA

69.3% GROUP B STREPTOCOCCUS.

15.4% ESCHERICHIA COLI

7.7% ENTEROCOCCUS

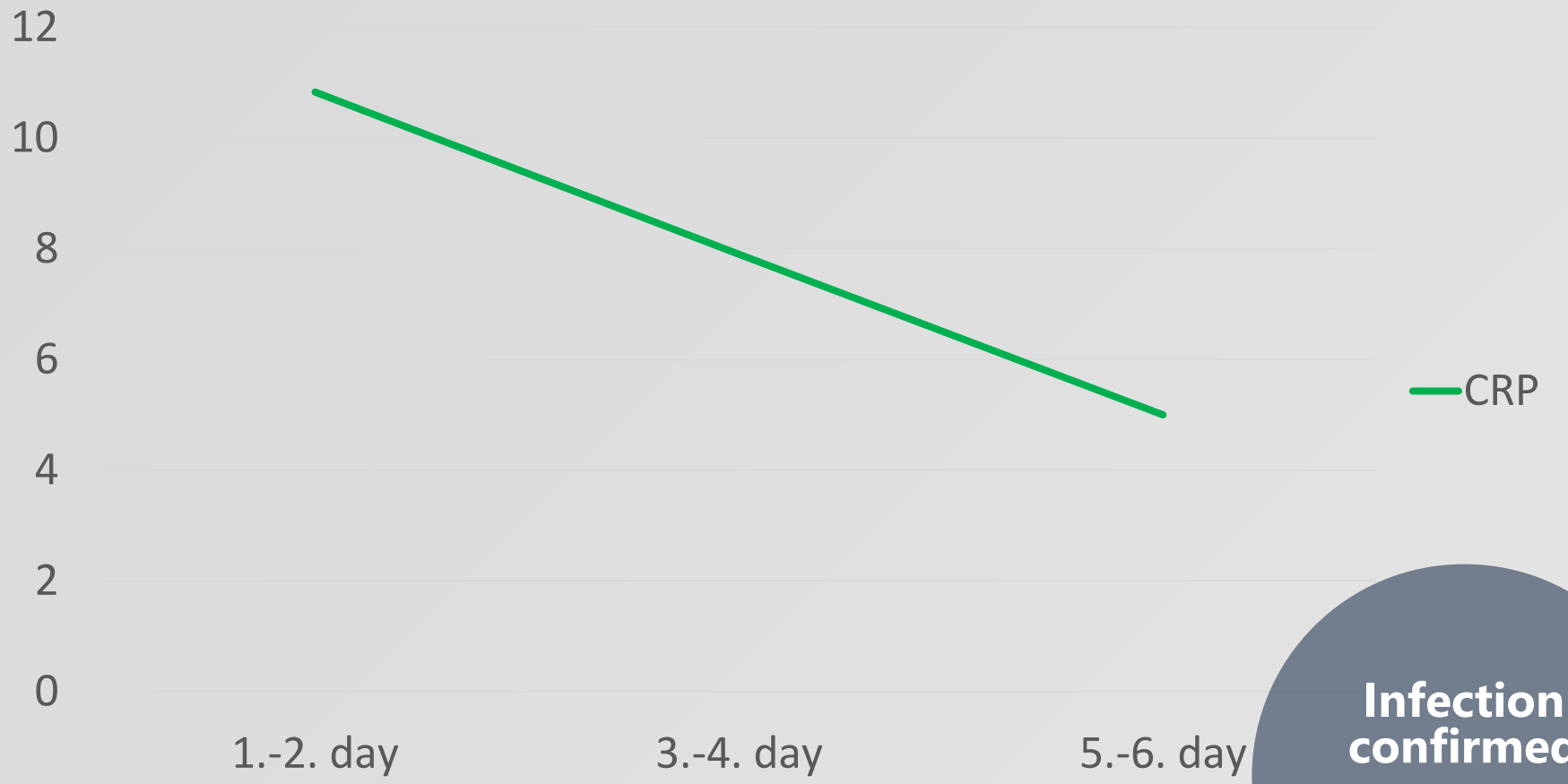
Antibiotic treatment

4 days

Antibiotic resistance

38.5%

Results (7)

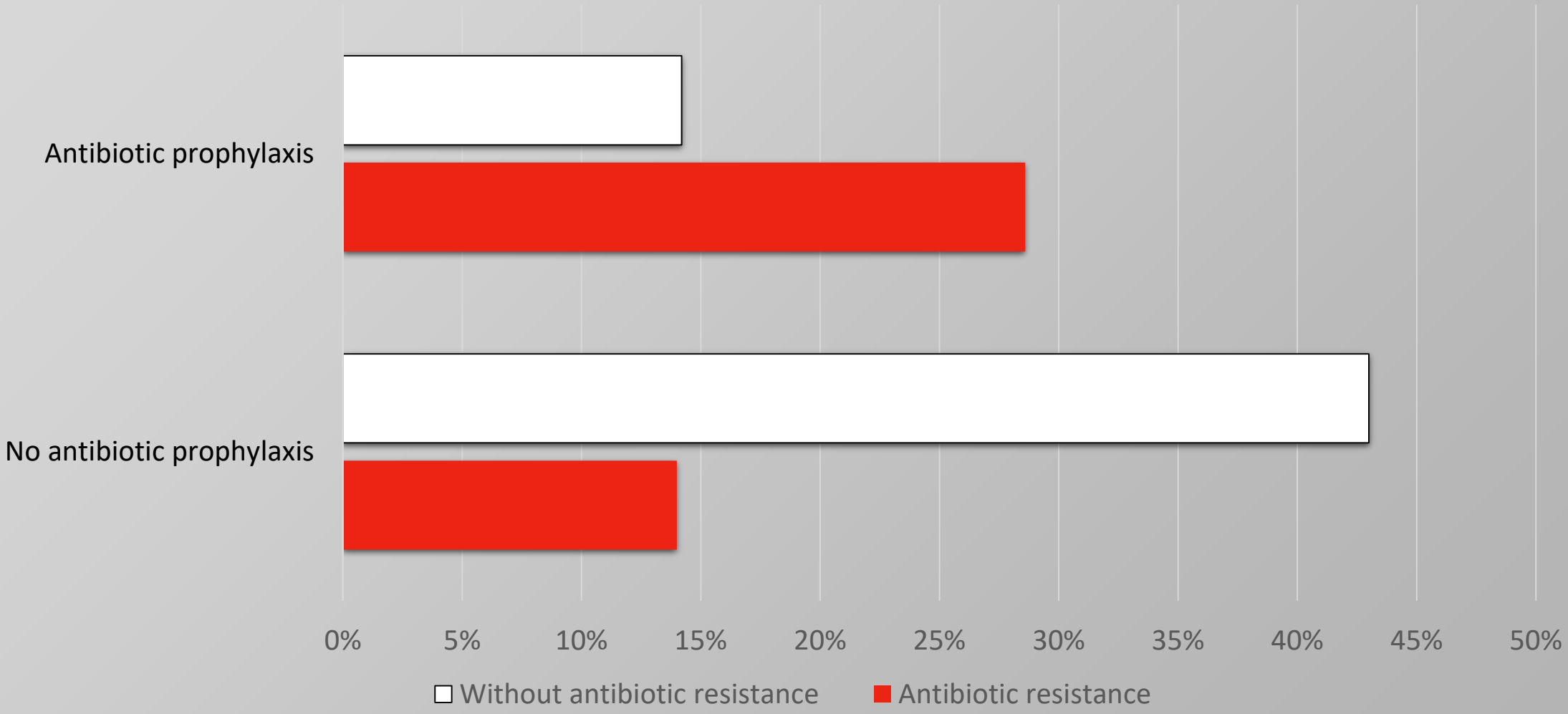


Infection confirmed
2 days

Hospital stay
6 days

Results (8)

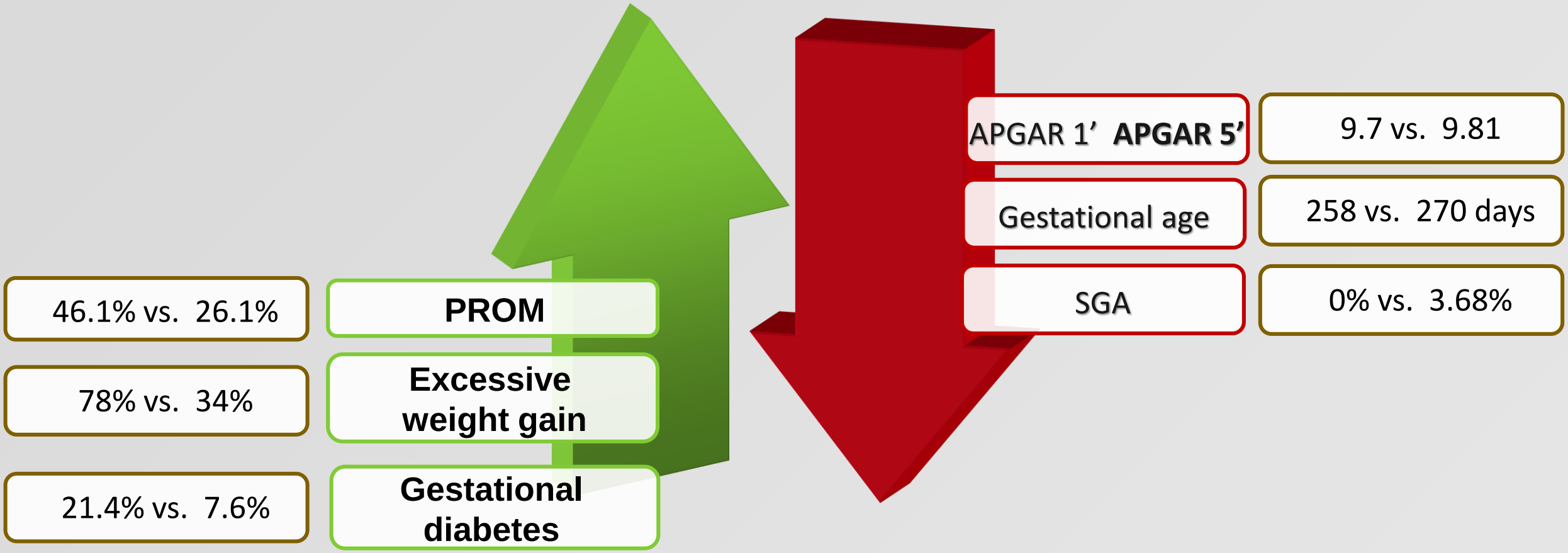
Antibiotic therapy of the pregnant mother and the antibiotic resistance in the newborn



OR: 6.25 RR:2.5 p<0.05

Results (9)

Perinatal infections



Conclusions (1)

- Pre-pregnancy overweight is a predisposing factor for vaginal infections
- Excessive weight gain during pregnancy develops more frequently in those mothers, whose newborn was perinatally infected
- Gestational diabetes may predispose to the development of perinatal infection
- The small for gestational age group is showing almost an exponential decline rate in the perinatally infected newborns

Conclusions (2)

- The main etiologic agent is still the GBS, which is followed by the E.coli
- Perinatal infections developed more frequently in those newborns, whose mothers had modified vaginal flora identified during pregnancy
- The antibiotic resistance was more frequent in those newborns, whose mother received prophylactic antibiotic therapy

Message to take home

OVER-WEIGHT

ANTIBIOTIC RESISTANCE

Thank you for your attention!