

# OUTCOMES OF NOSOCOMIAL *PSEUDOMONAS AERUGINOSA* BACTEREMIA

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## Background

*Pseudomonas aeruginosa* remains a highly significant cause of bacteremia worldwide. Recent epidemiological studies show mortality rates up to 20% and even higher. This may reflect the intrinsic virulence of the microorganism and underlying conditions frequently present in patients with bacteremia associated with *P. aeruginosa*. Moreover, multiple resistance to antibiotics in *P. aeruginosa* which is an important new variable for mortality may be emerging now.

## Objectives

To investigate outcomes of nosocomial *P. aeruginosa* bacteremia and resistance of blood isolates.

## Methods

To our knowledge this was the first prospective epidemiological study to investigate the outcomes and resistance of the pathogen in Russia. For this purpose clinical episodes of microbiologically proven *P. aeruginosa* bacteremia from 6 Russian cities (Tumen, Novosibirsk, Ekaterinburg, Smolensk, Kazan and Moscow) were reviewed prospectively from 2000 to 2002 (fig. 1). Susceptibility was evaluated by broth dilution MICs (NCCLS 2002).

► Figure 1. Study sites

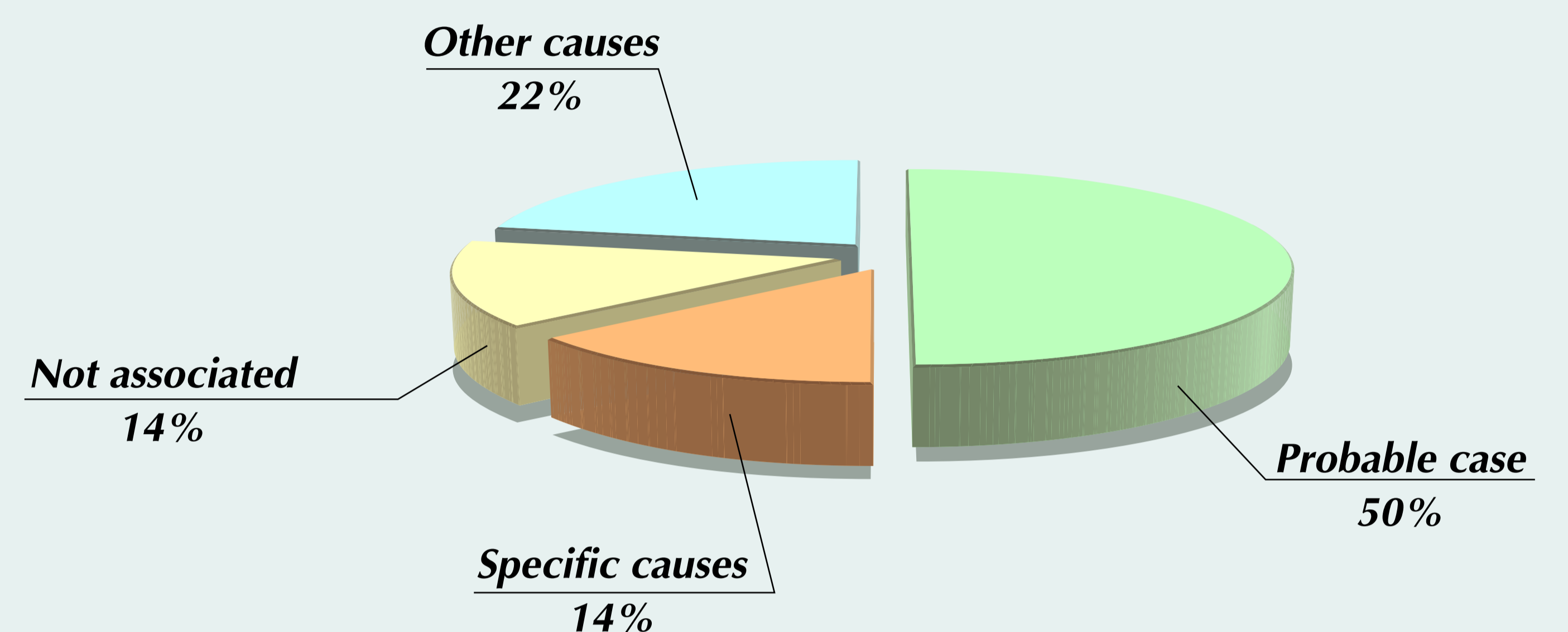


## Results

Of 40 patients enrolled 67.5% (27) were males. Median age was 33.8 + 22.8 years. 82.5% (33) patients were hospitalized in ICUs and 17.5% (7) – general wards. Lethal outcome was observed in 35% (14) of cases and 55% (22) patients recovered. Four (10%) patients were not traced to outcome because of lost to follow up. Bacteremia was

considered as probable cause of death in 50% (7) cases, specific cause – in 14.3% (2) and not associated with mortality in 14.3% (2). Three (21.4%) patients died of other causes (fig. 2).

► Figure 2. Bacteremia relatedness to lethal outcome



The rates of not susceptible (intermediate + resistant) strains are presented in the Table 1.

► Table 1. Susceptibility rates of *P. aeruginosa* strains to antimicrobials

#	ANTIBIOTIC	I + R, %
1	Gentamicin	77.5
2	Tobramycin	60
3	Ticarcillin/clavulanat	55
4	Piperacillin	52.5
5	Levofloxacin	42.5
6	Aztreonam	35
7	Cefepime	35
8	Ciprofloxacin	35
9	Ceftazidime	30
10	Amikacin	20
11	Piperacillin/tazobactam	17.5
12	Meropenem	15
13	Imipenem	12.5

## Conclusions

The study has discovered that nosocomial *P. aeruginosa* bacteremia in Russia is characterized by high mortality and probably due to acquired multiple resistance of the pathogen to antimicrobials.

