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O0881 Italian epidemiology of Gram-negative bloodstream infections over a 4-year period

Maddalena Giannella*[1], Renato Pascale[1], Sara Tedeschi[1], Michele Bartoletti[1], Simone Ambretti[1], Daniele Roberto Giacobbe[2], Silvia Corcione[3], Maddalena Peghin[4], Alessandra Mularoni[5], Guido Granata[6], Daniela Dalla Gasperina[7], Valentina Marchese[8], Filippo Lagi[9], Paolo Antonio Grossi[7], Matteo Bassetti[4], Francesco Castelli[8], Alessandro Bartoloni[10], Mario Tumbarello[11], Claudio Viscoli[2], Gian Maria Rossolini[10], Nicola Petrosillo[6], Pierluigi Viale[1]

[1] Policlinico Sant'Orsola Malpighi, Bologna, Italy, [2] San Martino Hospital, Genova, Italy, [3] Molinette Hospital, University of Turin, Torino, Italy, [4] Santa Maria Misericordia University Hospital, Udine, Italy, [5] ISMETT, Palermo, Italy, [6] Lazzaro Spallanzani Hospital, Roma, Italy, [7] Ospedale di Circolo e Fondazione Macchi, Varese, Italy, [8] Brescia Spedali Civili General Hospital, Brescia, Italy, [9] Dipartimento di Medicina Sperimentale e Clinica, Università di Firenze, Firenze, Italy, [10] University of Florence, Firenze, Italy, [11] Catholic University of the Sacred Heart, Rome, Italy

Background: To describe the epidemiology of Gram negative bloodstream infection (GN-BSI) in Italy, in particular to assess the prevalence of carbapenem resistance (CR).

Materials/methods: We performed a survey involving 10 hospitals from 8 Italian Regions (Friuli-Venezia-Giulia, Lombardia, Piemonte, Liguria, Toscana, Emilia Romagna, Lazio, Sicilia). Study period consisted of 4 years, 2013-2016. We asked for data on hospital characteristics, infection risk management (local antimicrobial stewardship and infection control programs), and microbiological tools. To calculate incidence of GN-BSI, we collected the number of index GN-BSI including Enterobacterales, Pseudomonas aeruginosa and Acinetobacter baumannii per year, the number of hospital admission and patient-days per year. We further asked for carbapenem resistance (CR) rate in each pathogen.

Results: Participating hospitals are 8 tertiary teaching and 2 secondary non-teaching hospitals, with mean number of beds of 1034 (ranging from 85 to 1620), and mean number of intensive care unit beds of 40 (8 to 80). Antimicrobial stewardship and infection control programs were reported in all the hospitals including several activities. During the study period a total number of 11761 Enterobacterales BSIs were reported, with 9797 (83.3%) carbapenem susceptible and 1335 (11.3%) CR strains (CRE). P. aeruginosa was responsible of 1441 BSI episodes, with 346 (24%) strains showing resistance to carbapenems plus other two antibiotic classes among fluoroquinolones, aminoglycosides and betalactam/betalactamase inhibitor (MDR-PA). A. baumannii was responsible of 531 BSIs, with 457 (86%) CR strains (CR-AB). Over the study period, there was an increase in the incidence of CRE and CR-AB BSIs, while the incidence of MDR-PA BSIs remained stable (see Table). The incidences varied among hospitals according to their characteristics. An outbreak or CR-AB BSI occurred in one center during 2015.

Conclusions: Our survey remarks that CR in Enterobacterales is by far the most common cause of multi-drug resistance among GN-BSIs in Italian hospitals.

Table: Total incidence of BSI per 10,000 patient days

	CRE	MDR P. aeruginosa	CR-A. *baumannii*
2013	1.16	0.38	0.28
2014	1.19	0.31	0.38
2015	1.49	0.34	0.63
2016	1.52	0.36	0.52