Multidrug resistant *Pseudomonas aeruginosa* bloodstream infection: comparison between children and adult patients with cancer (*reply*)

In this issue, Trecarichi *et al.*[1] provide interesting information on the impact of MDRPA strains in a population of adult patients with hematologic malignancies in a multicenter setting. Interestingly, their findings from a prospective study in 9 Italian tertiary care centers or university hospitals, expand our observation in children, by confirming a comparable mortality rate among adult patients. Furthermore, they remark that MDRPA represents an increasing risk for such patients, with a 30-day mortality rate of 40%.

It is interesting to note that while resistance to antipseudomonas cephalosporins is comparable in children and adults, carbapenems and ciprofloxacin appear to have a markedly reduced *in vitro* activity; this could be read as a source for major concern over the wide use of antibiotic prophylaxis, much more common in adults than in children. In this sense, one of the few studies comparing data on antimicrobial susceptibility of strains isolated from bacteremia in pediatric *versus* adult cancer patients[2,3] showed that the proportion of resistant strains was significantly higher in adults, not only for quinolones, but also for beta-lactams, and this fact was previously related to the widespread use of fluoroquinolone prophylaxis

The risk of death for patients empirically treated with agents which turned to be inactive toward the isolated strains (so called "inadequate initial antimicrobial therapy", IIAT), although not defined by Trecarichi *et al.*,[1] was found to be a significantly independent adverse factor in the multivariate analysis. But this does not differ from the findings of a 50% death rate, i.e. 4 out of 8, among comparable patients in our pediatric series.

One point of discrepancy between the two studies is the finding of 27 of 38 adult patients with MDRPA, a proportion which is more than twice that reported in our children. To address the question raised, that such a higher percentage of MDRPA isolates among adults may depend on the different era of our studies (2000 to 2008 in children *vs.* 2009-2010 for adults), we revised our data. When our large series of 127 patients was divided into two time periods by the median date (falling in July 2005), MDRPA was recorded in 17 of the 63 older cases (26.9%) *versus* 22 of the 63 latter ones (34.9%). This difference turned out to be statistically not significant (z = 0.779; *P*=0.436; confidence intervals, -0.241 to 0.08). Thus, the most recent cases did not have a significantly higher probability to be MDRPA.

In conclusion, we agree with Trecarichi *et al.* that monitoring the occurrence of MDRPA strains among patients with hematologic malignancies is a relevant practice with major clinical impact. Comparison between children and adult patients suggest that, although the underlying risk is comparably high, likely due to the obvious need for intensive chemotherapy causing extended cytopenia, yet different therapeutic approaches, and in particular antibiotic prophylaxis, may be associated with a higher frequency of MDRPA in adults and have a major impact on the patient morbidity and even mortality.

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