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P1436 IgM-enriched immunoglobulins as adjuvant therapy for bacterial meningitis and related invasive diseases

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Background: Bacterial meningitis (BM) and related invasive diseases (IBD) are severe diseases with still high mortality. We previously demonstrated in a retrospective study the protective effect of IgM-enriched immunoglobulins (IGAM) on mortality and other serious adverse events (composite outcome) in meningococcal invasive diseases.

Materials/methods: All patients with bacterial meningitis admitted to Cotugno hospital, Naples, Italy, from January 2014 to April 2018 were enrolled in the study. Epidemiological, clinical and microbiological data were collected by an ad hoc case report form. Composite outcome was defined as death or permanent sequelae such as amputation or permanent neurological deficit. Statistical analysis was performed using a multivariate penalized logistic regression. The covariates considered in multivariate analysis were those showing a $p < 0.1$ at the univariate regression.

Results: We retrospectively analyzed 215 BM, 108 (53.02%) meningitis were caused by *S. pneumoniae (SP)*, 80 (37,21%) by *N. meningitidis (NM),* 12 (5,58%) by *H. influenzae* e 9 (4,19) by *L. monocytogenes*. Patients with less than 14 year-old were 57 (26,5%). Mean SOFA score were 3 (range 2-7), mean GCS were 10 (±4). IGAM therapy were administered to 61 (28%) patients (52 with NM and 19 with SP), 208/215 patients have received steroids. Neurological sequelae were described in 14 cases. 33 patients died: the causative bacteria in these cases were *SP* in 24 cases, *NM* in 7 and *L. monocytogenes in 2*. At the multivariate analysis for composite outcome, protective factors were: *invasive disease due to NM* compared to SP, NM non-C serogroup, male gender and IGAM administration as shown in Table 1.

Conclusions: IGAM might be beneficial in overwhelming sepsis such as BM and IBD, because they might be able to bind bacterial antigens and reduce the trigger for sepsis, CID and *purpura fulminans*. The effect of IGAM might be beneficial not only in invasive meningococcal diseases but also in pneumococcal invasive disease.

Table 1: risk factors and protective factors for composite outcome

Risk factors	**OR**	**Protective factors**	**OR**
Age	1.007	Male gender	0.654
Bilirubin	1.387	IGAM	0.731
C-reactive protein	1.023	*N. meningitidis* etiology	0.69
S. pneumoniae etiology	2.69	*N. meningitidis* non-C serogroup	0.218