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Antibody responses to SARS-CoV2 vaccination in a high proportion of allogeneic hematopoietic stem cell transplant recipients

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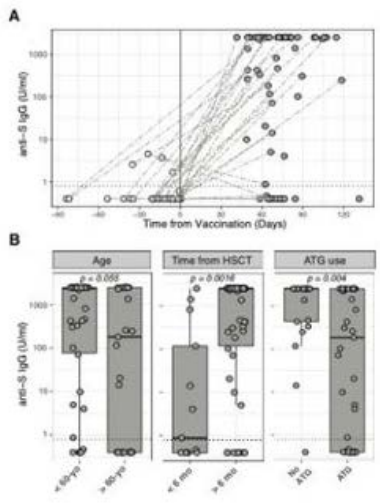
Allogeneic hematopoietic stem cell transplantation recipients have a higher risk of developing severe forms of COVID-19. Induction of protective immunity through prophylactic vaccination is therefore important. We analyzed humoral responses to two doses of mRNA-based SARS-Cov-2 vaccines in 63 patients transplanted at Geneva University Hospitals, following our institutional priority vaccination program whose inclusion criteria were: minimum 3 months and maximum 3 year since allogeneic HSCT; or at more than 3 years post-transplant with GvHD requiring immunosuppressive drugs; absence of Rituximab in the previous 3 months; absence of steroid treatment with Prednisone ≥ 10 mg/day. Vaccine-induced antibody responses against the SARS-CoV-2 spike protein (anti-S) were assessed in serum using the semi-quantitative Elecsys® Anti-SARS-CoV-2 immunoassay (Roche).Median age was 54 (18-78) years. The first vaccine dose was administered at a median of 14 (3-150) months after transplantation. Forty-six out of 63 (73%) patients received mRNA-1273 and 17/63 (27%) received BNT162b2 vaccines. Forty-eight out of 63 (76%) allogeneic HSCT recipients showed some degree of humoral response to vaccination based on anti-S IgG. Median levels of anti-S IgG were 815 U/ml. We observed significantly lower anti-S IgG responses in patients receiving the first vaccine dose within 6 months since transplantation (6/13, 46%; median 0.88 U/ml) compared with patients vaccinated after 6 months post-HSCT (42/50, 84%; median 2500 U/ml; p = 0.0016) and lower anti-S IgG responses in patients having received ATG as part of their conditioning (27/41, 66%; median 183 U/ml) compared with patients who did not receive ATG (21/22, 95%; median 2500 U/ml; p = 0.004).

FIGURE 1



1: Quantification of IgG against SARS-CoV-2 spike protein in response to vaccination in allogeneic HSCT
ts. (A) IgG against SARS-CoV-2 spike protein before and after mRNA-based SARS-CoV-2 vaccination (time 0). gray lines connect paired samples before and after mRNA-based SARS-CoV-2 vaccination in patients for oth samples were available. Dotted black line indicates the 0.8 U/ml positivity cutoff. (B) Levels of IgG SARS-CoV-2 spike protein in allogeneic HSCT recipient stratified by age, time post-HSCT and ATG use during oning. Groups were compared using the non-parametric Mann-Whitney U test.

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The efficacy of antibiotic prophylaxis in AML patients undergoing induction chemotherapy

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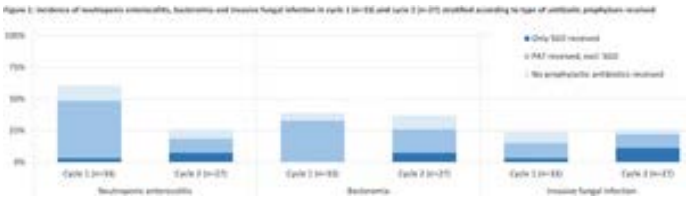
Introduction: Infections are a major cause of morbidity and mortality in acute myeloid leukemia (AML) patients (pts) receiving induction chemotherapy (CTx). The role of prophylactic antibiotic treatments (PAT) including selective gut decontamination (SGD) to lower the risk of infections (e.g., neutropenic enterocolitis (NE)) remains controversial. Therefore, we conducted a prospective, observational study on the efficacy of PAT in preventing infectious complications in AML pts during CTx.

Methods: AML pts admitted to our center from 03/2018 to 03/2021 who received cytarabine-based CTx were included in the ongoing study. Pts received SGD in the 1st cycle if relevant gastrointestinal disease (e.g., IBD) was present. In the 2nd cycle SGD was also given to those who had suffered from NE during cycle 1.

Results: So far, 33 pts with a median age of 57y (range, 18-71y) have been enrolled. 27 pts (81.8%) received PAT in cycle 1 (1 with SGD), 18 pts (69.2%) in cycle 2 (7 with SGD), respectively. 20 pts (60.6%) developed NE during CTx 1 and 7 (25.9%) during CTx 2. Yet, rates of bacteremia and invasive fungal infections were identical in both cycles, regardless of PAT and SGD (Figure 1).



Correlation analysis identified only male sex and lower age to be associated with an increased risk to develop bacteremia.

Conclusions: PAT including SGD had no significant effect on lowering the incidence of infectious complications during CTx in our study population. These results are limited by the as of yet low patient number and the non-interventional study design.

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Beliefs about medicines in patients with multiple myeloma in Switzerland

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Background: Medication beliefs have been found to be associated with medication adherence among various cancer patients. Despite its importance, medication beliefs have not been investigated in patients with multiple myeloma (MM). A study on quality of life in MM patients provided the opportunity to fill this gap.

Methods: Patients were recruited consecutively from three Swiss oncology/hematology centres. Inclusion criteria included confirmed histological MM diagnosis, age ≥18 years and informed consent. Exclusion criteria were participation in another clinical study, inability to communicate in German and more than one cancer diagnosis. Participants completed a survey including the Beliefs about Medicines Questionnaire (BMQ) and a sociodemographic questionnaire. Clinical data was extracted from medical records. The complete case dataset (N = 41) was analysed using descriptive statistical methods.

Results: Most participants were men (59%), married/partnered (80%), born in Switzerland (80%), economically inactive (85%) and completed at most upper secondary education (72%). Mean age at diagnosis was 61 years (range: 35-81 years). 48% of the participants were in a stable/plateau phase, 37% in a relapsed/progressive phase and 15% newly diagnosed; 96% had good ECOG performance status. Table 1 presents the results of the BMQ. The vast majority of the sample believed in the necessity of their medication for maintaining their health; however, 70% reported concerns about their long-term effects. The specific-necessity subscale and general-harm subscale showed the highest and lowest mean, respectively.

Conclusions: The results indicate higher necessity beliefs than concerns towards MM medication. Specific items point to topics to be raised by treating physicians.

Table 1	Agree / strongly agree (%)	Mean (SD)	Median
Specific-necessity			
My medication protects me from becoming worse	93.5		
My health at present depends on my medicines	89.1		
My health in the future will depend on my medication	87.0		
Without my medication I would be very ill	82.6		
My life would be impossible without my medication	80.4		
Specific-concerns			
I sometimes worry about the long-erm effects of my medication	69.6		
My medication is mystery to me	19.6		
I sometimes worry about becoming too dependent on my medication	30.4		
Having to take medication worries me	39.1		
My medication disrupts my life	30.4		
General-overuse			
Doctors use too many medicines	17.4		
If doctors had more time with patients, they would prescribe fewer medicines	17.4		
Doctors place too much trust on medicines	28.3		
Natural remedies are safer than medicines	34.8		
General-harm			
Most medicines are addictive	17.4		
People who take medicines should stop their treatment for a while every now and again	34.8		
Medicines do more harm than good	2.2		
All medicines are poisons	4.4		
BMQ Subscales			
Specific-necessity		21.43 (3.43)	22
Specific-concerns		13.98 (4.60)	14
General-overuse		10.37 (3.38)	10
General-harm		8.61 (3.27)	9
Data collected under the study NCT03537222. Financial support for the study was provided by Celgene.			

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Low Incidence of hepatic veno-occlusive disease in adults undergoing allogeneic hematopoietic stem cell transplantation

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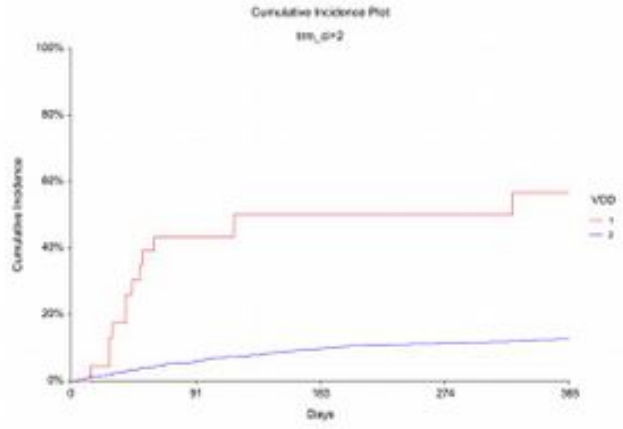
Hepatic veno-occlusive disease (VOD) is a complication after allo-HSCT with high mortality. The purpose of this study was to assess the incidence and outcome of VOD and the impact of ursodeoxycholic acid (UDCA) and low-dose heparin as VOD prophylaxis. We retrospective analysed 1'016 consecutive adult patients who underwent allo-HSCT between 2006 - 2020 at the University Hospital of Basel. We determined VOD incidence and factors associated with VOD occurrence by logistic regression analysis. Overall survival (OS) at day+100 and 1 year, progression-free survival (PFS) and non-relapse mortality (NRM) were compared. Cumulative incidence of VOD was 2.3% (95% CI 1.3 - 3.3) 6 months after HSCT. The day+100 survival of VOD patients was 39% (95% CI 18.7 - 59.5). Approximately one quarter of these patients (26.1%) had late-onset VOD. A high proportion were very severe VOD cases (74%), and 83% of the patients were treated with defibrotide. The median time to diagnosis was 14 days. In multivariate analysis, advanced disease (p = 0.003), previous HSCT (p = 0.025) and GvHD prophylaxis by PTCy (p = 0.055) were associated with the development of VOD. The 1-year OS was significantly lower in the VOD group compared to patients without VOD (13% versus 70%, p = 0.0001), as well as the PFS (13% versus 60%, p = 0.0001), NRM was significantly higher in the VOD group (57% versus 13%, p = 0.000001).



Non-relapse Mortality VOD vs. no VOD, 2006 – 2020 (p = 0.00001)

In conclusion, we found a low incidence of VOD in patients receiving low-dose heparin and UDCA prophylactically, but among VOD patients, a high mortality.