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P2556 Identifying haematological cancer patients with high risk for central venous catheter (CVC)-related bloodstream infections at the time point of CVC insertion

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Background: CRBSI are associated with high morbidity, especially in haematological cancer patients. We developed a tool to predict the CRBSI risk at the time point of CVC insertion with the aim to identify high-risk features which may necessitate earlier CVC removal.

Materials/methods: Data were derived from SECRECY (DRKS00006551), a multi-centric prospective registry for CRBSI in haematological cancer patients in clinical routine. Only jugular or subclavian vein CVC were considered. The 2012 AGIHO/DGHO criteria were used for the composite definition of *definite* and *probable* CRBSI. Factors at CVC insertion time were analysed for CRBSI risk using a logistic regression model in 1 centre (training cohort; 600 CVC, 10.3% CRBSI). The statistical model was validated on independent additional CVC in 6 centres (validation cohort; 1312 CVC, 11.6% CRBSI). The primary end point was cumulative CRBSI probability at day 14 (CRBSI14), and secondary at day 21 (CRBSI21).

Results: In the training cohort, independent risk factors for CRBSI in multivariate analysis included male sex (odds ratio [OR] 2.49; $p=0.004$), diagnosis of acute myeloid leukaemia or multiple myeloma or non-Hodgkin lymphoma (OR 5.14; $p=0.007$) and complicated CVC insertion (OR 1.93; $p=0.036$). By means of a prognostic model using the 3 risk factors at CVC insertion time, weighted with 1 point assigned to sex and complicated CVC insertion and with 2 points to disease, CVC were classified into low-risk (score 0-2) and high-risk (score 3-4) ($p<0.001$). Using this risk model in the validation cohort, CRBSI14 was 12.8% for high-risk and 8.2% for low-risk CVC (hazard ratio [HR] 1.65; $p=0.022$); CRBSI21 was 19.2% *vs.* 12.7% (HR 1.63; $p=0.009$). The CRBSI onset was in median after 12 and 14 days ($p=0.047$) in the high-risk and the low-risk group, respectively.

Conclusions: Using sex, presence of a complicated CVC insertion and underlying disease as independent risk factors at CVC insertion time, our model allows to identify easily haematological cancer patients with a high-risk CVC with a more than 1.5-fold higher CRBSI probability. This may guide clinicians in the decision of early CVC removal in suspected cases.