



The Hong Kong Society of Haematology Annual Scientific Meeting 2024 Call for Abstracts

Title	Clinical Application of the Second Revision of the International Staging System (R2-ISS) and Weighted Cytogenetic Scoring System (wCSS) in Multiple Myeloma Patients Receiving Bortezomib Based Treatment
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Abstract

Introduction

Although Revised International Staging System (R-ISS) is widely used for the prognostication of myeloma patients, considerable limitations exist including large proportion of R-ISS II patients with variable outcomes, 1q gain/1p deletion and concurrent high risk cytogenetic abnormalities not considered. New prognostication systems have been reported, including the weighted cytogenetic scoring system (wCSS)(1) and the second revision of the ISS (R2-ISS)(2). Herein, we would like to compare the outcomes of patients receiving bortezomib based induction using R-ISS, R2-ISS and wCSS.

Methods

Symptomatic newly diagnosed myeloma patients treated in seven haematology centres* from January 2006 to January 2020 in Hong Kong were included in this retrospective study. The fluorescence in-situ hybridization (FISH) comprising of IGH/FGFR3, IGH/MAF, TP53/CEP17, CDKN2C/CKS1B probes were used. At least 200 nuclei were analysed. The cut-off for positivity was above 10% for fusion or break apart probes and 20% for numerical abnormalities in accordance with international consensus. As trisomies 5 and 21 were not part of the FISH panel, they were not included in wCSS calculation.

Results

The entire NDMM cohort comprised of 475 patients and complete staging data (ISS, lactate dehydrogenase and FISH) was evaluable in 221 patients (46.5%). The median event free survival (EFS) and overall survival (OS) were 34 months and 101 months respectively in the evaluable group. Within this evaluable group, 22 had del 17p (10%), 44 had t(4,14) (19.9%), 137 had chromosome gain 1q (1q+) (62%) and 19 had del 1p (8.6%).

R-ISS could stratify NDMM patients for both EFS and OS (Fig. 1). For R2-ISS, there was significant difference in EFS between R2-ISS stages I versus IV but not for stages I versus II or I versus III. There were significant differences in OS between R2-ISS stages I versus III and I versus IV but not for stages I versus II (Fig. 2). Using wCSS, there was significant difference in EFS between low risk versus high-risk groups but

not for low risk versus intermediate risk groups. There were significant differences in OS between the low risk versus intermediate risk groups and low risk versus high-risk groups (Fig. 3). We looked at the discriminatory ability of the three scoring systems to predict death from those who survived using the C index. The C indexes of ISS, R-ISS, R2-ISS and wCSS were 0.597, 0.614, 0.641, 0.631 respectively, meaning that there is no added benefit of using R2-ISS and wCSS over R-ISS.

Conclusion

Our study did not show superiority of using R2-ISS and wCSS compared with R-ISS in stratifying patients on bortezomib based treatment. A clear distinction was not achieved between R2-ISS group I versus II and III versus IV in our cohort, as reported by others(3-6). Key difference in our study population was the higher percentage of 1q+, thus contributing to the higher number of R2-ISS stage 4 patients. Moving forward, it is important for new scoring systems to identify high-risk/ ultra-high-risk patients for risk adapted therapies to be implemented to improve long term outcomes.

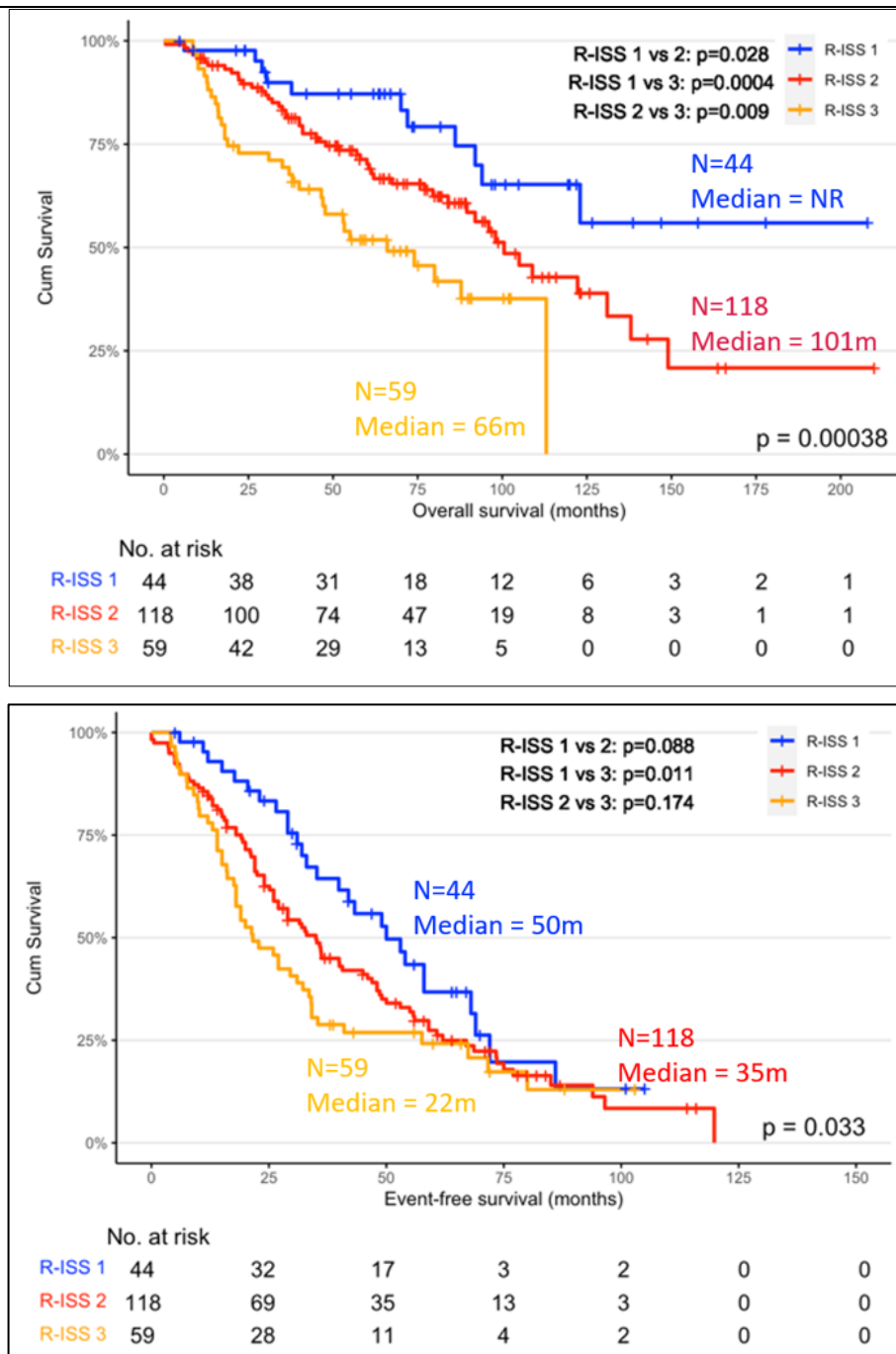


Figure 1. OS and EFS according to R-ISS for the evaluable cohort

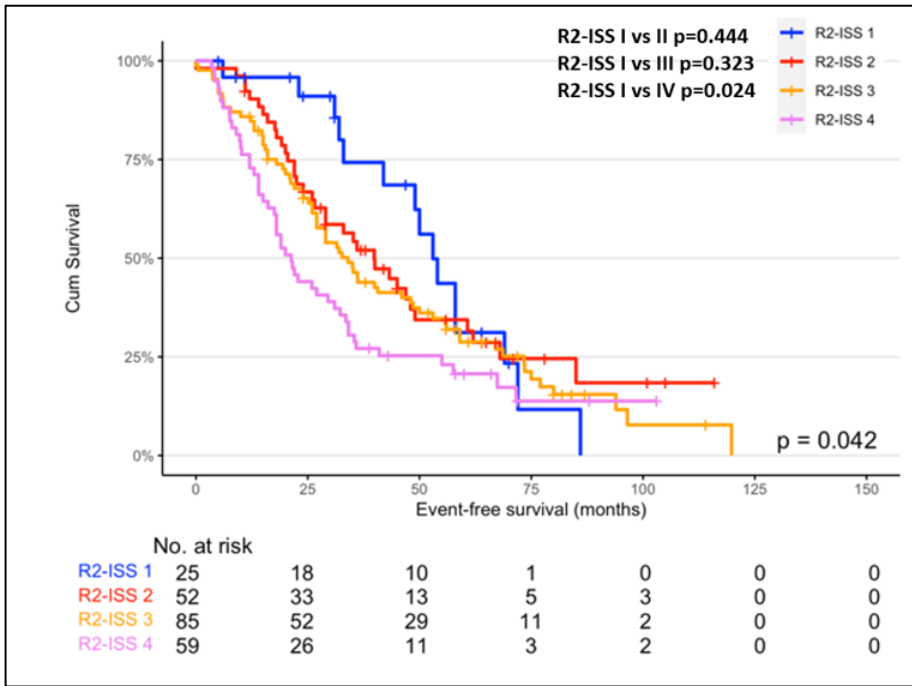
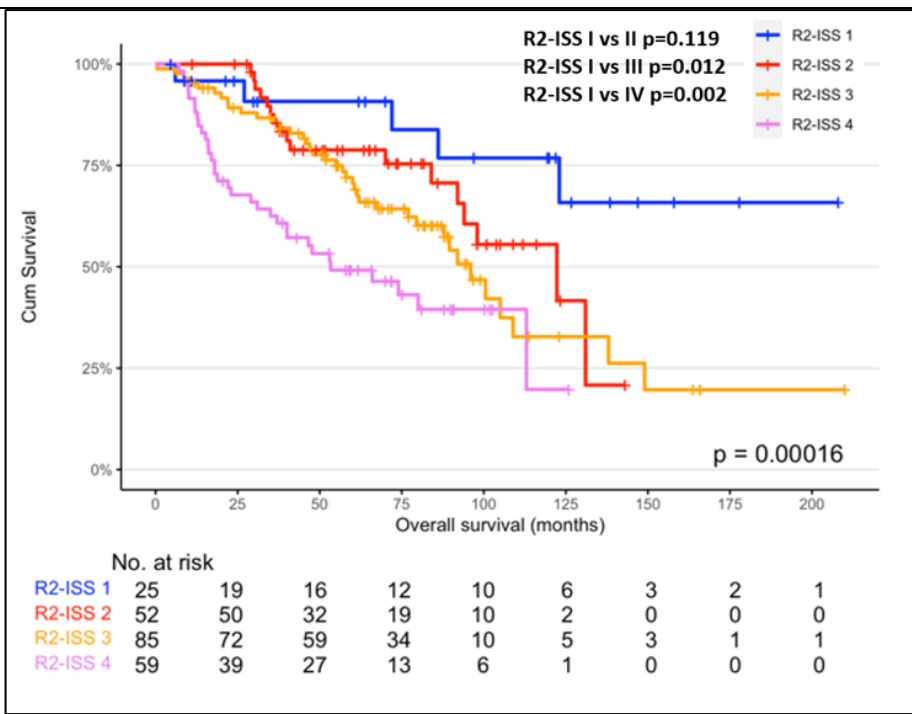


Figure 2. OS and EFS according to R2-ISS for evaluable cohort

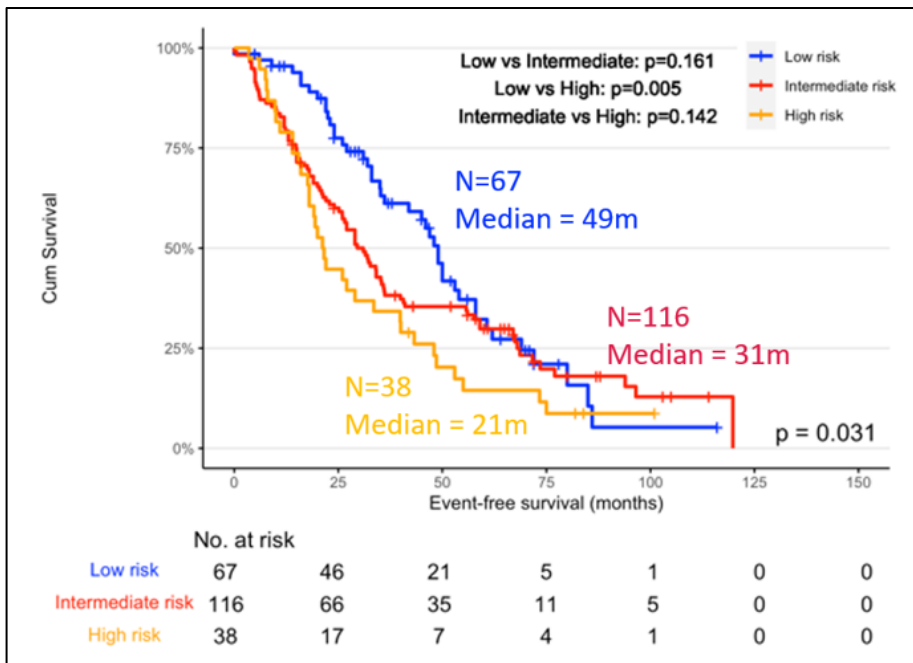
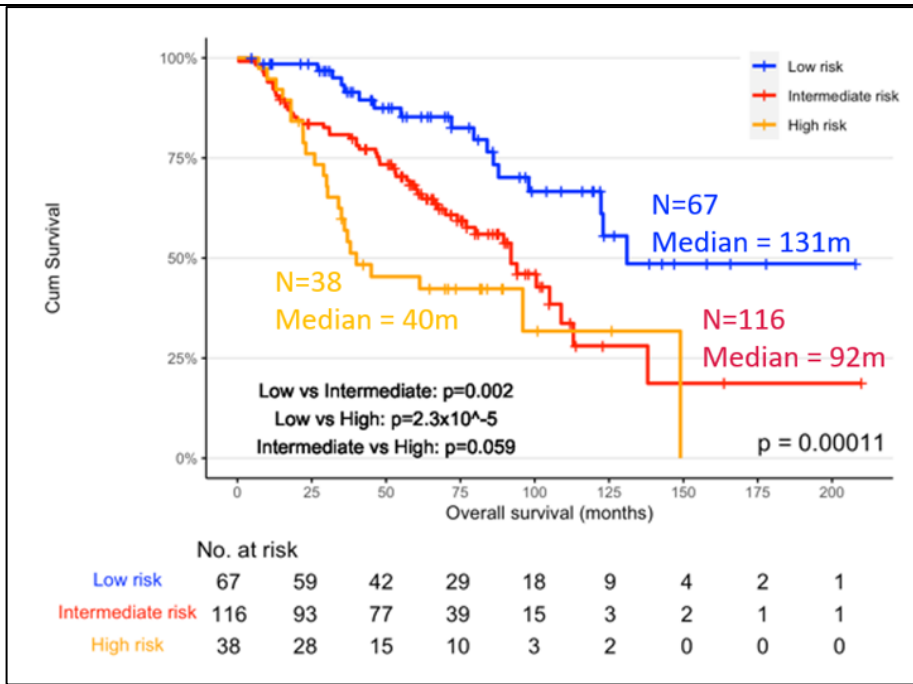


Figure 3. OS and EFS according to wCSS for the evaluable cohort

* Queen Mary Hospital, Princess Margaret Hospital, Tuen Mun Hospital, Pamela Youde Nethersole Eastern Hospital, United Christian Hospital, Tseung Kwan O Hospital and Queen Elizabeth Hospital

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