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## Letter to the Editor

# Comparison of the applicability of Hasford score and European Treatment and Outcome Study score in Indian patients with chronic phase chronic myeloid leukemia on imatinib therapy

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Dear Editor,

The Sokal and Hasford scores were developed in the chemotherapy and interferon era (preimatinib era) and are used as prognostic indicators in patients with chronic myeloid leukemia (CML). At present, CML is largely prognosticated on the basis of Hasford score at the time of presentation and subsequently by response to therapy which is ideally monitored by assessing cytogenetic and molecular response. However, in a resource poor setting, serial monitoring by assessing cytogenetic and molecular response is not feasible. Hence, the dependence on scoring systems do not use cytogenetic and molecular response criteria. European Treatment and Outcome Study (EUTOS) scoring system was developed recently to assess prognosis in CML patients on imatinib. We compared the applicability of Hasford score and EUTOS score in Indian patients with chronic phase CML on imatinib therapy.

We compared the EUTOS and Hasford prognostic scores in predicting 3-, 6-, and 12-month hematologic remission in patients of chronic phase CML (CP-CML) on imatinib. Seventy-five patients of CML-CP were enrolled, of which 52 patients were taken prospectively and 23 retrospectively. The Hasford score and EUTOS score were calculated at admission and compared with hematologic remission at 3 months, 6 months, and 12 months. The Hasford score for all patients was calculated based on age, spleen size, basophils, eosinophils, blast percentage, and platelet count at diagnosis.

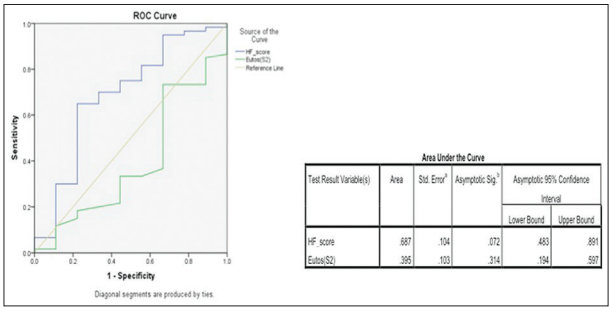


**Figure 1: Receiver operating characteristic curve at 3 months**

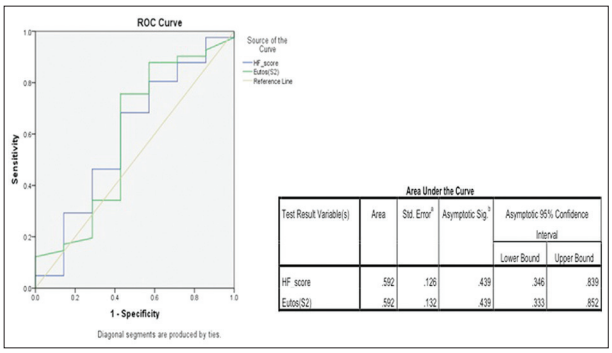


**Figure 2: Receiver operating characteristic curve at 6 months**

**Table 1: Hasford and European Treatment and Outcome Study score in chronic phase chronic myeloid leukemia patients on imatinib (*n*=75)**

| System | Classification | At admission (percentage of patients) |
|---|---|---|
| Hasford | Low (≤780) | 44 |
| | Intermediate (781-1480) | 49.3 |
| | High (>1480) | 6.6 |
| EUTOS | Low risk (≤87) | 78 |
| | High risk (>87) | 21.3 |

EUTOS=European Treatment and Outcome Study

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The score was determined using the online calculator available for Hasford scoring at http://www.pharmacoepi.de/cmlscore.html. The EUTOS score was calculated as (7 × basophils) + (4 × spleen size) at diagnosis, where the spleen was measured in centimeters below the costal margin and basophils, as a percentage ratio. For Hasford score, three risk groups were defined based on the risk score: low risk (≤780), intermediate risk (780–1480), and high risk (>1480). It was intermediate in the majority (49.3%) of the patients at admission. For EUTOS score, two risk groups were defined based on risk score: low risk (≤87) and high risk (>87) [Table 1]. On comparing at 3 months, Hasford score had greater area under the receiver operating characteristic curve 0.687 than EUTOS score (0.395), indicating that Hasford score better predicted the hematologic remission at 3 months than EUTOS score [Figures 1 and 2]. However, no difference was noted in area under the curves at 6 months.

Currently, the usefulness of EUTOS score is uncertain. None of the Indian studies have highlighted its utility to assess prognosis in CML patients on imatinib.[1] Hasford *et al*.[2] stated that EUTOS score could predict the probability of achieving complete cytogenetic remission (CCyR) and hence predict PFS (Progression-free survival). Xia *et al*.[3] and Yamamoto *et al*.[4] did not validate the effectiveness of EUTOS score. They also correlated EUTOS score to CCyR and PFS. The present study observed that EUTOS score was unable to predict hematologic remission in patients of CP-CML on imatinib.

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In a low-resource setting, EUTOS score offers no additional advantage over Hasford score in predicting hematologic remission in patients of CP-CML on imatinib.


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Nil.


## Conflicts of interest

There are no conflicts of interest.


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