Comparison of progression-free survival (PFS) on comprehensive multiplex platform-guided therapy to PFS on prior therapy: a pooled analysis from 4 prospective case studies

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Abstract

Introduction: It is expected that the PFS for patients with refractory cancers will decline over subsequent lines of therapy. A pilot study has shown that comprehensive multiplex profiling of tumor tissue can be used to find molecular targets in patients with refractory metastatic cancer and may prolong the PFS to ≥1.3. Over 70% of treated patients received chemotherapy alone, while 14% of patients received targeted therapies, other first choice in combination with chemotherapy.

Methods

In total, 202 patients were enrolled and profiled. Thirty-three patients (16%) were enrolled; 100 patients (50%) were lost to follow-up, 20 patients (9.9%) died due to progressive disease prior to beginning NMP-guided treatment and 3 patients (1.5%) had no MMP-guided treatment at the time of this report. Of these, 140 patients (69.3%) were evaluable for a comparison of prior PFS and MMP-guided PFS.

Conclusion

A pilot study has shown that comprehensive multiplex profiling of tumor tissue can be used to find molecular targets in patients with refractory metastatic cancer and may prolong the PFS to ≥1.3.

Figure 1 - Study CONSORT diagram

Demographics

- Data collected from 100 patients profiled using CMI (05/2010-12/2016) in Austria (n=109), United States (n=25), Lebanon (n=38) and Australia (n=37).
- Women = 96/ Men = 44
- Median age = 56 years old (range: 20-83 years old)
- Median prior lines of therapy = 3 (range: 1-12)
- The most common tumor types: breast cancer (n=35; 25%), colorectal cancer (n=14; 10.0%), lung cancer (n=40; 26.7%), kidney cancer (n=10; 6.7%), prostate cancer (n=8; 5.3%), and pancreatic cancer (n=10; 7.3%).

Table 1 - Tumor types treated according to CMI report

Patient Selection

- In total, 202 patients were enrolled and profiled.
- Thirty-three patients (16%) were enrolled; 100 patients (50%) were lost to follow-up, 20 patients (9.9%) died due to progressive disease prior to beginning NMP-guided treatment and 3 patients (1.5%) had no MMP-guided treatment at the time of this report. Of these, 140 patients (69.3%) were evaluable for a comparison of prior PFS and MMP-guided PFS.

Results

The median PFS in the MMP-guided line of treatment is 12.0 days compared to 80.5 days in the prior line of treatment (p=0.0035, HR 0.714, 95% CI 0.56 – 0.91).

- After a year of PFS follow-up, 11 patients (8%) of patients treated according to MMP-guidance had a PFS of ≥1.3.
- By comparison, only 2 (1.5%) of patients remained progression-free on one year prior to MMP-guidance.

CMI-Guided Treatments

- The majority of patients received chemotherapy alone (n=100, 72%).
- Twelve patients received targeted therapy alone (5%), in combination with chemotherapy (n=11; 8%) or hormone therapy (n=6; 4%).
- Five patients received hormone therapy alone (4%) with a further 3 patients (2%) receiving hormone therapy in combination with chemotherapy.
- Three patients (2%) in the cohort received immunotherapy.

Conclusions

- These data confirm the feasibility and the benefit of using MMP to guide treatment selection and improve outcomes in heavily pretreated or refractory cancer patients in whom the next treatment choice is unclear.
- Given the expectation that PFS would shorten as the patients progressed through subsequent therapy lines, the magnitude of benefit for the population when comparing MMP-guided therapy to prior therapy is unclear.
- The majority of patients received conventional cytotoxic agents alone.

References


Figure 2 - Kaplan-Meier showing PFS comparison in prior and MMP-guided treatment lines in 140 patients treated according to the MMP report

Figure 3 - Breakdown of CMI-guided treatments in 140 patients

Figure 4 - waterfall plot showing the PFS difference between prior and MMP-guided therapy

Figure 5 - Breakdown of CMI-guided treatments in 140 patients