Stratifying risk of infection and response to therapy in patients with myeloma: a prognostic study

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Declared competing interests of authors: Mark T Drayson reports personal fees from Abingdon Health Ltd (York, UK), outside the submitted work.

Published December 2020
DOI: 10.3310/eme07100

Plain English summary

Infection risk and therapy response in myeloma patients

Efficacy and Mechanism Evaluation 2020; Vol. 7: No. 10
DOI: 10.3310/eme07100

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Plain English summary

Myeloma is diagnosed in 5500 new patients in the UK each year. It is a cancer associated with severe damage to the immune system. As a result, one-third of patients will have a serious infection in the first month after diagnosis, and this infection often leads to death. The National Institute for Health Research-funded Tackling Early Morbidity and Mortality in Myeloma (TEAMM) trial found that giving daily antibiotics as a preventative measure reduces infections and deaths in these myeloma patients. The study collected blood and urine samples from 977 patients, from myeloma diagnosis to 1 year.

Currently, there is a lack of tests to measure how strong the immune system is in patients with myeloma. This study measured a range of biomarkers to see if individuals with the weakest immune system could be identified. This study found that most myeloma patients have very low protection against common bacteria and a poor response to flu vaccination. This study recommends vaccinations when patients are in the remission phase of myeloma. During treatment, when patients cannot receive vaccinations, patient education is required to prevent infections and identify possible infection quickly. Using tests that measure the strength of the immune system can identify those patients most in need of preventative antibiotics.

Measuring disease activity in myeloma currently involves several tests. Sometimes there is a time delay between test results going down during therapy, as certain biomarkers take time to respond. This study measured alternative biomarkers to see if they could tell us about how a patient is responding to treatment quicker than the existing tests. This study found two biomarkers that provided the most sensitive measurement of response to therapy. These biomarkers can be used to identify patients who are not responding well to therapy so that their treatment can be changed quickly to give them the best long-term outcomes.

This study looked to see if patients with infections had different levels of inflammatory biomarkers. This was to see if inflammatory biomarkers could be used as simple tests to identify those patients more likely to have an biomarkers infection or poor treatment responses. The inflammatory biomarkers that were investigated in the TEAMM trial did not provide any extra information and should not be considered, at this time, as additional tests for this purpose.

This investigation has helped us understand more about what myeloma and myeloma treatment does to the immune system. This study has identified new tests to help assess how strong patients' immune systems are and identify those patients most vulnerable to infection. New ways have been identified that best monitor disease activity alongside existing tests. This will facilitate switching therapies when required to reduce disease activity and reduce the probability of infection. Overall, the results of the TEAMM trial can help personalise patient management.

Efficacy and Mechanism Evaluation

ISSN 2050-4365 (Print)

ISSN 2050-4373 (Online)

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The EME programme is funded by the Medical Research Council (MRC) and the National Institute for Health Research (NIHR), with contributions from the Chief Scientist Office (CSO) in Scotland and National Institute for Social Care and Health Research (NISCHR) in Wales and the Health and Social Care Research and Development (HSC R&D), Public Health Agency in Northern Ireland.

This report

The research reported in this issue of the journal was funded by the EME programme as project number 14/24/04. The contractual start date was in February 2017. The final report began editorial review in March 2019 and was accepted for publication in October 2019. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The EME editors and production house have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the final report document. However, they do not accept liability for damages or losses arising from material published in this report.

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