

New prognostic score for patients with mRCC: the Immuno-IMDC

KEYWORDS

- ☐ mRCC
- ☐ RISK SCORE
- ☐ IMMUNE-BIOMARKERS
- ☐ PROGNOSTIC FACTORS
- ☐ MEDICAL DEVICE

AREA

- ☐ BIOMEDICAL

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Patent for invention

Ownership

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100%

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Industrial & Commercial Reference

Biomedical sector, able to develop methodologies for the rapid detection of serum proteins and T lymphocytes

Time to Market

TRL 3 e TRL 4, available for the development of biosensors/kits/methods (time 1-2 years)

Availability

Cession, Licensing, Research, Development, Experimentation and Collaboration.

Abstract

To date, there is an urgent need to improve the stratification of patients with metastatic renal cell carcinoma (mRCC) to ameliorate the efficacy of the therapies.

The present invention proposes a new algorithm to define a novel prognostic score for mRCC patients. By means of this score, accuracy of the risk class assignment of mRCC patients is increased thus improving adequate therapy choice and survival rate.

The novel prognostic score results from the combination of the IMDC classification currently used in clinical practice with immunological parameters specifically identified for such purpose. The immunological analyses evaluate, in the peripheral blood of cancer patients, two parameters involved in the regulation of the immune system: an immunosuppressive serum protein and a subset of T lymphocytes with anti-tumor activity.

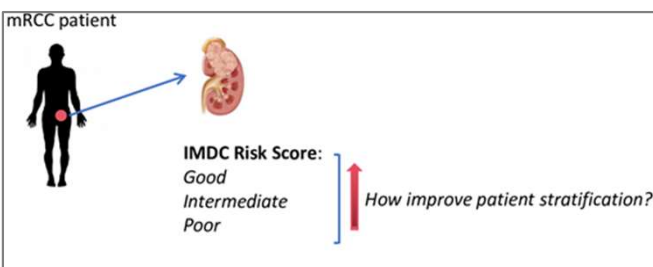


Fig. 2 The International Metastatic renal cell carcinoma Database Consortium (IMDC) score is currently used as prognostic index to stratify patients with mRCC in three subgroups: good, intermediate and poor-risk groups. The majority of patients with mRCC are classified in the intermediate-risk group according to IMDC classification (up to 60% of patients). IMDC intermediate population includes an heterogeneous population of patients with mRCC with different prognostic outcome. Better characterize mRCC patients in order to better tailor the treatment and ameliorate prognosis represented the goal of this patent proposal.

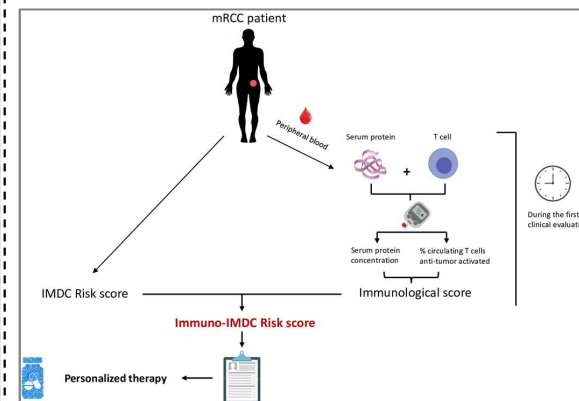


Fig. 1 Proposal to improve IMDC risk score classification: the Immuno-IMDC.



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Technical Description

The present invention identifies a new prognostic algorithm to improve classification of mRCC patients in the proper risk class, thus improving adequate therapy choice and survival rate, based on the expected prognosis.

This algorithm combines the analysis of the immunological fitness of mRCC patients with the current IMDC prognostic classification. The immunological analysis, carried out on the patient's peripheral blood, evaluates both the activated and suppressive status of the patient's immune system, considering that the therapies currently used in the treatment of mRCC are mainly based on the activation of the immune system.

The use of highly sensitive, reliable and reproducible kits/devices/methods will allow the clinician to detect at low cost and at the time of the patient's visit the immunological parameters, object of this invention.

Tehnologies & Advantages

Several biomarkers obtained from liquid biopsies need to be purified before analysis. After isolation, these molecules/cells can be evaluated by using different methodologies. These techniques are expensive in terms of time and cost, required qualified personnel and do not allow an immediate evaluation of the analytes. The introduction of new methodologies able to simultaneously measure out several parameters could overcome all these limitations.

The present invention proposes the quantification of immunological parameters detectable in the circulating blood of mRCC patients.

The design/employment of innovative techniques able to evaluate, at low cost, the immunological parameters, objective of this invention, will allow to immediately classify the mRCC patients according to the new prognostic score and in the proper risk class. The clinician could make a rapid and more accurate decision on the therapeutic choice avoiding expensive and unefficacious treatments.

The mRCC patient will benefit of a personalized therapy. Lastly this will have huge impact in the costs for the NHS.

Applications

The analysis of the immunological fitness is crucial for all patients who suffer from disease that are directly or indirectly influenced by immune system and to define the immune wellness of healthy subjects. The analysis proposed in this invention may also regard patients suffering for other cancer histotype, infective or autoimmune diseases as well as healthy donors.

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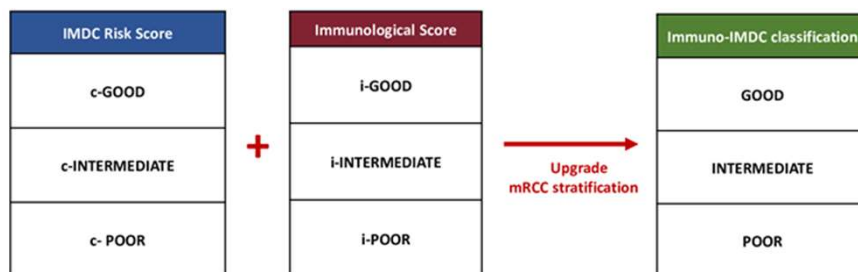


Fig. 3 Proposal to improve IMDC risk score classification: the Immuno-IMDC

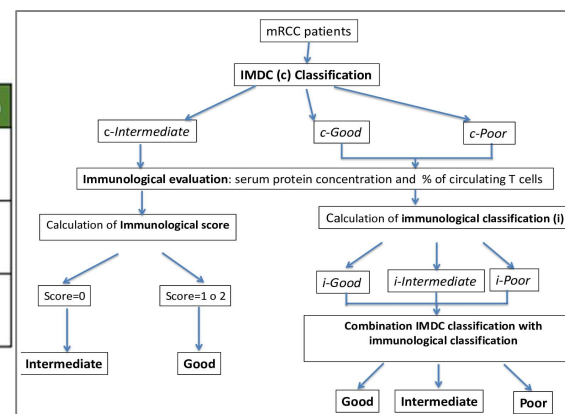


Fig. 3 New prognostic algorithm for mRCC patients: the Immuno-IMC



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