Predicting the risk of relapse in cancer

Case Study /Oncology

Cancer is currently one of the most prevalent diseases in the world. Depending on the type, the prognosis is very varied and the relapse and survival rates are very different.

The specialist clinician often does not know exactly why some patients recover after treatment, while others relapse.

The data that these clinicians collect in their routine practice may have the answer to this very relevant aspect, in order to ensure the improvement of the quality of life of their patients.

Data used

The combination of demographic, clinical, treatment-specific data, blood count, biochemistry, radiological and surgical tests, etc. is the way to address such complex problems as **knowing whether a patient will suffer a relapse of the disease after surgery.**

Models used

At NNBi we apply numerous machine learning models that learn from the large volumes of data collected by clinicians and establish the necessary relationships between them, in order to know the pre-established objective.

Results obtained

Preliminary models carried out in pancreatic cancer and validated with patients from international reference centers have made it possible to establish a first approximation for this pathology. **The model's accuracy rate successfully predicts 71% of the risk of relapse.**

Continuous feeding of new data to the machine learning model will allow the algorithm to improve and increase the accuracy rates.

Brings together information and generates knowledge that improves the routine care of cancer patients.

Related scientific paper:

Pablo Sala Elarre, **Esther Oyaga-Iriarte**, Kenneth H. Yu, Vicky Baudin, Leire Arbea Moreno, Omar Carranza, Ana Chopitea Ortega, Mariano Ponz-Sarvise, Luis D Mejías Sosa, Fernando Rotellar Sastre, Blanca Larrea Leoz, Yohana Iragorri Barberena, Jose C Subtil Iñigo, Alberto Benito Boíllos, Fernando Pardo, Javier Rodríguez Rodríguez. Use of Machine-Learning Algorithms in Intensified Preoperative Therapy of Pancreatic Cancer to Predict Individual Risk of Relapse. Cancers (2019); 11: 606-626. DOI: 10.3390/cancers11050606

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