Current strategies of cell and gene therapy for solid tumors: preliminary results of the joint international ESMO and EBMT Cell Therapy and Immunobiology Working Party questionnaire-based survey

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BACKGROUND

Among novel strategies for treatment of solid tumors (ST), cell and/or gene therapy (CT/GT) products are increasingly under investigation, also based on encouraging results observed in lymphoid cancers with industry-manufactured CAR-T cells. Available information on ongoing studies in ST is limited, due to the variety of programs and infrastructures involved in advanced therapy medicinal products (ATMPs) manufacturing and delivery

METHODS

This study aimed to describe the current landscape of CT/GT developments for treatment of ST from Jan 2018 to Dec 2020 by means of a web-based questionnaire circulated within the ESMO and EBMT centers.

RESULTS

188 responses were received; a total of 147 questionnaires from 53 countries were valid for descriptive analysis. 22% of the respondents were involved in CT/GT trials during the study period and 16% indicated their intention to start a CT/GT program. Most of the active centers treated only adults (88%), while a minority exclusively or partially treated children (12%); 50% of the centers treated 1-5 pts, while a quarter enrolled more than 20 pts. Almost half of the studies were dedicated to melanoma or lung cancer; GI tract tumors, bone sarcomas, head & neck and gynecological cancers were also targeted. Evaluated ATMPs were mainly ex-vivo manipulated T lymphocytes, cultured and, in more than 50% of the cases, gene-modified either with CAR sequence or TCR transgene. TILs were the most frequently used non-gene modified products. In as many as 67% of the cases, ATMPs were combined with other treatment modalities, largely represented by ICIs.

In 67% of the centers, alongside commercial products, small scale academic studies with cell/gene therapy products, mainly manipulated onsite by local cell processing / manufacturing facility (59%) or offsite by a non-commercial facility (50%), were also conducted. Only 12% of the treatment protocols were supported by EU funding and 9% belonged to an EU consortium/network.

CONCLUSIONS

Our survey shows that, although increasingly used, gene-modified T cells represent little more than 50% of ATMPs employed in ST. Many clinical trials are based on point-of-care ATMPs production at academic centers, although industry-sponsored trials are running in at least half of the centers. In perspective, while waiting for breakthrough cellular products to treat ST, the field may benefit from network models for ATMPs production in academic centers.

REFERENCES

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ESMO HANDBOOK OF IMMUNO-ONCOLOGY; https://oncologypro.esmo.org/education-library/esmo-handbooks/immuno-oncology

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