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- 1 Cancers inequalities in France are among the highest in developed countries and these gaps seem to be growing in the last decades. Territorial inequalities of cancers are analyzed by mapping, which showed higher mortality rates in the North-East Regions of France. At the local scale, standardized mortality rates are two times higher in some areas in the North as other areas in the South-East. Epidemiological studies, mostly based on multilevel analysis, evidence the impact of physical environment, deprivation or health care access on health outcomes. But to identify contextual effects are not sufficient to understand how cancer inequalities are built and how patient's life context contributes to this process. As epidemiological approach is splitting contextual effects according to health outcomes, geographical approach may have to explain how these contextual effects lead to cancer inequalities, by using territorial typology to summarize these contextual effects. Comparing health outcomes according to this territorial classification may help to understand territory's ability to generate health inequalities.
- 2 Several stages across the cancer continuum are implied in the building of the cancer inequalities. This medical process has to be reconstructed to determine whether mortality inequalities are generated by a higher incidence or a lower survival. Moreover, lower survival may be linked to the worse prognosis of patients at diagnosis or to the lower quality of management according to cancer care facilities. Evolution of patients' prognosis may be reconstructed, thanks to clinical data, in order to identify the most influent steps during this medical process.
- 3 As a result, to understand the way geographical inequalities of cancers are building requires a multidisciplinary methodology, considering the territory's contribution as a whole and using longitudinal clinical data. But to reconstitute this medical process is quite difficult actually because few longitudinal and exhaustive data are available. The EMS cohort represents an opportunity to test and discuss this methodological

approach. This cohort includes all sarcoma (rare cancer) patients diagnosed in 2005 and 2006, in the Rhône-Alpes Region, and collects clinical data from the diagnosis to the patient follow-up. For this geographical analysis of the EMS cohort, we used a territorial typology generated thanks to multivariate analysis of 15 geographical variables known for their impact on health. Strong differences are noticed in terms of environment exposures, deprivation and health care access between the six types of territory (metropolitan neighborhoods, working-class neighborhoods, urban districts, residential areas, periurban areas, rural areas). This typology seems to be relevant to study geographical inequalities because it enables to distinguish populations which are not exposed to the same risks through their life context. A logistic regression including stage, age and histological subtype, as clinical factors influencing prognosis, estimates the patients' prognosis at diagnosis. This prognosis score seems to be quite predictive because only 7% of "good prognosis" patients will be dead five years later, whereas this five years death rate raises to 80% for the worse prognosis patients.

- 4 Analysis of geographical inequalities for sarcoma patients in the Rhône-Alpes Region shows the diversity of situations leading to inequalities of mortality. Indeed, the higher mortality in three types of territories has to be attributed to three different processes. In the case of the urban hub, this high mortality is linked to the higher incidence of sarcoma, as survival rate for patients of these districts is very close to the regional average. As incidence and prognosis risk in the working-class neighborhoods are quite similar to the regional average, higher mortality is due to the loss of survival odds in the course of treatments, probably because of a less optimal management. Despite the second lower incidence among the six types of territories, the worse prognosis of patients (more late-stage diagnosis) and the loss of survival odds during cancer management explained the high mortality rated in the rural areas.
- 5 Thanks to the EMS cohort's analysis, we assess the potential of a multidisciplinary methodology studying the territory's ability to generate geographical inequalities of

cancers. Territorial typology, produced without health outcomes data, may be used for every health studies as a synthetic index of the territory and also evidence strong inequalities of health according to people's life contexts. As public policies struggle to be successful on this issue, to identify key events in the medical process leading to cancer inequalities may improve the territorialization and the efficiency of these policies. Territories with high risk before diagnosis would be focused on prevention and early diagnosis, whereas those more disadvantage during the management would lean towards cancer care quality, access to hospitals and cancer expertise and patient compliance.

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AUTHORS

YOHAN FAYET

Chercheur assistant au Centre Léon Bérard, EA 7425 HESPER (Health Services and Performance Research)

VIRGINIE CHASLES

Maitre de Conférences en Géographie, Université Jean Moulin Lyon 3, EA 7425 HESPER

FRANÇOISE DUCIMETIÈRE

Chef de projets, Centre Léon Bérard Lyon

PR ISABELLE RAY-COQUARD

Oncologue médical PU-PH, Centre Léon Bérard Lyon, EA 7425 HESPER