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Letter to the Editor

Refusal of vaccination against influenza and COVID-19 in patients with solid cancers: from bio-ethical issues to solutions

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In 2022, Di Noia *et al.* [1] and Gong *et al.* [2] demonstrated a real benefit of full vaccination against COVID-19 in patients treated for solid cancers. However, refusal remains a persistent problem that cannot be ignored in this population. This phenomenon is not specific to COVID-19. In 2008, Loulergue *et al.* reported a rate of anti-flu vaccination of only about 30%, despite the expected protective effects of such vaccination, in a single-centre cohort of 122 patients treated for solid cancers in France [3]. One of the principal reasons for refusing vaccination was doubts about its efficacy. In 2020, Monier *et al.* also reported low rates of anti-flu vaccination (26.7%) among 439 French patients treated for solid tumours. They also found that patients not vaccinated against flu or other pathogenic agents tended to have a poor opinion of vaccination [4] (see Table 1).

In 2022, we published the results of an interdisciplinary bioethics study on the refusal of cancer patients to accept vaccination against COVID-19. This study was performed on a single-centre cohort of patients treated as outpatients for a solid cancer between April and November 2021 at Foch Hospital. The preliminary results, published in June 2021, indicated that the refusal rate was 5.6% (29/522) and that refusal rates were significantly higher for women than for men ($p = 0.001$) [5]. The final results were published in August 2022, revealing vaccination policy to be a major bioethics issue, with obligatory vaccination as a satisfactory bio-ethical solution to this specific problem.

During the anti-flu vaccination campaign, in November 2022, we performed a new study on a single-centre cohort of patients treated as outpatients for a solid cancer to evaluate changes in the phenomenon of vaccination reluctance after several years of the health crisis. We focussed on refusals to be vaccinated against flu and COVID-19. This preliminary study of the subject was approved by the institutional review board of Foch Hospital (IRB 00012437). As the mean duration of a

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Table 1
Results of the descriptive analysis. Vaccination schedule (number of doses): complete ≥3; 3 > incomplete ≥1; unvaccinated = 0. Vaccination frequency: ≥ 1X = occasional.

	Vaccination frequency						Opinion concerning vaccination					
	Annual		*Occasional*		*Never*		*Favourable*		*Opposed*		*Sceptical*	
	N	Row %	*N*	Row %	*N*	Row %	*N*	Row %	*N*	Row %	*N*	Row %
Anti-flu vaccination	38	22.62%	65	38.69%	65	38.69%	119	70.83%	26	15.48%	23	13.69%
	Vaccination schedule						Opinion concerning vaccination					
	Complete		*Incomplete*		*Unvaccinated*		*Favourable*		*Opposed*		*Sceptical*	
	N	Row %	*N*	Row %	*N*	Row %	*N*	Row %	*N*	Row %	*N*	Row %
Anti-COVID-19 vaccination	150	90.36%	13	7.83%	3	1.81%	147	87.50%	12	7.14%	9	5.36%

cancer treatment cycle was 3 weeks, inclusion over a period of 1 month made it possible to obtain a representative sample with data saturation. We included 168 patients in this study. The inclusion criteria were limited to explicit oral consent, following specific information, also delivered orally, in adult patients (at least 18 years old) with the necessary individual skills to fill out a self-completed questionnaire (comprising eight successive questions, with a box at the end for final comments), in French, on paper, during their treatment at the day hospital. The raw data obtained were retranscribed into an Excel file, processed, and then pseudoanonymized and analysed with a descriptive and qualitative method, in an interdisciplinary manner.

The descriptive analysis, focussing on the responses to the eight questions, revealed that 90.36% of the patients had completed the full vaccination schedule for COVID-19, 22.62% were vaccinated annually for flu, and 38.69% were vaccinated occasionally for flu (see Table 1). The number of patients opposed to anti-flu vaccination was 2.17 times higher than the number opposed to anti-COVID-19 vaccination, and the number of patients reluctant to get vaccinated against flu was 2.55 times higher than the number reluctant to get vaccinated against COVID-19 (see Table 1). In a multivariable analysis, no significant differences were detected as a function of age, sex, disease stage (metastatic or localised), or treatment (chemotherapy or immunotherapy). The qualitative analysis focussed on the comments made by the patients. In total, 35 patients wrote a comment, most acknowledging or expressing confidence in their management. More precisely, 23 patients wrote relatively positive comments, whereas 12 patients wrote relatively negative comments or comments revealing a degree of suspicion. These comments concerned anti-flu vaccination as much as anti-COVID-19 vaccination.

These results suggest that the success of anti-COVID-19 vaccination, in terms of the protection afforded against serious and lethal forms, has not modified anti-flu vaccination behaviour or reluctance relative to the preceding decade. Vaccination coverage seemed to be proportionally greater for COVID-19 than for flu, even though only 1.24 times more patients appeared to be in favour of anti-COVID-19 vaccination than were in favour of anti-flu vaccination (see Table 1). The implementation, initially of a "health pass" and then of a "vaccination pass" for the general population between June 2021 and March 2022, remains a pertinent explanation for this phenomenon [6]. Vaccination policy still appears to be a major bio-ethical issue, the principal target of significant tensions between new medical and biological practices and certain specific moral values or standards [6,7]. Vaccinations against flu and COVID-19 emerge largely as practices that are vital for the individual, or as imperative duties of the individual with respect to society. However, in parallel, there remains a small but persistent number of patients who are sceptical and/or opposed to vaccination, for reasons of absolute personal liberty or because they suspect a hidden malevolence.

In the particular case of a new health crisis generating moral tensions similar to those for COVID-19 and/or flu, rendering vaccination obligatory in an indirect manner — through a health or vaccination pass for example, although this is, of course, debatable — would remain a satisfactory specific bio-ethical solution, given its previous effects on common bio-ethical objectives (promoting survival and happiness, for example) [6,7]. Outside of crisis situations, on an everyday basis, an indirect obligation for vaccination would still be advisable, but in other forms. Among the proposals other than restricting vaccination to vulnerable populations that we envisage, the place of vaccination in the care pathway could be changed. Vaccination could shift from a direct but optional means of preventing infections to an indirect but imperative curative means within the framework of the global management of cancer treatment, formulated from the initial diagnosis and explanation of treatments. This essential pedagogic work could take place in structures dedicated to supportive care. This is one of the objectives that we could implement in the support care facilities of the Institut Line Renaud of Foch Hospital, which has a temporality different from that of outpatient care.

Conflict of interest statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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