

Current Opinion and Knowledge on Peritoneal Carcinomatosis: A Survey among a Swiss Oncology Network

Fabian Grass^a David Martin^a Michael Montemurro^b Patrice Mathevet^c
Anita Wolfer^b George Coukos^b Nicolas Demartines^a Martin Hübner^a

^aDepartment of Visceral Surgery, Lausanne University Hospital CHUV, Lausanne, Switzerland; ^bDepartment of Medical Oncology, Lausanne University Hospital CHUV, Lausanne, Switzerland; ^cDepartment of Gynecology, Lausanne University Hospital CHUV, Lausanne, Switzerland

Keywords

Peritoneal metastasis · Carcinomatosis · Opinion · Treatment · Ovarian cancer · Satisfaction

Abstract

Aims of the Study: The present survey aimed to evaluate current opinion and practice regarding peritoneal metastasis (PM), satisfaction with available treatment options, and need for new therapeutic approaches. **Methods:** This was a qualitative study conducted between October 2016 and October 2017 in the Réseau Suisse Romand d'Oncologie including 101 members of various oncological specialties. Participants' demographics, current practice, knowledge, and satisfaction regarding available treatment options and need for new treatment options were assessed by semantic differential scales through 33 closed questions with automatic reminders at 4-, 8-, 12-, and 16-week intervals. **Results:** Twenty-seven participants (27%) completed the survey. Participants were gastrointestinal or gynecologic oncologists and surgeons. Most participants (67%) evaluated their knowledge on PM as moderate, while 22% considered themselves as experts. Clinical usefulness of systemic chemotherapy and hyperthermic intraperitoneal chemotherapy was judged to be

moderate to high for PM of ovarian and colorectal origin and moderate to poor for gastric origin. Satisfaction with available treatment options was 6/10 (interquartile range [IQR] 4–7) for ovarian, 5/10 (IQR 3–7) for colorectal, and 3/10 (IQR 1–3) for gastric PM. Treatment strategies varied widely for typical case vignettes. The need for new treatment modalities was rated as 8/10 (IQR 6–10). **Conclusion:** Usefulness of and satisfaction with available treatment options for PM were rated as moderate at best by oncological experts, and treatment strategies differed importantly among participants. There appears to be a clear need for standardization and new treatment modalities.

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Introduction

Peritoneal metastasis (PM) of various origins represents a challenging disease with a dismal prognosis [1]. In a recent large-scale study, patients with peritoneal metastatic colorectal cancer had significantly shorter overall survival than those with other isolated sites of metastases [2]. Treatment options are limited, either due to pharmacokinetic limitations of systemic chemotherapy [3, 4] or

Table 1. Demographics of survey participants ($n = 27$)

	<i>n</i> (%)
Specialty	
General oncologists	10 (37)
Gynecologic oncologists	3 (11)
Gastrointestinal oncologists	7 (26)
Surgeons	7 (26)
Time since board qualification	
<5 years	5 (19)
5–10 years	6 (22)
>10 years	16 (59)
Patients treated per year ^a	
<10	10 (37)
10–20	8 (30)
20–50	7 (26)
>50	2 (7)
Personal knowledge ^b	
Basic	3 (11)
Moderate	18 (67)
Expert	6 (22)

^a Patients with peritoneal metastasis personally treated per year (surgery and/or chemotherapy). ^b Self-estimated personal knowledge on the treatment of peritoneal metastasis.

restricted patient eligibility for cytoreduction and hyperthermic intraperitoneal chemotherapy (HIPEC) due to considerable perioperative morbidity and mortality [5, 6]. Furthermore, specific guidelines for PM are scarce and not uniform, and treatment approaches vary widely [7, 8].

The present survey aimed to analyze current practice and knowledge regarding this challenging disease and to evaluate satisfaction with available treatment options and need for new therapeutic approaches among members of a regional Swiss oncology network.

Materials and Methods

Study Design and Participants

A qualitative study was conducted among the Réseau Suisse Romand d'Oncologie (RSRO), a network composed of 101 members of various oncological specialties, who were all contacted to participate. The questions included participant demographics as well as current practice and opinion concerning treatment of PM.

Participants were asked about the main goals of the treatment of PM (cure, symptom relief, few side effects, few contraindications, inexpensive, or good quality of life). Overall scores were calculated according to their rating on a scale from 0 (not important) to 5 (very important). Satisfaction with available treatment options and clinical usefulness of chemotherapy and HIPEC were assessed by asking participants to rate each component on a semantic differential scale (frustrated: 0, perfectly happy: 10). The same scale

Table 2. Clinical usefulness of systemic chemotherapy and HIPEC in resectable peritoneal metastasis

	Poor	Moderate	High
<i>Systemic chemotherapy</i>			
Ovarian origin			
As second-line treatment	2 (7)	11 (41)	14 (52)
As third-line treatment	9 (33)	11 (41)	7 (26)
Colorectal origin			
As first-line treatment	3 (11)	13 (48)	11 (41)
As second-line treatment	5 (18)	15 (56)	7 (26)
Gastric origin			
As first-line treatment	8 (30)	12 (44)	7 (26)
As second-line treatment	13 (48)	10 (37)	4 (15)
<i>HIPEC</i>			
Ovarian origin	3 (11)	17 (63)	7 (26)
Colorectal origin	4 (15)	13 (48)	10 (37)
Gastric origin	11 (41)	14 (52)	2 (7)

Values are *n* (%). HIPEC, hyperthermic intraperitoneal chemotherapy.

was used to evaluate the need for new treatment options for PM (no need: 0, urgent need: 10). Finally, several typical clinical scenarios (case vignettes) were presented with the request to suggest the preferred treatment choice or sequence.

The survey was sent by email using online cloud-based software (Survey Monkey®, Palo Alto, CA, USA). Automatic reminders were sent at 4-, 8-, 12-, and 16-week intervals. The survey included 33 closed questions and took an estimated 10 min for completion. Data were collected between October 2016 and March 2017.

Statistical Analysis

Descriptive statistics for categorical variables were reported as numbers and percentages, while continuous variables were reported as medians and interquartile ranges (IQR).

Statement of Ethics

This survey targeted medical staff only and did not affect patients in any way. The local Committee for Medical and Health Research Ethics (Commission cantonale d'éthique de la recherche sur l'être humain CER-VD) suggested that no formal ethical approval was required for this survey.

Results

Demographics

Twenty-seven out of 101 experts completed the survey, yielding a response rate of 27%. Demographics of the responding participants and their knowledge on PM and experience with cytoreductive or intraperitoneal chemotherapy procedures are summarized in Table 1. Most re-

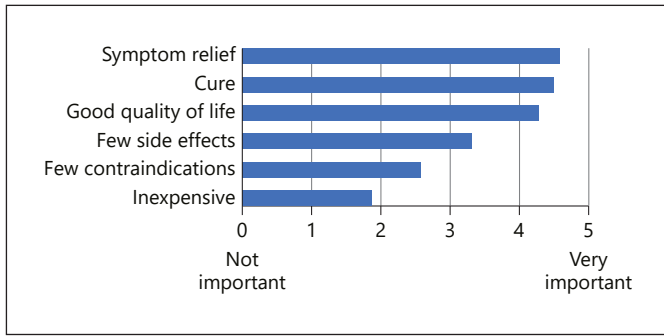


Fig. 1. Main goals/priorities for the treatment of patients with peritoneal metastasis.

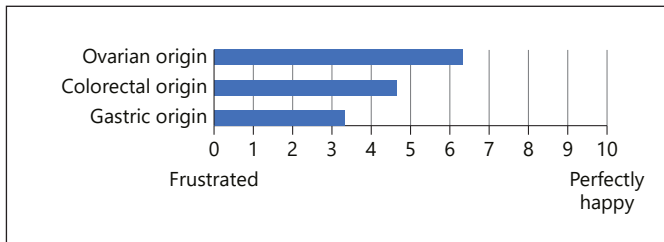


Fig. 2. Satisfaction with available treatment options for peritoneal metastasis.

sponders (74%) were oncologists. Most participants had an experience of at least 10 years since board qualification, but only 22% considered themselves as experts for the treatment of PM. Two-thirds of the responding network members stated that they treated less than 20 PM patients per year.

PM Treatment

The participants' opinion on the clinical usefulness of systemic chemotherapy and on HIPEC as a treatment for PM of different origins is displayed in Table 2. First-line chemotherapy for colorectal PM (41%; high) and second-line chemotherapy for ovarian PM (52%; high) were considered most useful, while for gastric PM, clinical usefulness of chemotherapy was rated to be low.

Main Goals/Priorities of PM Treatment

The most important treatment goal was cure (rated as number 1 by 44%), followed by symptom relief (26%) and good quality of life (22%). Symptom relief was rated as the second most important goal by 41%, followed by good quality of life (22%) and few contraindications (14%). Hardly 10% put low cost on rank numbers 1–3. The overall scores are summarized in Figure 1.

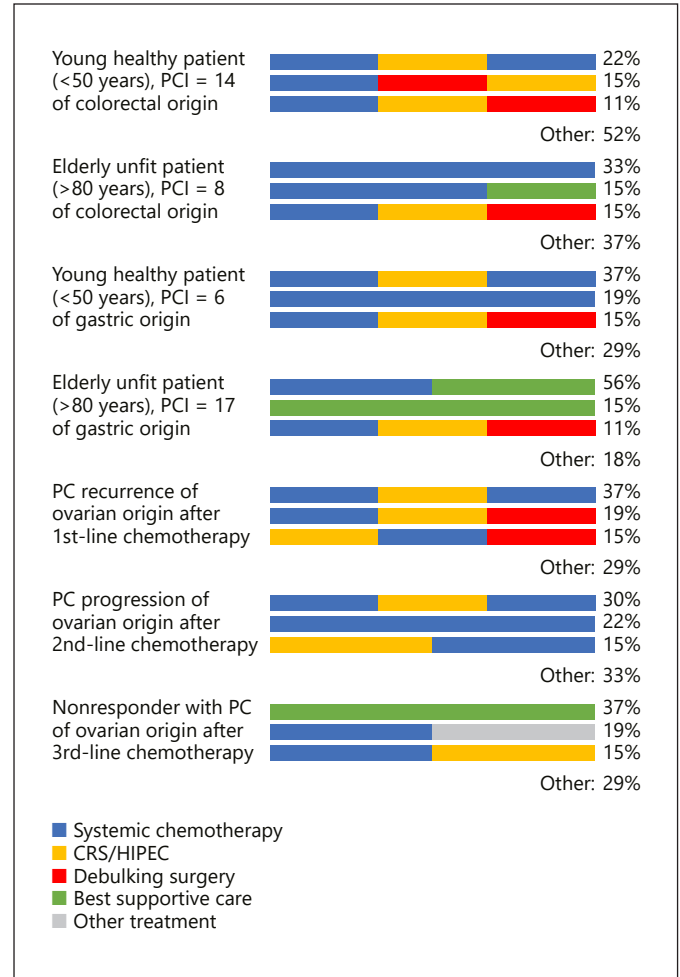


Fig. 3. Preferred treatment sequences regarding different clinical scenarios. Percentages on the right indicate the rate of participants who chose this sequence. For each clinical case, the 3 most frequent sequences are reported. PCI, peritoneal carcinomatosis index; PC, peritoneal metastasis; CRS, cytoreductive surgery; HIPEC, hyperthermic intraperitoneal chemotherapy.

Satisfaction with Available Treatment Modalities

Participants' satisfaction with available treatment options for PM of different origins is shown in Figure 2. While participants' satisfaction with available treatment options was moderate for ovarian (6/10 [IQR 4–7]) and colorectal (5/10 [IQR 3–7]) PM, it was low for gastric PM (3/10 [IQR 1–3]). The need for new treatment options for PM was rated as 8/10 (IQR 6–10).

Clinical Vignettes

Preferred treatment sequences regarding different typical clinical scenarios varied widely throughout as displayed in Figure 3.

Discussion

The present survey confirmed limited expertise, low satisfaction, and large heterogeneity with regard to the treatment of PM of various origins. This is a call for standardization of treatment approaches and for evaluation of new modalities.

The RSRO network is a regional and heterogeneous group of medical and surgical oncologists working mainly outside high-volume centers with modest patient accrual. The reply rate was low despite multiple reminders. Arguably, colleagues with a higher interest in the treatment of PM were more likely to respond to this survey, entailing a potential positive selection of physicians with knowledge in the field. Nonetheless, most responders self-declared moderate experience only in the treatment of PM, which might explain the lack of standardization of treatment strategies [9]. This was demonstrated by several results of the present study: treatment choices of clinical vignettes were heterogeneous with great variations among participants. No consensus was likewise observed regarding the clinical usefulness of different lines of chemotherapy and HIPEC. At first glance, participants seemed to acknowledge the usefulness of chemotherapy and HIPEC mainly in ovarian and colorectal cancer but less for gastric indications. When having a closer look, even though not statistically significant, a “cutoff” could be observed between second- and third-line therapy for ovarian PM and between first- and second-line therapy for colorectal PM, emphasizing the clinical usefulness of systemic chemotherapy mainly as an initial treatment modality, with a need for alternatives beyond that stage. On the other hand, HIPEC as a treatment alternative was rated as “poor” only in up to 15% of responders for colorectal and ovarian PM, leading to the question why a surgical approach is not at least discussed in all eligible patients. In fact, former studies have demonstrated that most patients never get to meet a surgeon at all to discuss surgical options [7, 10]. This finding is even more astonishing considering that almost 60% of participants have an experience of over 10 years in the treatment of PM. The observed results might thus reflect a certain reluctance to change, although satisfaction with available treatment options was low, particularly regarding colorectal and gastric indications. This is interesting considering the rating of treatment goals (Fig. 1). Besides symptom relief, the most important treatment goal was cure, while cost was rated the least important. This finding might reflect a certain discrepancy between the expectations of the treating physician and the natural history of the disease, with a subsequent risk of cost-inefficiency.

Intraperitoneal chemotherapy still lacks acceptance as a treatment standard despite growing evidence. For ovarian PM, large phase III studies and meta-analyses demonstrated a survival benefit of intraperitoneal chemotherapy over traditional chemotherapy when combined with complete cytoreduction [11–14]. Recent evidence, including a randomized controlled trial and a meta-analysis, demonstrated similar results for PM of colorectal origin with a significant survival benefit in HIPEC patients [15–17]. However, despite a proven survival benefit, intraperitoneal chemotherapy delivery was not universally adopted, mainly due to criticism regarding study design or limited resources and fear of side effects [8], similar as in the present study. Likewise, progress was achieved in systemic therapy during recent years, with survival rates of up to 24 months for PM-specific colorectal metastasis, 33–34 months for stage IV ovarian cancer with PM, and up to 14 months for first-line therapy in gastric cancer, which were, however, not PM specific [3, 17, 18].

Almost all responders emphasized the need for treatment alternatives. New modalities might include intraperitoneal immunotherapy, which is particularly interesting due to the wide range of immune competence of the peritoneal cavity [19], or intraperitoneal catheter placement in an adjuvant setting after optimally debulked ovarian cancer [20]. Pressurized intraperitoneal chemotherapy might represent a further alternative when conventional treatments, including systemic chemotherapy and HIPEC, are either exhausted or contraindicated. Despite favorable short-term results regarding safety, feasibility, and tolerance, no data on long-term outcomes are available to date [21].

The present survey has several limitations and has, thus, to be considered as exploratory research. First, it may not be representative of the real treatment spectrum due to its limited reach and moderate reply rate. In particular, gynecologic oncologists might be underrepresented, which might influence the treatment choices regarding ovarian cancer, while the majority of medical oncologists among the responders might overrepresent systemic treatment choices. However, it might reflect the “real-life” picture regarding current treatment of and opinion on PM, including a certain perplexity regarding current management. Second, as already mentioned, a positive selection bias might have led to an overly high rate of “expert” responders. Thus, results need to be interpreted with caution. Finally, and importantly, different origins of PM might require different treatment approaches. While platinum-sensitive ovarian cancer might respond well to systemic chemotherapy, this is not necessarily the case for

gastric or colorectal cancer. Nevertheless, this survey clearly underlines the need for a better understanding of PM and for improving treatment approaches.

In conclusion, 3 main findings need to be emphasized. First, a lack of standardization and consensus might have led to the observed heterogeneity in treatment choices. Second, despite an obvious support of HIPEC, patient referral to surgeons needs to be improved in the light of current evidence. Finally, the need of new and better treatment options was strongly affirmed. However, the findings of the present survey need to be confirmed by larger cohorts.

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Disclosure Statement

All authors have no conflicts of interest or funding sources to declare.

Author Contributions

F.G.: conception and design, analysis and interpretation, drafting. D.M.: design, data acquisition, analysis and interpretation, critical revision. M.M., P.M., A.W., G.C.: interpretation, critical revision. N.D.: conception, interpretation, drafting, critical revision. M.H.: conception and design, analysis and interpretation, drafting. All authors read and approved the final manuscript.