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CASE REPORT

*New treatment options for advanced endometrial carcinoma* Special Issue

# Pseudoprogression and improvement of quality of life in a patient with advanced endometrial cancer treated with immunotherapy: a case report

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## Abstract

Until recently, treatment options for patients with recurrent or metastatic endometrial cancer (EC) were limited. First-line treatment is usually based on carboplatin and paclitaxel and there was no standard second-line therapy following platinum failure. However, the introduction of immunotherapy has expanded both first-line and later-line options for EC and made determination of mismatch repair status essential. We describe the case of a 56-year-old woman with deficient mismatch repair/microsatellite instability EC who did not respond to first-line treatment with carboplatin and paclitaxel but had a high response to subsequent immunotherapy with dostarlimab. There was initial pseudoprogression of one target lesion but marked improvement in quality of life.

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**Keywords:** dostarlimab, endometrial cancer, immunotherapy, quality of life, pseudoprogression.

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## Introduction

Endometrial cancer (EC) is the most common gynaecological cancer with increasing incidence and mortality.[1] For many years the standard of care for advanced metastatic EC was carboplatin-paclitaxel with few options for later lines of treatment.[2–5] The introduction of The Cancer Genome Atlas classification divided EC into four distinct molecular groups: *POLE*-mutated tumours, tumours with high microsatellite instability (MSI-H) or DNA mismatch repair mechanism deficiency (dMMR), tumours with p53 alterations (*p53* mutant), and tumours with no specific molecular profile, with different treatment options and varying prognosis.[6] Immune-checkpoint inhibitors (ICIs) have demonstrated durable responses after failure of platinum-based chemotherapy in recurrent EC. Based on the positive results of the GARNET and the KEYNOTE-158 trials in terms of progression-free survival (PFS) and overall survival (OS), dostarlimab and pembrolizumab were respectively approved in monotherapy for dMMR/MSI-H EC after platinum-based chemotherapy.[7,8] The KEYNOTE-775 study demonstrated a significant improvement in PFS and OS for the combination of pembrolizumab plus lenvatinib in both proficient MMR/microsatellite stability

(pMMR/MSS) and dMMR/MSI-H EC after platinum failure.[9] These results lead to the approval in clinical practice of this combination. Recently, advances have also been made in the treatment of primary advanced or recurrent EC using the combination of immunotherapy plus chemotherapy in the first-line setting.[1,10-12] This combination acts on immune cell stimulation, immunogenic cell death, enhanced presentation of tumour-specific antigens and increased T cell activation. The RUBY trial, the NRG-018 trial and ATtend trial demonstrated that association of carboplatin–paclitaxel with dostarlimab, pembrolizumab or atezolizumab results in an improvement of both PFS and OS.[1,11,12] Recently, the RUBY part 2 trial and the DUO-E trial also demonstrated efficacy and safety for the combination of chemotherapy with immunotherapy plus poly ADP-ribose polymerase inhibitors.[13,14] The ongoing DOMENICA and KEYNOTE-C93 trials on dMMR/MSI-H advanced EC with immunotherapy alone *versus* chemotherapy are ongoing to answer the question of whether a chemo-free future can be possible for these patients. The increasing use of ICIs in EC raises concerns about disease assessment and their impact on quality of life (QoL). In this context, we describe the strategic role of pseudoprogression identification and careful assessment of improvement in QoL to avoid unnecessary dostarlimab withdrawal.

# Case report

**Consent for publication:** The patient signed informed consent for the publication of related data and images.

A 56-year-old woman was referred to the Department of Oncology, Mauriziano Umberto I Hospital in November 2020 for metrorrhagia. The patient's medical history included beta-thalassemic trait, previous post-traumatic plastic surgery in 2019, appendicectomy and tonsillectomy at a younger age, and a gallbladder adenomyoma in follow-up since 2013. No allergy was reported. She reported no cases of malignant tumours in her family. The patient had a gynecological visit with a hysteroscopy with diagnosis of endometrial adenocarcinoma. A thorax, abdomen and pelvis CT scan with contrast medium was performed. Due to the absence of distant metastases, the patient underwent primary surgery (bilateral hysteron-annexiectomy and biopsy of sentinel pelvic lymph nodes) for an endometrioid EC pT1aN0, G2, FIGO stage IA. Immunohistochemical analysis showed p53 wild-type, oestrogen receptor positivity of 50% and progesterone receptor positivity of 40%. No other analyses were performed at that time and *POLE* or MMR status were not determined.

According to EC guidelines,[15-17] no adjuvant therapy was performed after surgery due to the low risk of disease recurrence. The patient started follow-up.

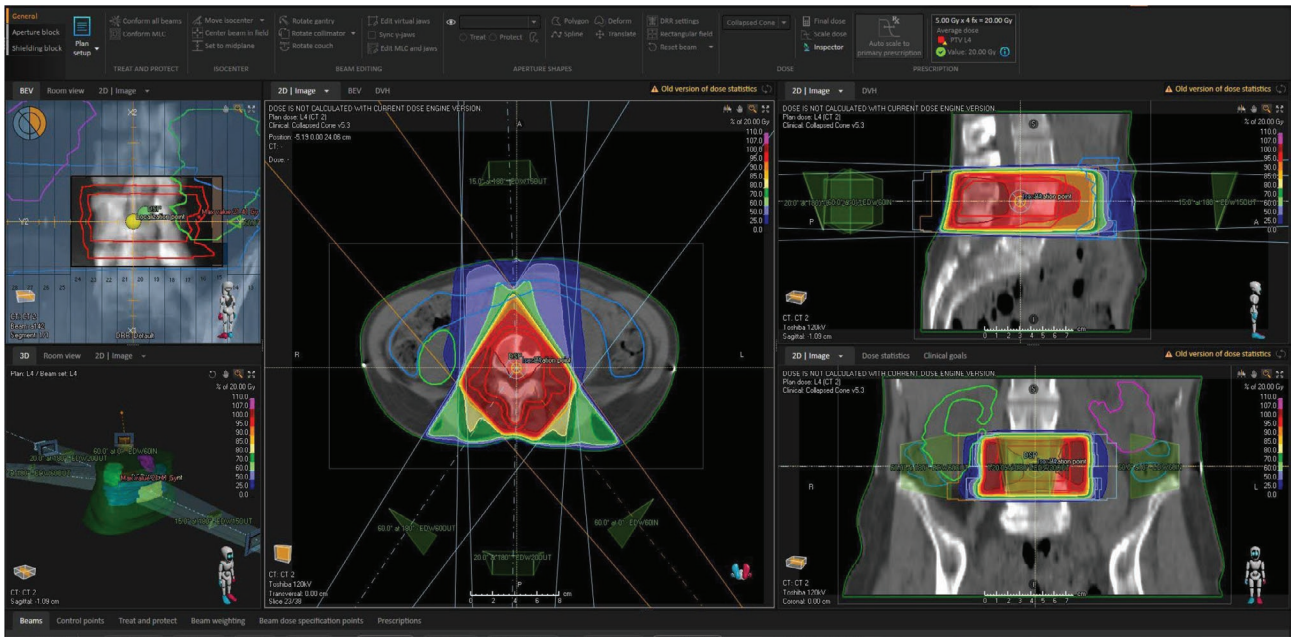
In November 2021, she reported increasing lumbar pain with paresthesia in the left leg. A lumbosacral column MRI was performed showing the presence of neoplastic tissue involving the left psoas muscle and the fourth lumbar vertebra (L4). A needle-biopsy of the lesion was performed on 1 December 2021 with histological examination showing endometrial adenocarcinoma. A thorax, abdomen and pelvis CT scan with contrast medium was performed on 16 November 2021, confirming the presence of a lesion (6 × 6 × 12 cm) involving the psoas muscle and L4 vertebra. Another lesion in the pelvis was described (5 × 4 × 5 cm). Assessment of MMR status performed with immunohistochemistry showed a complete absence of MSH6 protein expression in neoplastic tissue (indicating dMMR status). Microsatellite testing, performed with PCR (OncoMate MSI DX Analylis System – Promega), showed high instability (MSI-H status). The patient was referred to a genetic consultation to investigate Lynch syndrome. At the time of this first recurrence, the patient was screened for participation in the RUBY trial, but did not meet the criteria due to a low haemoglobin value (8.4 g/dL) associated with the beta-thalassemic trait (inclusion criteria per protocol was haemoglobin >9 g/dL). Therefore, the patient started first-line chemotherapy with carboplatin (AUC dose of 5) plus paclitaxel (175 mg/m² q1/21) from 23 December 2021. On 3 February 2022, she received the third cycle of chemotherapy and CT scan of the thorax, abdomen and pelvis showed progression of disease at several lymph nodal sites. The patient was symptomatic for lumbar pain not controlled by analgesic therapy. The clinical case was discussed within the multidisciplinary team with an indication to perform radiotherapy with palliative-antalgic intent at the level of L4 (20 Gy/5 Gy per fraction from March 9, 2022, to March 14, 2022; Figure 1).

Considering the previous line of platinum-based chemotherapy and the dMMR/MSI-H status, we decided to start immunotherapy with dostarlimab available within the Expanded Access Program opened in Italy based on the RUBY trial results.[1] On 29 March 2022, the patient started dostarlimab 500 mg flat dose every 3 weeks for the first four cycles. The first disease assessment was performed on 17 June 2022, with a pseudoprogression of the pelvic lesion (left psoas) and a response on the right iliac lymph node (Figure 2).

We decided to start with the immunotherapy also due to the important clinical benefit. On the 21 June 2022, she started dostarlimab 1,000 mg flat dose every 6 weeks as per the Expanded Access Program protocol.

The second CT scan was performed on 5 October 2022 with partial response of all lesions, including those that underwent pseudoprogression at the first assessment. Table 1 summarizes the patient's CT scans with the over-

**Figure 1. Radiotherapy treatment planning dose distribution.**



all response according to Response Evaluation Criteria in Solid Tumors (RECIST 1.1).

The patient received the 25th dose of dostarlimab 1,000 mg on 21 October 2024 and she is ongoing with immunotherapy at the time of this report. During therapy with dostarlimab, our patient had few adverse events, graded with Common Terminology Criteria for Adverse Events (CTCAE - Version 5.0). The low haemoglobin level was due to the beta-thalassemic trait, and dostarlimab did not decrease it further. Fatigue appeared after a few months of therapy (from cycle 16 to 18 and from cycle 23 to 25) but never exceeding grade 1. Neutropenia occurred in just four cycles during the entire treatment, at grade 1 (cycle 6, 8, 10 and 20; Table 2). Pain evaluated with a 1–10 Numeric Rating Scale (NRS) appeared only in the last month of therapy (starting from cycle 21) at low grade (NRS 1).

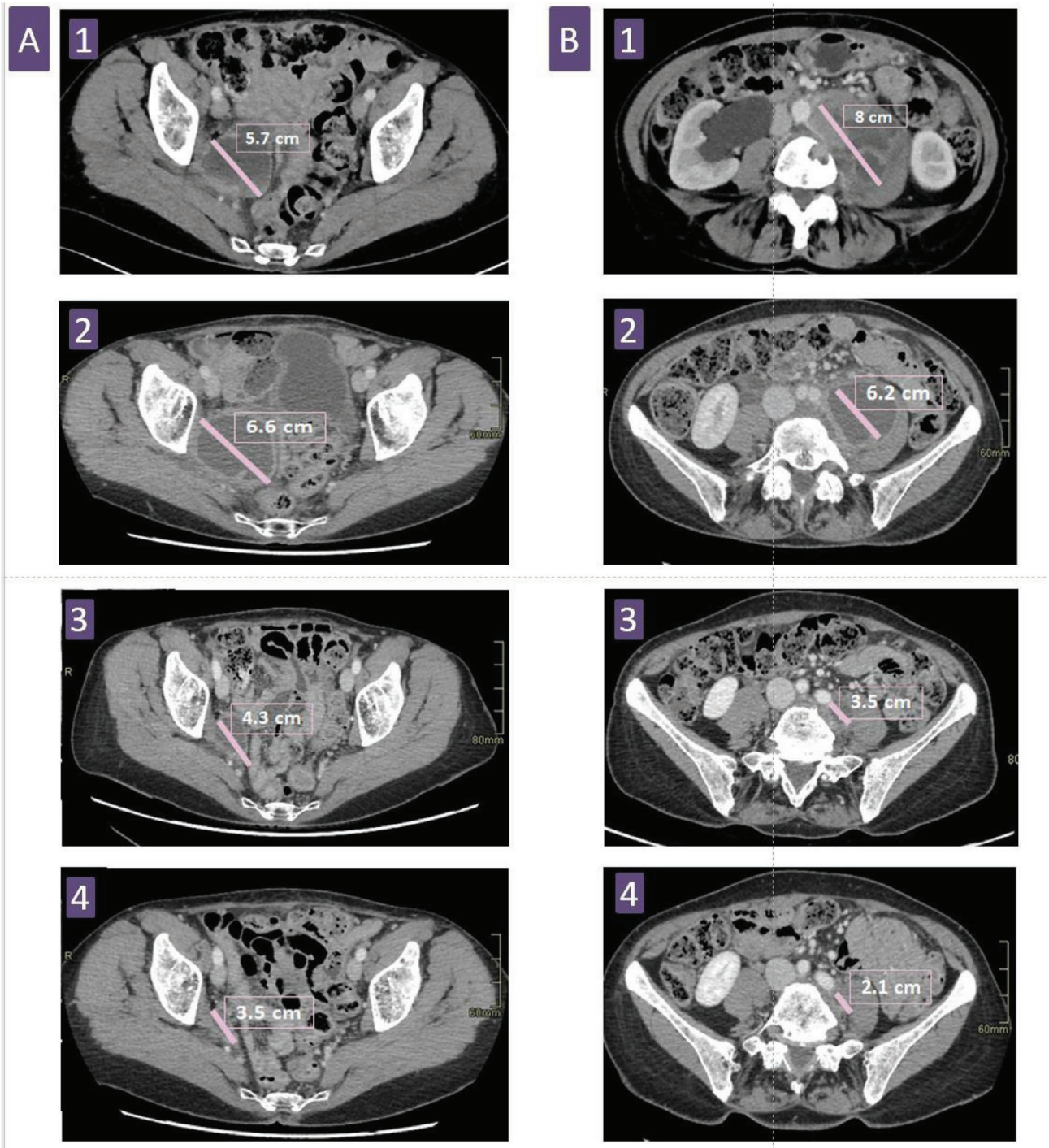
QoL was assessed with an internal questionnaire (derived from the NCI-PRO-CTCAE ITEMS, item Lybrary version 1.0 and adapted from Baratelli et al.[18]) every cycle (Supplementary Material; available at: https://www.drugsincontext.com/wp-content/uploads/2025/06/dic.2025-4-7-Suppl.pdf). The questionnaire assessed various symptoms, including mouth problems (such as taste alteration, dryness, etc.), nausea, vomiting, dyspnoea, constipation, diarrhoea, skin and nail changes, itching, and hand and foot conditions (e.g. desquamation, loss of sensitivity). The findings from the first questionnaire (pre-immunotherapy) and the fourth questionnaire are presented in the Supplementary Material. An improvement in QoL was observed during the initial cycles of dostarlimab, with complete resolution of symptoms after four cycles.

# Discussion

The introduction of immunotherapy for advanced/metastatic EC both in the first line and at relapse led to an improvement in the treatment of EC. We present the case of a patient with relapsed dMMR/MSI-H EC that showed no response to first-line treatment with carboplatin and paclitaxel. Limited data on the response to first-line carboplatin and paclitaxel in EC are available according to MMR status but retrospective analyses demonstrated a non-significant differences in terms of PFS or OS in pMMR/MSS versus dMMR/MSI-H EC, with a PFS and OS numerically longer in pMMR/MSS population, suggesting worse outcome regarding carboplatin-paclitaxel for dMMR/MSI-H EC.[19]

The use of immunotherapy in this case report after failure of platinum-based chemotherapy had a sudden clinical benefit despite an initial pseudoprogression of one of the target lesions. Pseudoprogression is a relatively common phenomenon occurring during immunotherapy in which an initial increase in tumour size is observed or new lesions appear, followed by a decrease in tumour burden; this phenomenon can benefit patients receiving ICIs but often leads to premature discontinuation of the treatment owing to the false judment of progression.[20] Due to the pseudoprogression of only one of the target lesions, the partial response of the other lesions and due to the important clinical benefit (above all on the pain), we continued

**Figure 2. CT scans.**




**A**, Target lesion 1 (pelvic lesion, left psoas). **B**, Target lesion 2 right iliac lymphnode. 1, 16/02/2022; 2, 17/06/2022; 3, 05/10/2022; 4, 10/02/2023.

dostarlimab and at the second CT scan partial remission was achieved and mainteined to date (April 2025).

This case report also showed an important and sudden improvement in the QoL of our patient. QoL is often a secondary endpoint of the main phase III trials and results are commonly published a long time after efficacy results even if they are available.[21] In the RUBY trial, dostarlimab in addition to chemotherapy lengthened time to first deterioration and delayed time to permanent deterioration in several QLQ-C30 and QLQ-EN24 domains in the dMMR/MSI-H population.[22] In this population, mean change from baseline to the end of the treatment showed visual improvements in QoL, emotional and

**Table 1. Response by RECIST 1.1.**

| Target lesion | Baseline 16/Feb/22 | Assessment 1 17/Jun/22 | Assessment 2 05/Oct/22 | Assessment 3 10/Feb/23 | Assessment 4 07/Jun/23 | Assessment 5 10/Jan/24 | Assessment 6 20/May/24 | Assessment 7 14/Nov/24 |
|---|---|---|---|---|---|---|---|---|
| T1 (pelvic lesion) | 57 mm | 66 mm | 43 mm | 35 mm | 11 mm | 11 mm | 11 mm | 11 mm |
| T2 (right iliac LN) | 80 mm | 62 mm | 35 mm | 21 mm | 18 mm | 18 mm | 18 mm | 18 mm |
| Sum of diameters (mm) | 137 mm | 128 mm | 78 mm | 56 mm | 29 mm | 29 mm | 29 mm | 29 mm |
| Variation (%) | – | 6.6% | 43% | 59% | 79% | 79% | 79% | 79% |
| Target response | – | SD | PR | PR | PR | PR | PR | PR |
| Non-target lesion | – | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Non-target lesion 1 (subpleuric lesion, LIL) | 4 mm | 4 mm | 4 mm | 4 mm | 4 mm | 4 mm | 4 mm | 4 mm |
| Non-target response | – | No CR, no PD | No CR, no PD | No CR, no PD | No CR, no PD | No CR, no PD | No CR, no PD | No CR, no PD |
| New lesion (yes/no) | – | No | No | No | No | No | No | No |
| Overall response | – | SD | PR | PR | PR | PR | PR | PR |

CR, complete response; LIL, left inferior lobe; LN, lymph node; PD, progressive disease; PR, partial response; SD, stable disease.

**Table 2. Summary of dostarlimab infusions and toxicities.**

| Cycle | | Date | Pain | Neutropenia | Fatigue | Anaemia |
|---|---|---|---|---|---|---|
| | | | | | | |
| 1 | Dostarlimab 500 mg/every 3 weeks | 29/Mar/2022 | | | | G2 |
| 2 | Dostarlimab 500 mg | 19/Apr/2022 | | | | G2 |
| 3 | Dostarlimab 500 mg | 11/May/2022 | | | | G2 |
| 4 | Dostarlimab 500 mg | 01/Jun/2022 | | | | |
| 5 | Dostarlimab 1000 mg/every 6 weeks | 22/Jun/2022 | | | | G1 |
| 6 | Dostarlimab 1000 mg | 03/Aug/2022 | | G1 | | G1 |
| 7 | Dostarlimab 1000 mg | 14/Sep/2022 | | | | G1 |
| 8 | Dostarlimab 1000 mg | 26/Oct/2022 | | G1 | | G1 |
| 9 | Dostarlimab 1000 mg | 07/Dec/2022 | | | | G1 |
| 10 | Dostarlimab 1000 mg | 23/Jan/2023 | | G1 | | G1 |

(*Continued*)

**Table 2. (Continued)**

| | | | | | | |
|---|---|---|---|---|---|---|
| 11 | Dostarlimab 1000 mg | 06/Mar/2023 | | | | G1 |
| 12 | Dostarlimab 1000 mg | 17/Apr/2023 | | | | G1 |
| 13 | Dostarlimab 1000 mg | 29/May/2023 | | | | G1 |
| 14 | Dostarlimab 1000 mg | 10/Jul/2023 | | | | |
| 15 | Dostarlimab 1000 mg | 21/Aug/2023 | | | | G1 |
| 16 | Dostarlimab 1000 mg | 02/Oct/2023 | | | G1 | G1 |
| 17 | Dostarlimab 1000 mg | 13/Nov/2023 | | | G1 | G1 |
| 18 | Dostarlimab 1000 mg | 27/Dec/2023 | | | G1 | G1 |
| 19 | Dostarlimab 1000 mg | 05/Feb/2024 | | | | G1 |
| 20 | Dostarlimab 1000 mg | 18/Mar/2024 | | G1 | | G1 |
| 21 | Dostarlimab 1000 mg | 03/May/2024 | NRS 1 | | | G1 |
| 22 | Dostarlimab 1000 mg | 17/Jun/2024 | NRS 1 | | | G1 |
| 23 | Dostarlimab 1000 mg | 29/Jul/2024 | NRS 1 | | G1 | G1 |
| 24 | Dostarlimab 1000 mg | 09/Sep/2024 | NRS 1 | | G1 | G1 |
| 25 | Dostarlimab 1000 mg | 21/Oct/2024 | NRS 1 | | G1 | G1 |

G, grade; NRS, Numeric Rating Scale.

social function, pain, and back/pelvis pain for the dostarlimab arm. Meaningful differences favouring the dostarlimab arm were reported for change from baseline to the end of the treatment for QoL, role function, emotional function, social function and fatigue. The improvements in QoL were observed after few infusions of immunotherapy, confirming the important role of dostarlimab not only regarding clinical efficacy but also clinical benefit.[23]

# Conclusion

Our patient with relapsed dMMR/MSI-H EC showed a clear benefit in terms of long-term tumour shrinkage and QoL improvement following dostarlimab treatment. This case report highlights the importance of recognizing pseudoprogression and a careful QoL assessment to avoid unnecessary immunotherapy withdrawal.

**Supplementary Material available at:** https://www.drugsincontext.com/wp-content/uploads/2025/06/dic.2025-4-7-Suppl.pdf

**Contributions:** VT and RD: Conceptualization, methodology, validation, resources, data curation, writing of original draft, review and editing, and visualization. AC, MB, LB, VA, MGRR, PC, AB, GdR and MP: writing, review and editing. GV: Conceptualization, methodology, validation, resources, data curation, supervision, writing of original draft, review and editing, and visualization. All named authors meet the International Committee of Medical Journal Editors (ICMJE) criteria for authorship for this article, take responsibility for the integrity of the work as a whole, and have given their approval for this version to be published.

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