

Repository text PIPAC

Pressurized intraperitoneal aerosol chemotherapy (PIPAC)

The procedure is increasingly used for patients with unresectable peritoneal carcinomatosis or when patients are not candidates for cytoreductive surgery combined with hyperthermic intraperitoneal chemotherapy [1]. The first systematic review accounted for 801 procedures in 2017 [1] while a recent international survey performed in 2019 declared 5972 procedures worldwide [2].

The procedure is performed under general anesthesia. A capnoperitoneum of 12 mmHg is insufflated and ascites is drained, if any. Exploratory laparoscopy is performed, the peritoneal cancer index (PCI) accounting for the extension of the peritoneal disease is performed and parietal biopsies are taken. A pressurized aerosol containing oxaliplatin 92 mg/m² body surface in 150 mL dextrose is applied in the case of colorectal cancer and some digestive cancers, or cisplatin 10.5 mg/m² body surface in 150 mL NaCl 0.9% associated with doxorubicin 2.1 mg/m² body surface in 50 mL NaCl 0.09% for other origins. The administration is performed at 0.5-0.7ml/s at a maximal upstream pressure of 290 PSI (20 bar). The system is kept in a steady-state for 30 minutes, and the aerosol is exhausted in a closed wasting system. The average PIPAC procedure lasts 90 minutes and can be repeated every 6 to 8 weeks. Doses used are about 1/10 of the usual IV dosage for PIPAC-CD and similar to the usual IV for PIPAC-Ox. PIPAC can be an option when patients have unresectable peritoneal metastasis or when patients are not candidates for cytoreductive surgery combined with hyperthermic intraperitoneal chemotherapy (HIPEC) [1]. HIPEC is administered post cytoreductive surgery and consists of heated chemotherapy delivered in the abdominal cavity and removed after a maximum of two hours. The protocol for PIPAC differs from HIPEC, in the sense that the drug

is delivered as a pressurized aerosol in the peritoneal cavity and that PIPAC can be repeated various times. It can also be alternated with systemic chemotherapy [3].

Compared to HIPEC, PIPAC is associated with a better drug distribution in the intraperitoneal cavity and with increased depth of penetration.

Electrostatic Pressurized intraperitoneal aerosol chemotherapy (ePIPAC)

Electrostatic PIPAC is a procedure during which a current of $\leq 10 \mu\text{A}$ and 7,500-9,500 V is added. Electrostatic loading is used as an adjunct to induce precipitation of the aerosolized drug and improve tissue uptake [4]. It was observed that the aerosol vanished within seconds after activation of the generator. The activation is performed either at the beginning or at the end of the injection and the post-activation administration time is not standardized as the reports from different teams range from 1 to 30 minutes.

References

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