

Peritonectomy HIPEC – contemporary results, indications

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Paul Sugarbaker’s procedural description in this paper (1) comes from the pioneer and master of this area. His original description of peritoneal cancer index (PCI) and cytoreduction score (CC) is also fundamental to selection of patients and intraoperative assessment. PCI is calculated by dividing the abdomen into 9 areas and 4 additional scores for the small bowel (*Figure 1*).



Figure 1 the abdomen is divided into 9 areas and 4 additional scores for the small bowel

Each area is given a score of 0 = nil, 1 \leq 0.5 cm, 2 =0.5-5.0 cm, and 3 \geq 5.0 cm. A maximum score of 39 may be achieved. PCI is fundamental in selecting patients for surgery, and radiological PCI often underestimates disease.

Completeness of CC is done at the completion of CC0 = nil, CC1 \leq 0.25 cm, CC2 =0.25-2.5 cm, and CC3 \geq 2.5 cm.

There are other systems but PCI and CC are fundamental to peritonectomy.

The principal current indications for peritonectomy/HIPEC

Pseudomyxona peritoneii (PMP) or jelly belly

We now have published data on well over two thousand patients (2). High PCI is prognostic of operative time and morbidity but is still associated with good long-term

outcome.

5- and 10-year survival in 81% and 70% of patients with disseminated peritoneal adeno mucosis (DPAM) was seen.

Appendix adenocarcinoma (PMCA) (whether appearing like PMP or not).

Results are considerably better than in colorectal cancer with a 49% 5-year survival in our unit. We do not decline patients with high PCI provided CC0 can be achieved.

Peritoneal mesothelioma

This has to be one of the most exciting areas of surgical oncology. A previously invariably fatal disease is now treated with a 50% 5-year survival after peritonectomy/HIPEC (3). Epithelial subtype, completeness of cytoreduction and absence of lymph nodes are positive prognostic factors.

Colorectal cancer

It is now well established that a significant proportion of suitable patients with low volume PC from CRC with complete cytoreduction/HIPEC can achieve long-term survival (2)(PCI <15 with approximately 30% at 5 years and if the PCI is <10, 50% has been achieved in several centres).

A more contemporary issue is of “prophylactic” HIPEC.

Systematic second look surgery + HIPEC 1 year after resection of high risk CRC revealed PC in 56% which was resected and all patients received HIPEC. 5-year survival was 90% (Elias 2011).

A case control study in similar patients yielded a 4% peritoneal recurrence rate in HIPEC patients and 22% in controls (P<0.05) (4). The literature would indicate that

limited and resected peritoneal disease on the primary specimen, ovarian metastasis and perforated tumors are at high risk and should be considered for prophylactic HIPEC.

Ovarian cancer

Whilst there is level one evidence of survival advantage of intraperitoneal chemotherapy in ovarian cancer it is currently remarkably little used (5) despite a 21% reduction in risk of death (6).

HIPEC has the advantage of not requiring post operative intraperitoneal chemotherapy and in a small case/control study achieved significantly lower recurrence and better survival (7).

What is also exciting is that platinum resistance does not preclude excellent results of HIPEC with no difference in 5-year survival in 245 platinum sensitive/resistant patients at approximately 40% (8).

Gastric cancer

Whilst we must accept that this is an awful disease, peritonectomy/HIPEC is the only chance of 5-year survival and this has been reported in 23% and 27% (9,10). Low PCI seems to be very important (we use 10 as a cutoff).

Learning curve

As well as the impressive survival prospects offered by peritonectomy/HIPEC morbidity and particularly mortality has progressively fallen in the major units in the world and several learning curve papers have been published (11,12).

PSOGI our International Organisation recommends a 1 year Fellowship on a high volume unit as part of training.

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