



# Postoperative pleural effusion after cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) in ovarian cancer patients: predictive role of preoperative albumin levels, diaphragmatic disease involvement and preoperative pleural effusion

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With great deal of interest, we read the article entitled “Risk factors of pleural effusion (PE) after cytoreductive surgery and hyperthermic intraperitoneal chemotherapy (HIPEC) in late-stage and recurrent ovarian cancer” by Zhao *et al.* (1).

The authors present the incidence [57.1% (44/77 patients)] and predisposing parameters of PE after tumour debulking and HIPEC in 77 women with advanced and/or recurrent ovarian carcinoma. They mentioned that preoperative PE is an independent predisposing parameter of postoperative PE with a prevalence of 24%. Moreover, partial diaphragmatic resection was found to be another independent risk factor. Furthermore, although the albumin levels in women with postoperative PE were lower than those in the control group, no statistical significance was identified in the multivariate analysis (1).

We would like to present our findings in a similar cohort of patients of our group. More specifically, our cohort consisted of 257 patients who underwent debulking and

HIPEC. The incidence of postoperative PE was 77/257 (29.96%). We also found that both preoperative PE as well as diaphragmatic involvement are independent predisposing parameters of postoperative PE (*Table 1*). Additionally, both preoperative as well as postoperative albumin levels were found to be lower in postoperative PE in a statistically significant level (*Table 1*). Finally, age, different histological subtypes and/or bowel involvement were not found to be independent risk factors of postoperative PE (*Table 1*).

Our findings confirm the role of preoperative PE, diaphragmatic involvement and furthermore preoperative albumin levels as independent prognostic parameters of postoperative PE in patients with ovarian carcinoma undergoing CRS and HIPEC. A tertiary centre cooperation in the field may further highlight such a role and may help to form a predictive preoperative algorithm of postoperative PE. Once again, we would like to thank the authors for their interesting article.

**Table 1** Predictive factors of postoperative pleural effusion after CRS + HIPEC

Predictive factors	Non PE (n=180)	PE (n=77)	P value
Age	59.1±10.2	55.7±6.8	0.52
Operative time	610±140	690±160	0.02
Preoperative albumin	40.6±4.8	34.2±3.9	0.03
Postoperative albumin	30.6±6.8	25.4±7.3	<0.01*
Histology			0.6
Serous	120	62	
Others	60	15	
Bowel involvement			0.4
No	75	17	
Yes	105	60	
Diaphragmatic Involvement			0.005*
No	140	29	
Yes	40	48	
Preoperative pleural effusion			0.004*
No	160	37	
Yes	20	40	

\*, statist. signif P<0.05. CRS, cytoreductive surgery; HIPEC, hyperthermic intraperitoneal chemotherapy; PE, pleural effusion.

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## References

1. Zhao J, Zhang Y, Yang X, et al. Risk factors of pleural effusion after cytoreductive surgery and hyperthermic intraperitoneal chemotherapy in late-stage and recurrent ovarian cancer. *Ann Palliat Med* 2021;10:385-91.

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