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Difference in Occurrence of Bevacizumab-Induced Nephrotoxicity Among Cancer Types

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Objectives : Bevacizumab, a vascular endothelial growth factor inhibitor, poses significant clinical management challenges due to its association with nephrotoxicity. This study aims to elucidate the variation in bevacizumab-induced nephrotoxicity risk across different cancer types, including colorectal, ovarian, cervical, and brain cancers, while accounting for potential confounders. Understanding these variations is crucial for optimizing treatment approaches and monitoring strategies.
Methods : This retrospective, single-center, pilot study analyzed data from cancer patients treated with bevacizumab between 2003 and 2022. Nephrotoxicity was defined by the presence of proteinuria, increased blood pressure, or acute kidney disease. The analysis adjusted for variables such as dose per body weight, chemotherapy combinations, age, diabetes mellitus (DM), chronic kidney disease (CKD), and sex. The primary endpoint was the incidence of nephrotoxicity.
Results : Out of 2,347 patients, 1,992 patients enrolled across four cancer types (colorectal, ovarian, cervical, and brain cancers),119 were excluded due to pre-existing end-stage renal disease (ESRD) before their first chemotherapy session (2 patients) or early death post-treatment (117 patients). The analysis identified a significantly elevated nephrotoxicity risk in patients with cervical (OR: 3.82–129.75) and ovarian cancers (OR: 2.39–13.66), compared to those with brain cancer. Colorectal cancer patients also faced higher risk (OR: 1.37–4.59). Factors such as chemotherapy combinations, comorbidities (DM and CKD), and gender did not show a significant impact. Notably, the risk was increased in patients older than 65 years (OR: 1.42–2.34). No significant differences in proteinuria and hypertension (HTN) were observed across cancer types.
Conclusions : Our findings highlight a differential risk of bevacizumab-induced acute kidney disease (AKD) among cancer types, suggesting the presence of organ-specific susceptibility factors to nephrotoxicity. This underscores the importance of rigorous renal function monitoring in affected patient groups. Future research should focus on identifying the underlying mechanisms contributing to this variability and developing strategies to mitigate nephrotoxicity risk.

Figure1.jpg

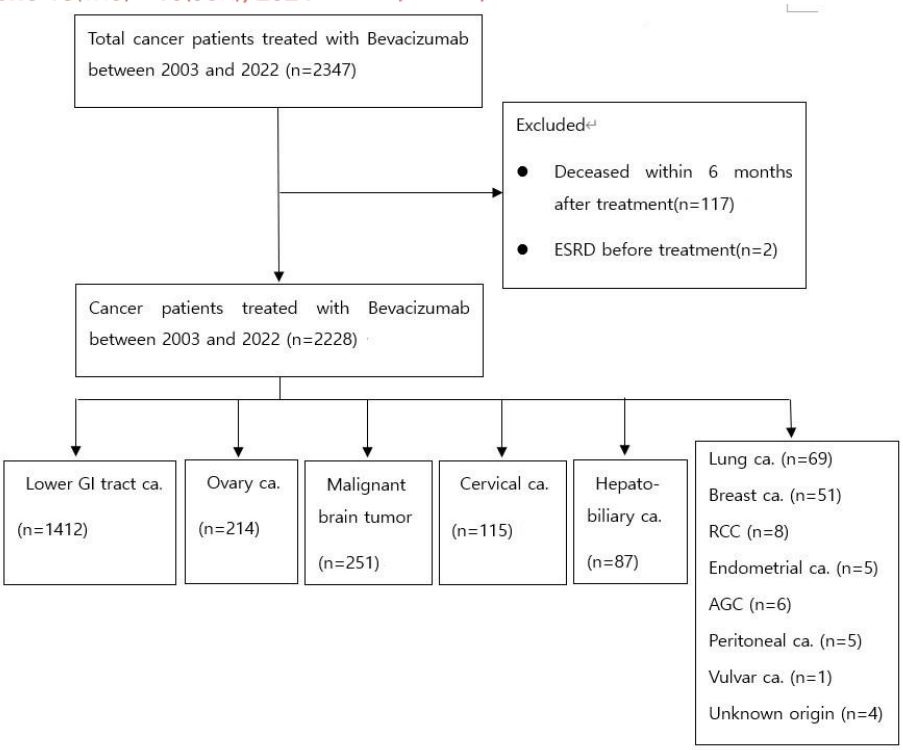

Figure1.jpg

	Lower GI ca.(n=1412)		Brain ca.(n=251)		Ovary ca.(n=214)		Cervical ca.(n=115)		Total.(n=1992)	
Male/Female(%)	807(57)	605(43)	132(53)	119(47)	-	214	-	115	939(47)	1053(53)
Age>65(%)	657(46.5)		96(38.2)		98(45.7)		32(27.8)		883(44.3)	
DM(%)	351(24.8)		94(37.4)		28(13.1)		21(18.2)		494(24.7)	
HTN(%)	476(33.7)		75(29.8)		76(35.5)		41(35.6)		668(33.5)	
CKD(%)	26(1.8)		0		5(2.3)		4(3.4)		35(1.7)	
Death(%)	183(12.9)		18(7.1)		26(12.1)		14(12.1)		241(12.1)	