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Changes in Clinical Features and Surgical Outcome of Gallbladder Cancer in Korea Over 30 Years

: A Korea Tumor Registry System-Biliary Pancreas (KOTUS-BP) Database Analysis

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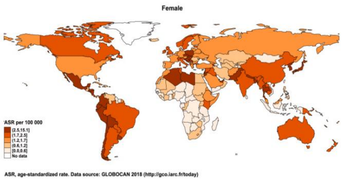
Introduction

- Increase of crude rates / Decrease of Age-standardized rate in Gallbladder cancer, South Korea
- 2,784 cases newly diagnosed GB cancer at 2023

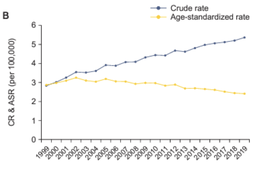
(Bile duct cancer: 4,833, Pancreatic cancer: 8,872)

Purpose :

- To investigate the changes of "**clinical features**", "**treatment patterns**" and "**surgical outcomes**" of **gallbladder cancer (GBC)** in South Korea during last 30 years using a Korea Tumor Registry System-BiliaryPancreas (KOTUS-BP) database.



Huang. et al Cancers Letter 2022



Kang. et al AHBPS 2022

Methods

- KOTUS-BP (Korea Tumor Registry System Biliary Pancreas) database
- Pathologically proven gallbladder adenocarcinoma after surgery

(N= 4187, 24 hospitals)

Period I (1991~1999), n=235

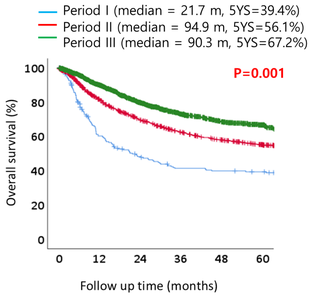
Period II (2000~2009), n=1416

Period III (2010~2021), n=2528

Results

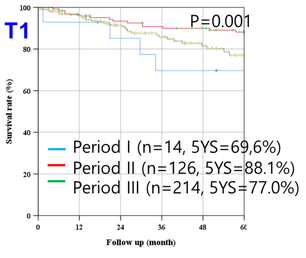
Variables		All	Period I (1991 ~ 1999)	Period II (2000 ~ 2009)	Period III (2010 ~ 2022)	P
T stage	T0	4.5%	0.9%	3.9%	5.1%	<0.001
	T1	19.3%	13.7%	18.8%	19.8%	
	T2	51.0%	34.8%	49.1%	53.6%	
	T3	21.9%	37.4%	23.8%	19.3%	
	T4	3.4%	10.1%	4.3%	2.2%	
LN invasion	N0	43.5%	26.3%	39.6%	47.4%	<0.001
	N1	24.6%	23.7%	26.8%	23.4%	
	N2	3.8%	3.4%	3.8%	3.8%	
	Nx	28.1%	46.6%	29.8%	25.4%	
Lymphovascular invasion		37.0% (1069/2889)	75.8% (25/33)	35.0% (304/868)	37.2% (740/1988)	<0.001
Perineural invasion		38.5% (1013/2629)	73.3% (33/45)	35.9% (290/808)	38.9% (690/1776)	<0.001
R status	R0	86.4% (3450/3992)	68.1% (154/226)	85.2% (1164/1366)	88.8% (2132/2400)	<0.001
	R1	7.3% (292/3992)	12.8% (29/226)	7.2% (99/1366)	6.8% (164/2400)	
	R2	6.3% (250/3992)	19.0% (43/226)	7.5% (103/1366)	4.3% (104/2400)	
Recurrence		28.4% (882/3109)	42.0% (58/138)	35.0% (396/1133)	23.3% (428/1838)	<0.001
Adjuvant therapy		25.4% (519/2044)	8.3% (2/24)	22.1% (116/524)	26.8% (401/1496)	<0.001

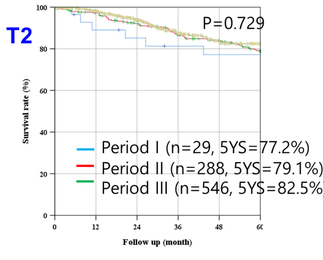
Overall Survival

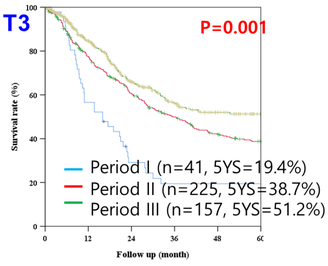


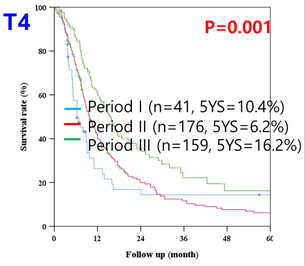
Overall survival

	Multivariate analysis		
	HR	95% CI	P value
GB stone	-		
OP type, open/laparoscopy	-		
Period (I vs II vs III)	-		
T stage, T1&T2/T3&T4	2.48	1.71-3.59	<0.001
N stage, -/+	2.18	1.55-3.06	<0.001
R0/R1,R2	2.09	1.31-3.34	0.002
Lymphovascular invasion, -/+	1.40	1.06-1.86	0.017
Perineural invasion, -/+	1.77	1.11-2.81	0.017
Adjuvant chemotherapy - ·	0.26	0.47-0.80	<0.001
Complication CD grade 3a≤	1.51	1.02-2.24	<0.001









Variables	All	Period I (1991 ~ 1999) N=234	Period II (2000 ~ 2009) N=1416	Period III (2010 ~ 2022) N=2528	p
Sex, M/F	1947/2229	113/121	631/785	1203/1323	0.065
Age (mean ±SD, yrs)	65.0 (±19.5)	62 (±11.2)	62.9 (±11.2)	67.1 (±23.1)	<0.001
BMI	24.3 (±3.4)	-	24.1 (±3.3)	24.1 (±3.4)	0.108
GB stone	22.1% (616/2783)	27.0 % (10/37)	25.2% (236/938)	20.5% (370/1430)	0.015
OP type Cholecystectomy	31.8% (1319/4154)	47.6% (111/233)	35.6% (497/1397)	28.0% (704/2516)	<0.001
Cholecystectomy + LND	9.3% (387/4154)	4.3% (10/233)	8.8% (123/1397)	10.1% (254/2516)	
Extended cholecystectomy	55.7% (2315/4154)	38.2% (89/233)	51.1% (714/1397)	60.1% (1511/2516)	
Palliative op. (biopsy, bypass surgery)	3.2% (133/4154)	3.9% (23/233)	4.5% (63/1397)	1.9% (47/2516)	
Op method Open	65.1% (2545/3909)	87.2% (204/234)	70.7% (961/1360)	59.6% (1380/2315)	<0.001
Lap	34.4% (1344/3909)	12.4% (29/234)	28.5% (387/1360)	40.1% (928/2315)	
Robot	0.5% (20/3909)	0.4% (1/234)	0.9% (12/1360)	0.3% (7/2315)	
Incidental cancer	3.4% (143/4179)	0	2.8% (40/1416)	4.1% (103/2528)	<0.001
HD stay	7.8 (±6.7)	-	9.1 (±7.5)	7.3 (±6.3)	<0.001
EBL	313.0 (±402.7)	-	400 (±469.7)	237.0 (±315.2)	<0.001
Cx grade 3A≤	7.4% (242/3042)	0	6.9% (75/1081)	8.3% (167/2001)	<0.001

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HD stay	7.8 (±6.7)	-	9.1 (±7.5)	7.3 (±6.3)	<0.001
Estimated blood loss	313.0 (±402.7)	-	400 (±469.7)	237.0 (±315.2)	<0.001
Complications (CD grade 3A≤)	7.4% (242/3042)	0	6.9% (75/1081)	8.3% (167/2001)	<0.001

Summary & Conclusion



- Survival rate (Gallbladder cancer after surgery) has remarkably increased
  - ➢ Early diagnosis of gallbladder cancer (Period I (median = 21.7 m, 5YS=39.4%), Period II (median = 94.9 m, 5YS=55.2%)), Period III (median = 90.3 m, 5YS=66.8%))
  - ➢ Increase of curative resection rate, extended cholecystectomy
  - ➢ Increase of minimally invasive surgery (MIS is feasible !)
  - ➢ Adjuvant chemotherapy data is unknown yet.

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I have no financial relationships to disclose.

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