

Conclusions: Korean pediatric organ recipients had higher prevalence of low intelligence and ADHD although three quarters were living donor transplantations of this cohort. Early transplantation intervention would be better for cognitive development after transplantation.

Keywords: Pediatric transplantation, Cognitive development, Intelligence quotient, Living donor

Oral Presentation 4

- **Presentation Date:** Saturday, April 25, 2015
- **TIME:** 16:50-17:50
- **Chaired by:** In-Sang Song, Donglak Choi

OP-4-1

Modulation of Specificity Protein 1 (SP1) is a Novel Therapeutic Strategy for Pancreas Cancer

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Background: Pancreas cancer is a relatively rare disease but, it was the fourth leading cause of cancer related mortality in Korea. The 5-year survival rate reported to be lower than 5%, the disease is associated with an extremely poor prognosis. Curative surgical resection is the only potentially curative treatment modality with gemcitabine based postoperative adjuvant chemotherapy. However, the clinical impact of gemcitabine varies significantly in individual tumors because of chemoresistance. Specificity Protein 1 (SP1) is a zinc-finger transcription factor that regulates multiple cellular functions and promotes tumor progression by controlling expression of genes involved in cell cycle, apoptosis and DNA damage. Previous studies suggested that inhibition of SP1 decreases the growth of various cancers. However, the role of SP1 in pancreas cancer is unclear. Thus, we investigated SP1 expression in pancreas cancer and its association with clinical outcome and the role of SP1 on various pancreas cell lines.

Methods: Between 2002 and 2012, 84 pancreas cancer patients were reviewed. The expression of SP1 in pancreas cancer was evaluated by Immunohistochemical staining. All 84 patients had clinical follow-up information and were evaluated for survival. MiaPaca-2, AsPC-1 and BxPC-3 human pancreas cancer cell line were used. We examined the inhibition of SP1 were measured by WST solution

dependent method, RT-PCR and western blot analysis in various pancreas cell lines.

Results: We demonstrate high expression level of Sp1 in pancreas cancer cell lines and human cancer tissues. Sp1 over expression was associated with higher perineural invasion and lymphovascular invasion ($p < 0.043$, and $p < 0.068$, respectively). In disease free survival, patients with over-expression of SP1 had a much shorter DFS than patients with low expression of SP1 ($p = 0.0043$). In various pancreas cancer cell lines, inhibition of Sp1 decreased cell growth and induced apoptosis using WST method. The results of the present study indicate that inhibition of SP1 had anti-proliferative effect on the growth of pancreas cancer cell lines in a dose- and time -dependent manner. The treatment of MiaPaca-2, AsPC-1 and BxPC-3 with inhibition of SP1 led to a significant reduction in growth and induced apoptosis, followed by the regulation of SP1.

Conclusions: SP1 expression increases during cancer transformation and plays an important role in the maintenance and development of tumors. Downregulation of Sp1 is useful for treating tumor cells and clinical studies are necessary to describe the clinical application and potential unexpected toxicities.

Keywords: Specificity Protein 1, Pancreas cancer, Biomarker, Apoptosis, Prognosis

OP-4-2

The Atrophy of Remnant Pancreas after Pancreatoduodenectomy: Its Risk Factors and Effects on Quality of Life, Nutritional Status and Pancreatic Exocrine/Endocrine Function

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Background: Remnant pancreas atrophy after pancreatoduodenectomy has been reported in previous studies. However, the factors aggravating atrophy and the effects of the atrophy were not studied well. The aim of this study was to evaluate the clinical factors to affect remnant pancreas atrophy and to assess effects of atrophy on quality of life, nutritional status and pancreatic exocrine/endocrine functions.

Methods: Prospectively collected data of 122 patients who completed 12 months follow-up with CT and quality of life questionnaire after pancreaticoduodenectomy were analyzed. Preoperative, remnant and 12 months follow-

up pancreas volume were measured using CT volumetry program. Patients were divided into 2 groups. Group A was the patients with pancreas volume decrease under 50% and group B was the patients with pancreas volume decrease over 50% at 12 months. The patients with preoperative diabetes were excluded in endocrine function analysis.

Results: The volume of remnant pancreas decreased about 45% during 12 months after operation. Malignancy and adjuvant chemoradiotherapy were significantly associated with volume decrease over 50% in multivariate analysis.

Mostly of quality of life scores and nutritional indexes at 12 months were not significantly associated with the atrophy. However, stool elastase was significantly decreased in group B (33.6 $\mu\text{g/g}$ vs. 104.1 $\mu\text{g/g}$, $p=0.003$). In group A, 14.6% of patients showed no exocrine deficiency (stool elastase ≥ 200 $\mu\text{g/g}$) and 78.0% of patients showed severe exocrine deficiency (stool elastase < 100 $\mu\text{g/g}$). In group B, 92.0% of patients had severe exocrine deficiency and there was no patient with normal exocrine function. Diabetes at 12 months were more frequently detected in group B (26.8% vs. 10.5%, $p=0.057$). Serum fasting blood glucose level was not different between 2 groups, but postprandial 2-hour blood glucose was significantly higher in group B (163.7 mg/dl vs. 133.6 mg/dl, $p=0.035$) and glycosylated hemoglobin level showed higher tendency in group B (6.0% vs. 5.7%, $p=0.088$).

Conclusions: The atrophy of remnant pancreas after pancreatoduodenectomy was more severe in the patients with malignancy and who underwent adjuvant chemoradiotherapy. The quality of life and nutritional status were not significantly affected by the remnant pancreas atrophy, however, exocrine and endocrine function were associated with the atrophy.

More careful monitoring and active management of exocrine and endocrine deficiency will be needed in the patients who underwent pancreatoduodenectomy due to malignancy and who carried out adjuvant chemoradiotherapy.

Keywords: Pancreas atrophy, Volumetry, Exocrine, Endocrine, Pancreatoduodenectomy

OP-4-3

Proposal of a New Staging System for Ampulla of Vater Cancer with Higher Distinction Ability: Multinational Study from Eastern and Western

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Background: Ampulla of Vater (AoV) cancer has not been well studied among periampullary carcinoma. Having little data to verify current staging system, AJCC staging system for AoV cancer was not revised since 2002. Therefore, the authors built a multinational database of AoV cancer to provide a reliable dataset for proper staging.

Methods: Between 1985 and 2013, 841 consecutive patients with AoV cancer who underwent curative surgery at Seoul National University Hospital (SNUH, $n=440$) and Johns Hopkins Hospital (JHH, $n=401$) were included in analysis. Based on the analysis of current AJCC 7th staging system, new staging system with better distinction ability was proposed.

Results: Mean age of the patients was 63.1 years and male to female ratio was 1.2:1. R0 resection was achieved in 94.2% ($n=792$). According to AJCC 7th staging, 5YSR of each stage was as follows; Stage IA ($n=140$, 80.3%), Stage IB ($n=194$, 60.9%), Stage IIA ($n=115$, 58.1%), Stage IIB ($n=348$, 36.6%), Stage III ($n=33$, 17.9%), Stage IV ($n=4$, 25.0%). Stage IB (T2N0M0) and IIA (T3N0M0) showed no statistical difference in 5YSR ($p=0.556$) while other stages were well discriminated. Number of metastatic LN (MLN) stratified prognosis well when classified as 0, 1, and ≥ 2 ($p<0.001$). Staging system was revised as follows; IA (T1, MLN0), IB (T2~T3, MLN0), IIA (T1~T3, MLN1), IIB (T1~T3, MLN ≥ 2), III (any T4), IV (any M1). According to newly proposed staging system, each stage had statistically significant discrimination, including stage IB vs. IIA ($p=0.009$).

Conclusion: Current definition of stage T2 and T3 does not discriminate prognosis well. N stage can be classified according to number of MLN. Treating T2 and T3 on the same level and applying the number of MLN, newly proposed staging system has higher distinction ability. We suggest our newly proposed staging system has more clinical relevance based on large scale multinational database.

Keywords: Ampulla of Vater, Prognosis, Survival, AJCC staging system

OP-4-4

Single Port versus Multiple Port Laparoscopic Cholecystectomy: A Comparative Study Using Propensity Score Matching

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Background: Single port laparoscopic approaches is changing paradigms in minimal invasive surgery. The purpose of this comparative study is to evaluate the clinical outcomes of the patients with who underwent laparoscopic cholecystectomy with single port or multiple port at single institution.

Methods: We retrospectively reviewed the records of 1047 patients who underwent laparoscopic cholecystectomy at Hallym university college of medicine, Korea between 2011 and 2014. A propensity score matching analysis(PSM) was constructed to overcome bias between two groups.

Results: 282 Single Incision Laparoscopic Cholecystectomy(SILC) and 756 conventional laparoscopic cholecystectomy(CLC) were performed between 2011 and 2014. Mean age was 51.98 ± 16.02 years (SILC 48.83 ± 15.02 vs CLC 53.16 ± 16.23 yrs $p < 0.001$). There was no difference in sex ratio(SILC male 136(48.2%) female 146(51.8%) vs CLC male 375(49.6%) female 381(50.4%) $p = 0.72$) and American Society of Anesthesiologists's score counted 1.96 ± 0.69 (SILC 1.79 ± 0.66 CLC 2.02 ± 0.69 , $p < 0.001$). One-to-one matching of preoperative characteristics yielded 280 pairs of patients receiving SILC and CLC. After matching, there was no difference in most postoperative short-term outcomes including estimated blood loss, postoperative hospital days, operating time, and wound complication. However, there was a significant difference in number of pain killer use(SILC 4.31 ± 3.53 vs CLC 3.36 ± 2.57 , $p < 0.001$).

Conclusion: SILC is feasible and provides a promising alternative minimal invasive surgery for laparoscopic cholecystectomy. However, SILC should be overcome postoperative pain control. In addition to, large multicenter randomized controlled trial will be required to finally admit SILC as a promising alternative minimal invasive surgery for laparoscopic cholecystectomy.

				after matching				
	single	multi	n=756	p-value	single	multi	n=280	p-value
Age	48.83 ± 15.02	53.21 ± 16.24		0.228	53.21 ± 16.24	53.21 ± 16.24		0.672
Height	163.67 ± 6.58	162.91 ± 9.30		0.325	162.91 ± 9.30	162.91 ± 9.30		0.601
BW	66.66 ± 13.03	65.78 ± 12.73		0.034	65.78 ± 12.73	65.78 ± 12.73		
BMI	24.81 ± 3.82	24.25 ± 3.76		0	24.25 ± 3.76	24.25 ± 3.76		
ASA	1.79 ± 0.66	2.03 ± 0.69		0	1.79 ± 0.66	1.79 ± 0.66		
EBL	45.85 ± 262.64	42.63 ± 182.78		0.824	42.63 ± 182.78	42.63 ± 182.78		
POD	4.73 ± 5.08	4.91 ± 3.34		0.52	4.91 ± 3.34	4.91 ± 3.34		
진통제	4.30 ± 3.52	3.55 ± 2.97		0.001	3.55 ± 2.97	3.55 ± 2.97		
Op time	61.39 ± 22.41	68.59 ± 30.18		0	68.59 ± 30.18	68.59 ± 30.18		
Sex	0.951 0.724-1.250	0.72		0	0.951 0.724-1.250	0.951 0.724-1.250		
ASA				0				
1	95	33.70%	164	21.50%	95	33.70%	164	21.50%
2	151	53.50%	423	55.40%	151	53.50%	423	55.40%
3	35	12.40%	109	14.30%	35	12.40%	109	14.30%
4	1	0.40%	6	0.80%	1	0.40%	6	0.80%
5	0	0.00%	1	0.10%	0	0.00%	1	0.10%
upp sur	1.173 0.464-2.968			0.736	1.173 0.464-2.968	1.173 0.464-2.968		0.646
low sur	0.952 0.655-1.385			0.799	0.952 0.655-1.385	0.952 0.655-1.385		0
PTGBD	1.449 0.919-2.285			0.109	1.449 0.919-2.285	1.449 0.919-2.285		0
bile spillage	0.045 0.023-0.089			0	0.045 0.023-0.089	0.045 0.023-0.089		0
JP drain	34.118 21.269-54.729			0	34.118 21.269-54.729	34.118 21.269-54.729		0.218
wound cx	0.294 0.120-0.716			0.004	0.294 0.120-0.716	0.294 0.120-0.716		0.113

Keywords: Single incision, Minimal invasive surgery, Cholecystectomy, Propensity score matching

OP-4-5

A Prospective Study for the Effect of Cholecystectomy to the Liver in Consideration of Hepatic Steatosis 3 months after Cholecystectomy with Ultrasound

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Background: It is possible that cholecystectomy might contribute the development of hepatic steatosis through the metabolic changes. Two possible theories are that the biologic alteration of the enterohepatic circulation of bile acids and the alteration of metabolic activity of bile acid would follow cholecystectomy. So, this study was conducted to clarify the possible steatosis development after cholecystectomy that was not yet clear.

Methods: From Oct 2013 to Jul 2014, total of 82 consecutive patients with a presumptive diagnosis of gallbladder disease were cholecystectomized at the time of study. The patients were taken from a cohort of patients prospectively collected and followed up. All patients underwent a complete medical history and physical examination. To confirmed liver parenchymal steatosis, ultrasound and hepatic steatosis index was obtained and compared.

Result: In all 82 patients, hepatic steatosis index was found to be significantly correlated with US fatty liver grade (Spearman's correlation $r^2 = 0.331$, $P = 0.00$). At this point of study, a total 62 patients were followed up in 3months. Comparison with initial grade of fatty liver showed that 12 (18.5%) patients were aggravated (10, from normal to mild; 1, from mild to moderate; 1, from mild to severe). The other patients were stayed at their initial grade except one patient who was improved (from moderate to mild). Analysis of laboratory findings between initial and 3 months follow up showed that white blood cell, AST, ALT and total bilirubin were decreased. However, serum albumin and HDL-C level were increased with significance.

Conclusion: From the ultrasound findings, steatosis is significantly developed 3months after cholecystectomy. Therefore, cholecystectomy might be considered as a risk

factor for hepatic steatosis, but the relationship should be confirmed with long term follow up from large group of patients.

Keywords: Hepatic steatosis, Cholecystectomy, Ultrasound

OP-4-6

Is it Fair to Routinely Insert the Drain after Laparoscopic Cholecystectomy for Acute Cholecystitis?: A Randomized Multicenter Prospective Controlled Trial

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Background: In the case of acutely inflamed gallbladder (AIGB), it is not easy to distinguish the anatomical structure around the Calot's triangle due to severe inflammatory change. Consequently, most surgeons have routinely placed the drain with expectations that it could help to detect postoperative bleeding or bile leakage which are their majority of concerns. However, there is a lack of evidence regarding the role of drain in laparoscopic cholecystectomy (LC) for AIGB and the use of a drain remains controversial.

Methods: From December 2013 to August 2014, a total of 193 patients who needed LC due to AIGB at the four participating hospitals were entered in this study. After operation, patients were randomly assigned to undergo the drain insertion (94 patients, 48.7%, group A) or not (99 patients, 51.3%, group B). The surgical outcomes and perioperative morbidities between two groups were prospectively reviewed.

Results: Both groups were comparable in terms of patient demographics, operative time and postoperative hospital stay. In 18 cases (9.3%), postoperative morbidities such as bleeding, bile leakage, wound infection or abscess occurred and there was no significantly difference between two groups. The VAS pain score measured at 24 hours (3.9 ± 1.4 in group A and 3.3 ± 2.0 in group B, $p=0.014$) and 48 hours (2.1 ± 1.5 in group A and 1.5 ± 1.4 in group B, $p=0.006$) was higher in the group A with statistical difference.

Conclusions: The routine insertion of drain is not beneficial for prevention or reducing postoperative morbidities after LC for AIGB, and even it can cause the prolonged postoperative pain. This prospective study suggests that the routine drain use in LC for AIGB should be sublated.

Keywords: Drain, Laparoscopy, Cholecystectomy, Acute cholecystitis, Morbidity