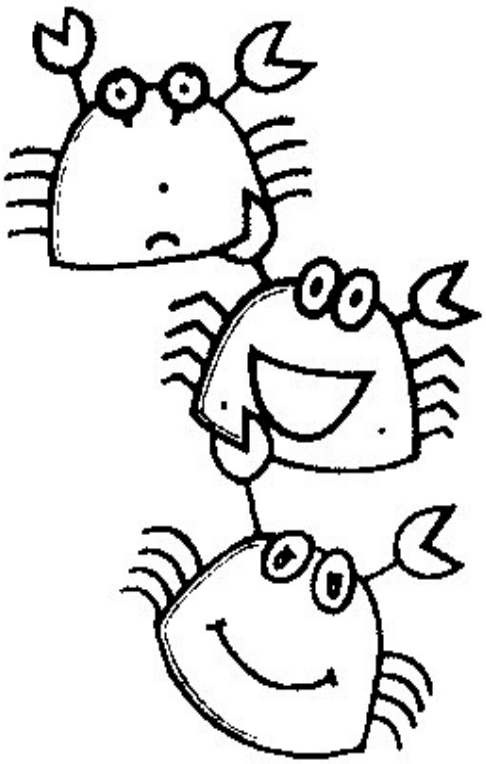
ANNUAL REPORT
ON
GYNECOLOGIC ONCOLOGY
2016



DIVISION OF GYNECOLOGIC ONCOLOGY

DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

FACULTY OF MEDICINE, CHIANG MAI UNIVERSITY

CHIANG MAI, THAILAND

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GYNECOLOGIC ONCOLOGY

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WEBSITE : http://www.med.cmu.ac.th/dept/obgyn/Unit/onco/oncofront.htm

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หน่วยมะเร็งวิทยานรีเวช

ภาควิชาสูติศาสตร์และนรีเวชวิทยา

คณะแพทยศาสตร์ มหาวิทยาลัยเชียงใหม่

อนุสาขามะเร็งวิทยานรีเวช

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คุณอรทัย ใบใส

PREFACE

The Department of Obstetrics and Gynaecology was founded in 1958, the same time as the establishment of Faculty of Medicine which is the third medical school in Thailand. The Faculty of Medicine, Chiang Mai University and Maharaj Nakorn Chiangmai Hospital have grown continuously and become the biggest medical school in Northern Thailand. The department consists of 25 academic staff responsible for teaching and training of 742 medical students, 4 interns, 33 residents and 14 clinical fellows. There is also a growing number of visiting residents, clinical fellows, interns and medical students from others institutes.

This annual report shows data from the Division of Gynecologic Oncology. The gynecologic cancers, in particular cervical cancer, have a high prevalence in Northern Thailand. Many patients come for the treatment. A lot of specialized procedures and operations were performed each year. Therefore, the department has become a well-known training center for gynecologic oncologist. In addition, the Division of Gynecologic Oncology acquired over 30 million baht of funding from Thailand Research Fund (TRF) and National Research Council of Thailand (NRCT) into the department, generating several scientific publications and textbooks during the recent years. Associate professor Prapaporn Suprasert is the head of the Gynecologic oncology unit.

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PREFACE

This Annual Report 2016 is the twentieth volume of our work in gynecologic oncology. We served 478 new gynecologic cancer patients in this year which slightly increased from the last year's number. The leading cancer is still cervical cancer, followed by uterine cancer and ovarian cancer.

Sixty-six Wertheim operations were performed in our hospital. Of these patients, 8 cases were operated via laparoscopic route. About publication, sixteen original studies were published in the peer-reviewed journals in 2016 and 4 studies were presented in the gynecologic oncology conference.

This report is divided into 2 sections. The first section provides the statistics of all gynecologic cancer patients in the year 2016 in which the data has been accumulated since 1997. The latter section presents the infrastructure, diagnostic procedures and operations in gynecologic cancer, abstracts of the publications in 2016. This report used the latest version of FIGO staging system.

I gratefully acknowledge the contributions of the following individuals, without whom this Annual Report could not have been possible. Dr. Sethawat Sethasathien who collected the research data. My research team, Khun Narisa Sribanditmongkol, Khun Sukanya Yanunto and Khun Orathai Baisai gave their help greatly to collect and analyze the patients' data. All staffs in Radiation Oncology, Gynecologic Pathology, Medical Oncology, and Oncology Nursing Divisions consistently collaborated on our patients care. I would like to take this opportunity to appreciate my colleagues and fellows for their perseverance and dedication. Finally, a special word of thankfulness goes to our Head Department of OB&GYN, Assoc. Professor Doctor Weerawit Piyamolkol for his continuous support.

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  - Cancer of the Peritoneum
  - Cancer of Multiple Primary Gynecologic Organs
  - Gestational Trophoblastic Disease

TABLE 1 : Gynecologic Oncology Registry :Chiang Mai University 1997-2016

Site	1997 Number (%)	1998 Number (%)	1999 Number (%)	2000 Number (%)	2001 Number (%)	2002 Number (%)	2003 Number (%)	2004 Number (%)	2005 Number (%)	2006 Number (%)
Cervix	547 (75.3)	483 (72.9)	497 (75.3)	502 (71.3)	500 (70.8)	521 (69.7)	624 (71.7)	532 (66.9)	525 (66.4)	488 (66.8)
Ovary	87 (12.0)	83 (12.5)	82 (12.4)	96 (13.6)	90 (12.7)	110 (14.7)	111 (12.8)	126 (15.8)	121 (15.3)	114 (15.6)
Corpus	48 (6.6)	47 (7.1)	49 (7.4)	56 (8.0)	63 (8.9)	61 (8.2)	67 (7.7)	89 (11.2)	97 (12.3)	84 (11.5)
Vulva	20 (2.7)	21 (3.2)	15 (2.2)	29 (4.1)	23 (3.3)	25 (3.3)	29 (3.3)	22 (2.8)	19 (2.4)	15 (2.1)
Vagina	11 (1.4)	10 (1.5)	3 (0.5)	2 (0.3)	9 (1.3)	6 (0.8)	12 (1.4)	5 (0.6)	4 (0.5)	5 (0.7)
FT	-	2 (0.3)	3 (0.5)	5 (0.7)	3 (0.4)	4 (0.5)	6 (0.7)	5 (0.6)	4 (0.5)	7 (1.0)
PPA	-	-	2 (0.3)	1 (0.1)	-	2 (0.3)	7 (0.8)	3 (0.4)	4 (0.5)	6 (0.8)
GTT	14 (1.9)	16 (2.4)	8 (1.2)	13 (1.9)	18 (2.6)	19 (2.5)	14 (1.6)	13 (1.6)	17 (2.1)	12 (1.6)
Total	**727 (100)**	**662 (100)**	**660 (100)**	**704 (100)**	**706 (100)**	**748 (100)**	**870 (100)**	**795 (100)**	**791 (100)**	**731 (100)**

PPA = Primary Peritoneal Adenocarcinoma FT = Fallopian Tube GTT = Gestational Trophoblastic Tumors

TABLE 1 : Gynecologic Oncology Registry :Chiang Mai University 1997-2016(continue)

Site	2007 Number (%)	2008 Number (%)	2009 Number (%)	2010 Number (%)	2011 Number (%)	2012 Number (%)	2013 Number (%)	2014 Number (%)	2015 Number (%)	2016 Number (%)
Cervix	480 (63.6)	473 (63.2)	436 (58.1)	449(64.2)	387(57.1)	345 (57.9)	285(54.8)	297(58.3)	244 (52.6)	251(52.5)
Ovary	132 (17.5)	115 (15.2)	141 (18.8)	105(15.0)	118(17.5)	86 (14.4)	85(16.3)	87(17.1)	85(18.3)	69(14.4)
Corpus	91 (12.0)	117 (15.4)	116 (15.5)	94(13.4)	114(16.9)	106 (17.8)	109(21.0)	92(18.1)	93(20.0)	110(23.0)
Vulva	11 (1.5)	21 (2.8)	24 (3.2)	21(3.0)	16(2.4)	27 (4.5)	24(4.6)	11(2.2)	15(3.2)	22(4.6)
Vagina	6 (0.7)	7 (0.9)	7 (0.9)	12(1.7)	11(1.6)	5 (0.8)	2(0.4)	2(0.4)	2(0.4)	3(0.6)
FT	7 (0.9)	4 (0.5)	4 (0.5)	6(0.9)	3(0.4)	4 (0.7)	3(0.6)	7(1.4)	11(2.4)	11(2.3)
PPA	11 (1.5)	7 (0.9)	8 (1.1)	-	5(0.7)	8 (1.3)	4(0.8)	6(1.2)	4(0.9)	4(0.8)
GTT	17 (2.3)	15 (2.0)	14 (1.9)	12(1.7)	22(3.3)	15 (2.5)	8(1.5)	7(1.4)	10(2.2)	8(1.7)
Total	**755 (100)**	**759 (100)**	**750 (100)**	**699(100)**	**676(100)**	**596(100)**	**520(100)**	**509(100)**	**464(100)**	**478(100)**

PPA = Primary Peritoneal Adenocarcinoma FT = Fallopian Tube GTT = Gestational Trophoblastic Tumors

Gynecologic Oncology Multiple Primary Cancers : Chiang Mai University 2002-2016

Multiple Primary Cancers	2002 Number	2003 Number	2004 Number	2005 Number	2006 Number	2007 Number	2008 Number	2009 Number	2010 Number	2011 Number	2012 Number
Ovarian and Cervical Cancer	**2**	**1**	**1**	**1**	**-**	**-**	**1**	**-**	**-**	**-**	**-**
Ovarian and Corpus Cancer	**7**	**-**	**5**	**13**	**5**	**4**	**8**	**5**	**7**	**4**	**4**
Corpus and Cervical Cancer	**1**	**-**	**-**	**1**	**-**	**1**	**-**	**-**	**-**	**-**	**-**
Corpus and Fallopian Tube Cancer	**1**	**-**	**-**	**-**	**1**	**-**	**-**	**1**	**1**	**-**	**1**
Corpus and Peritoneal Cancer	**-**	**1**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Corpus and ChorioCA	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**
Cervical and Fallopian Tube Cancer	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Ovarian and Fallopian Tube	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**1**	**1**	**-**	**-**
Ovarian and Fallopian Tube and Corpus Cancer	**-**	**-**	**-**	**-**	**1**	**1**	**-**	**-**	**1**	**-**	**-**
Cervical and Vulva Cancer	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	-	**1**
Corpus and Colon Cancer	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	-	-
Corpus and Bladder cancer	-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	-
Cervix and Ileal cancer	-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	-

Gynecologic Oncology Multiple Primary Cancers : Chiang Mai University 2002-2016

Multiple Primary Cancers	2013 Number	2014 Number	2015 Number	2016 Number
Ovarian and Cervical Cancer	-	1	-	-
Ovarian and Corpus Cancer	4	4	3	5
Corpus and Cervical Cancer	-	1	-	-
Corpus and Fallopian Tube Cancer	-	1	-	-
Corpus and Peritoneal Cancer	-	-	-	-
Corpus and ChorioCA	-	-	-	-
Cervical and Fallopian Tube Cancer	-	-	-	-
Ovarian and Fallopian Tube	-	-	-	-
Ovarian and Fallopian Tube and Corpus Cancer	-	-	-	1
Cervical and Vulva Cancer	-	-	-	-
Corpus and Colon Cancer	-	-	-	-
Corpus and Bladder cancer	-	-	-	-
Cervix and Ileal cancer	-	-	-	-

Operations and Procedures in Gynecologic Oncology

Operations and Procedures	1997 Number	1998 Number	1999 Number	2000 Number	2001 Number	2002 Number	2003 Number	2004 Number	2005 Number	2006 Number
Surgery for Ovarian & Tubal Cancer	64	43	64	70	45	69	88	79	80	111
Surgery for Corpus Cancer	33	28	26	36	43	39	47	60	75	53
Surgery for Vulvar Cancer	10	14	5	19	12	14	21	19	14	12
Radical hysterectomy*	55	77	113	120	116	135	150	151	149	143
Laparoscopic Radical Hysterectomy*	-	-	-	-	-	-	-	4	18	21
Radical Parametrectomy*	2	2	1	1	1	3	4	1	1	2
Laparoscopic Radical Parametrectomy*	-	-	-	-	-	-	-	1	1	3
Extrafacial Hysterectomy	118	110	155	182	121	89	43	35	52	55
Total Laparoscopic Hysterectomy		-	-	-	-	-	10	11	9	4
CKC	66	65	79	13	14	22	16	9	10	5
LEEP	61	35	166	207	194	221	380	276	261	309
Cryosurgery	20	15	18	8	4	3	1	-	2	-
Colposcopy	227	235	463	371	369	306	357	399	499	627

*** with pelvic lymphadenectomy**

CKC = Cold Knife Conization

LEEP = Loop Electrosurgical Excision Procedure

Operations and Procedures in Gynecologic Oncology (continue)

Operations and Procedures	**2007** Number	**2008** Number	**2009** Number	**2010** Number	**2011** Number	**2012** Number	**2013** Number	**2014** Number	**2015** Number	**2016** Number
Surgery for Ovarian & Tubal Cancer	89	95	115	87	117	103	88	92	105	82
Surgery for Corpus Cancer	80	106	83	87	96	94	100	81	72	110
Surgery for Vulvar Cancer	8	21	18	20	14	17	20	28	15	28
Radical hysterectomy*	120	121	103	125	89	71	58	57	55	58
Modified Radical hysterectomy*	-	-	18	12	17	12	7	10	9	6
Abandon Hysterectomy*	-	-	1	1	3	7	2	2	2	2
Radical Parametrectomy*	1	-	1	-	2	2	-	2	1	1
Laparoscopic surgical staging for Corpus cancer	-	-	-	6	4	3	2	5	4	4
Laparoscopic Radical Hysterectomy*	11	16	5	-	9	9	8	3	3	8
Laparoscopic Radical Trachelectomy*	-	-	-	-	-	-	-	2	-	-
Laparoscopic Radical Parametrectomy*	-	-	-	2	-	-	-	-	-	-
Total Laparoscopic Hysterectomy	4	2	2	2	2	1	1	3	-	-
Robotic Radical Hysterectomy*	-	-	-	-	-	-	2	1	-	-
CKC	15	6	5	6	2	-	1	-	-	-
LEEP	317	235	175	203	157	173	239	144	215	160
Colposcopy	519	556	474	409	406	494	728	659	775	600

* with pelvic lymphadenectomy CKC = Cold Knife Conization LEEP = Loop Electrosurgical Excision Procedure

Cancer of the Cervix

- **Distribution by**
  - Age
  - Parity
  - Stage and Substage
  - HIV Status
  - Histological Type
  - Treatment

TABLE 2 : Cancer of the Cervix : Age Distribution

Age	Number	Percent
≤ 30	11	4.4
31-40	36	14.3
41-50	56	22.3
51-60	83	33.1
61-70	42	16.7
71-80	18	7.2
≥ 81	5	2.0
Total	**251**	**100**

Minimum age 23 years, Maximum age 87 years
Mean age 53.0 ±13.0 years

TABLE 3 : Cancer of the Cervix : Parity Distribution

Parity	Number	Percent
0	23	9.2
1	43	17.1
2	95	37.8
3	51	20.3
4	11	4.4
5	10	4.0
6	8	3.2
7	4	1.6
8	2	0.8
9	1	0.4
12	1	0.4
Data not available	2	0.8
Total	**251**	**100**

TABLE 4 : Cancer of the Cervix: Stage Distribution.

Stage	Number	Percent
I	70	27.9
II	83	33.1
III	71	28.3
IV	27	10.8
Total	**251**	**100.0**

TABLE 5 : Cancer of the Cervix: Stage and Substage Distribution.

	Stage	Number	Percent
I	IA1	8	3.2
	IA2	2	0.8
	IB1	44	17.5
	IB2	16	6.4
II	IIA1	4	1.6
	IIA2	13	5.2
	IIB	66	26.3
III	IIIA	2	0.8
	IIIB	69	27.5
IV	IVA	10	4.0
	IVB	17	6.8
Total		**251**	**100**

TABLE 6 : HIV Status in Cervical Cancer Patients dividing by Stage

Stage	Number Negative HIV(%)	Number Positive HIV(%)	Number not done (%)	Total
IA1	8(3.2)	0	0	8(3.2)
IA2	2(0.8)	0	0	2(0.8)
IB1	41(16.3)	1(0.4)	2(0.8)	45(17.9)
IB2	15(6.0)	0	1(0.4)	16(6.4)
IIA1	4(1.6)	0	0	4(1.6)
IIA2	11(4.4)	1(0.4)	1(0.4)	13(5.2)
IIB	59(23.5)	1(0.4)	6(2.4)	66(26.3)
IIIA	2(0.8)	0	0	2(0.8)
IIIB	67(26.7)	2(0.8)	0	69(27.5)
IVA	8(3.2)	0	2(0.8)	10(4.0)
IVB	15(6.0)	0	2(0.8)	17(6.8)
Total	**232(92.4)**	**5(2.0)**	**14(5.6)**	**251(100)**

TABLE 7 : Cancer of the Cervix : Distribution by Histological Type

Histological Type	Number	Percent
Squamous cell carcinoma	**189**	**75.3**
Well differentiation	11	4.4
Moderately differentiation	113	45.0
Poorly differentiation	51	20.3
Not define differentiation	14	5.6
Adenocarcinoma	40	15.9
Adenosquamous	11	4.4
Small cell NE	4	1.6
Endocervical CA	2	0.8
Malignant melanoma	1	0.4
Clear cell CA	1	0.4
Large cell NE	1	0.4
Mixed small cell + SCCA	1	0.4
Mesonephric adenoCA	1	0.4
Total	**251**	**100**

SCCA = Squamous cell carcinoma MD = Moderately differentiation
NE = Neuroendocrine WD = Well differentiation
CA = Carcinoma PD = Poorly differentiation

TABLE 8 : Treatment of cancer of the Cervix.

Treatment	Number	Percent
Surgery alone		
TAH	3	1.2
RHPL	17	6.8
LRHPL	8	3.2
Radical parametrectomy with BPL	1	0.4
Extended hysterectomy with BPL	1	0.4
Extraperitoneal BPL(inadvertent surgery)	1	0.4
Chemotherapy alone	**18**	**7.2**
Concurrent chemoradiation+ Brachytherapy	**100**	**39.8**
RT+Brachytherapy	**39**	**15.5**
Combined treatment		
TAH +CCRT	8	3.2
TAH+ RT	2	0.8
TAH+ Brachytherapy	1	0.4
TAH+ CT	2	0.8
RHPL+RT+ Brachytherapy	8	3.2
RHPL+Brachytherapy	2	0.8
RHPL+CCRT+ Brachytherapy	24	9.6
RHPL+CT	2	0.8
RHPL awaiting for RT conference	1	0.4
Laparoscopic ovarian transposition + CCRT	2	0.8
Extended hysterectomy with BPL + CCRT+ HDR	3	1.2
Abandon Hysterectomy with BPL +CCRT	2	0.8
Others		
Lost to FU without treatment	2	0.8
Supportive treatment	3	1.2
refer to another hospital for surgery	1	0.4
Total	**251**	**100**

RHPL Radical Hysterectomy and bilateral pelvic lymphadenectomy
TAH Total Abdominal Hysterectomy
LRHPL Laparoscopic Radical Hysterectomy with Pelvic Lymphadenectomy
TLH Total laparoscopic hysterectomy
CCRT Concurrent Chemoradiation
RT Radiation Therapy
CT Chemotherapy
BPL Bilateral Pelvic Lymphadenectomy

N.B. Number of RH& BPL = 54 cases

Cancer of the Ovary

➢ Distribution by

- Age
- Parity
- Histology
- Histology Subtype
  - Epithelial Group
  - Germ Cell Tumor Group
  - Sex cord-stromal Group
  - Others Group
- Stage
  - Epithelial Group
  - Germ Cell Group
  - Sex cord-stromal Group
  - Other Group
- Stage and Histology
- Treatment

TABLE 9 : Cancer of the Ovary **:** Age Distribution

Age	Number	Percent
≤20	3	4.3
21-30	8	11.6
31-40	7	10.1
41-50	16	23.2
51-60	20	29.0
61-70	10	14.5
71-80	3	4.3
>80	2	2.9
Total	**69**	**100**

Minimum age 18 years, Maximum age 85 years
Mean age 49.0 ± 16.1 years

TABLE 10 : Cancer of the Ovary : Parity Distribution

Parity	Number	Percent
0	31	44.9
1	13	18.8
2	16	23.2
3	3	4.3
4	4	5.8
5	1	1.4
Data not available	1	1.4
Total	**69**	**100**

TABLE 11 : Cancer of the Ovary : Histological Distribution

Histology	Number	Percent
Epithelium	54	78.3
Germ Cell	11	15.9
Sex cord-stromal	4	5.8
Total	**69**	**100**

TABLE 12 : Epithelial Ovarian Cancer : Histological Subtype Distribution

Histological Subtype	Number	Percent
Serous LMP	2	3.7
Serous adenoCA	10	18.5
Mucinous LMP	13	24.1
Mucinous adeno CA	5	9.3
Endometrioid CA	6	11.1
Clear cell CA	13	24.1
Mixed epithelial CA	2	3.7
AdenoCA	1	1.9
Large cell NE in background of mucinous adenoCA	1	1.9
Low grade endometrial stromal sarcoma	1	1.9
Total	**54**	**100**

CA = Carcinoma
LMP = Low malignant potential
NE = Neuroendocrine

TABLE 13 : Ovarian Germ Cell Tumor (GCT) : Histological Subtype Distribution

Histological Subtype	Number	Percent
Dysgerminoma	2	18.2
Yolk sac tumor	3	27.3
Immature teratoma	4	36.4
SCCA arising in mature teratoma	1	9.1
High grade sarcoma arising in mature teratoma	1	9.1
Total	**11**	**100**

SCCA = squamous cell carcinoma

TABLE 14 : Sex cord-stromal tumor : Histological Subtype Distribution

Subtype	Number	Percent
Adult granulosa cell tumor	4	100
Total	**4**	**100**

TABLE 15 : Epithelial Ovarian Cancer : Stage Distribution

Stage	Number	Percent
IA	15	27.8
IC at least	5	9.3
IC1	3	5.6
IC2	5	9.3
IC3	4	7.4
IIA	5	9.3
IIB	1	1.9
IIIB	2	3.7
IIIC	11	20.4
IV	1	1.9
IVB	2	3.7
Total	**54**	**100**

TABLE 16 : Germ Cell Ovarian Cancer: Stage Distribution

Stage	Number	Percent
IA	4	36.4
IC1	2	18.2
IC2	1	9.1
IC3	1	9.1
IIB	2	18.2
IIIC	1	9.1
Total	**11**	**100**

TABLE 17 : Sex cord-stromal tumor: Stage Distribution

Stage	Number	Percent
IA	1	25
IC1	1	25
IC2	2	50
Total	**4**	**100**

TABLE 18 : Ovarian Cancer : Stage and Histology Distribution

	Epithelial	**Percent**	**Germ cell**	**Percent**	**Sex cord stromal tumor**	**Percent**
IA	15	28.3	4	36.4	1	25
IB	-	-	-	-	-	-
IC (at least)	5	9.4	-	-	-	-
IC1	3	5.7	2	18.2	1	25
IC2	5	9.4	1	9.1	2	50
IC3	4	7.5	1	9.1	-	-
II	-	-	-	-	-	-
IIA	5	9.4	-	-	-	-
IIB	1	1.9	2	18.2	-	-
III	-	-	-	-		
IIIA	-	-	-	-	-	-
IIIB	2	3.8	-	-	-	-
IIIC	11	20.4	1	9.1	-	-
IV	1	1.9	-	-	-	-
IVA	-	-	-	-	-	-
IVB	2	3.8	-	-	-	-
Total	**54**	**100**	**11**	**100**	**4**	**100**

TABLE 19 : Cancer of the Ovary : Primary Treatment and Adjuvant Chemotherapy

Treatment	Number	Percent
Complete SSP with adjuvant chemotherapy	24	34.8
Complete SSP without adjuvant chemotherapy	13	18.8
Incomplete SSP with adjuvant chemotherapy	23	33.3
Incomplete SSP without adjuvant chemotherapy	6	8.7
Incomplete SSP with hormone therapy	1	1.4
Chemotherapy only	1	1.4
loss FU after surgery	1	1.4
Total	**69**	**100**

SSP = Surgical Staging Procedure

NAC = Neoadjuvant Chemotherapy

FU = Follow up

TABLE 20 : Ovarian Cancer : Outcome of Treatment

Outcome	Number	Percent
Under FU without disease	36	52.2
During treatment	26	37.7
Lost to FU	4	5.8
Refer to provincial hospital for chemotherapy	3	4.3
Total	**69**	**100**

FU = Follow up

Cancer of the Uterine Corpus

➢ Distribution by

- Age
- Menopausal Status
- Underlying Medical Diseases
- Parity
- Clinical Staging
- Surgical Staging
- Histology
- Treatment

TABLE 21 : Cancer of the Corpus : Age Distribution

Age	Number	Percent
31-40	5	4.5
41-50	8	7.3
51-60	51	46.4
61-70	28	25.5
71-80	17	15.5
>80	1	0.9
Total	**110**	**100**

Minimum age 31 years, Maximum age 81 years
Mean age 59.6±10.2 years

TABLE 22 : Cancer of the Corpus: Distribution by Menopausal Status

Menopausal Status	Number	Percent
Yes	90	81.8
No	20	18.2
Total	**110**	**100**

TABLE 23 : Cancer of the Uterine Corpus: Distribution by Underlying Diseases

Medical disease	Number	Percent
None	42	38.2
Hypertension	13	11.8
Hypertension+ DM	11	10.0
Hypertension+ DM+ dyslipidemia	7	6.4
Hypertension+ DM+dyslipidemia+ CA breast	1	0.9
Hypertension+ DM+ CKD	1	0.9
Hypertension+ DM+ Dyslipidemia+ gout+CAD	1	0.9
Hypertension+ DM+asthma	1	0.9
Hypertension+ dyslipidemia	13	11.8
Hypertension+ gout	1	0.9
Hypertension+ panic disorder	1	0.9
Hypertension+ ESRD	1	0.9
Hypertension+ dyslipidemia+ RHD+ AF	1	0.9
Hypertension+ history of CA rectum	1	0.9
Hypertension+ history of CA cervix	1	0.9
Hypertension+ history of CA breast	1	0.9
Dyslipidemia	4	3.6
Dyslipidemia+ SLE	1	0.9
Dyslipidemia+ heart disease	1	0.9
DM	2	1.8
History of CA rectum	1	0.9
History of CA breast	1	0.9
Asthma	1	0.9
GERD	1	0.9
Epilepsy	1	0.9
Total	**110**	**100**

AF = Atrial fibrillation
CA = Cancer
CKD = Chronic kidney disease
CAD = Coronary artery disease
DM = Diabetes mellitus
ESRD = End State Renal Disease
GERD = Gastro Esophageal Reflux Disease
MS = Mitral valve stenosis
MR = Mitral valve regurgitation
RHD = Rheumatic heart disease
SLE = Systemic Lupus Erythematosus

TABLE 24 : Cancer of the Uterine Corpus : Distribution by Parity

Parity	Number	Percent
0	20	18.2
1	16	14.5
2	53	48.2
3	13	11.8
4	5	4.5
6	1	0.9
7	1	0.9
Data not available	1	0.9
Total	**110**	**100**

TABLE 25 : Cancer of the Uterine Corpus : Distribution by Surgical Staging

	Stage	Number	Percent
I	IA	42	38.2
	IB	21	19.1
II	II	3	2.7
III	IIIA	13	11.8
	IIIB	2	1.8
	IIIC1	12	10.9
	IIIC2	6	5.5
IV	IVA	1	0.9
	IVB	10	9.1
Total		**110**	**100**

TABLE 26 : Cancer of the Uterine Corpus : Histologic Distribution

Histology Type	Number	Percent
Endometrioid adenoCA		
Grade I	42	38.2
Grade II	15	13.6
Grade III	20	18.2
Serous adenoCA	6	5.5
Clear cell adenoCA	5	4.5
Mixed type	7	6.4
Undifferentiated CA	1	0.9
Adenosarcoma	1	0.9
Carcinosarcoma	8	7.3
Leiomyosarcoma	2	1.8
Low grade ESS	1	0.9
High grade ESS	1	0.9
Endometrial stromal tumor	1	0.9
Total	**110**	**100**

CA = carcinoma
ESS = endometrial stromal sarcoma

TABLE 27 : Treatment of Corpus Cancer

Treatment	Number	Percent
Complete SSP	14	12.7
Complete SSP + DMPA	1	0.9
Complete SSP+ Chemotherapy	8	7.3
Complete SSP+ Radiation therapy +Brachytherapy	7	6.4
Complete SSP+Brachytherapy	18	16.4
Complete SSP+ Sequential chemoradiation therapy +Brachytherapy	25	22.7
Incomplete SSP	8	7.3
Complete SSP + Megace	2	1.8
Incomplete SSP+ Chemotherapy	11	10.0
Incomplete SSP+ Brachytherapy	2	1.8
Incomplete SSP+ Radiation therapy +Brachytherapy	8	7.3
Incomplete SSP+ Sequential chemoradiation therapy	4	3.6
NAC + Debulking tumor	2	1.8
Total	**110**	**100**

SSP = Surgical Staging Procedure
NAC = Neoadjuvant chemotherapy

TABLE 28 : Outcome of Treatment of Corpus Cancer

Outcome	Number	Percent
Under FU without disease	56	50.9
During treatment	47	42.7
During treatment with progress/persist of disease	1	0.9
Refer to provincial hospital for chemotherapy	3	2.7
Palliative/ symptomatic	2	1.8
Recurrence	1	0.9
Total	**110**	**100**

FU = Follow up

Cancer of the Vulva

- **Distribution by**
  - Age
  - Stage
  - Histology
  - Treatment

TABLE 29 : Cancer of the Vulva : Age Distribution

Age	Number	Percent
≤40	1	4.5
41-50	3	13.6
51-60	8	36.4
61-70	4	18.2
71-80	2	9.1
81-90	3	13.6
>90	1	4.5
Total	**22**	**100**

Minimum age 32 years, Maximum age 95 years
Mean age 62.6. ± 15.9 years

TABLE 30 : Cancer of the Vulva : Stage Distribution

Age	Number	Percent
I	1	4.5
IA	2	9.1
IB	6	27.3
II	4	18.2
IIIA	4	18.2
IIIB	4	18.2
IV	1	4.5
Total	**22**	**100**

TABLE 31 : Cancer of the Vulva : Histological Type Distribution

Histological Type distribution	Number	Percent
Squamous cell carcinoma		
Well differentiation	9	40.9
Moderately differentiation	2	9.1
Poorly differentiation	1	4.5
Not define differentiation	4	18.2
AdenoCA	3	13.6
Poorly differentiation, CA	1	4.5
Malignant Melanoma	1	4.5
Mucinous adenoCA, WD	1	4.5
Total	**22**	**100**

CA = carcinoma

TABLE 32 : Treatment of cancer of the vulva

Treatment	Number	Percent
Radical local excision+ BGND+ CCRT	1	4.5
Radical local excision+ BGND	2	9.1
Radical local excision+ BGND+ labia majora skinning vulvectomy	1	4.5
Radical local excision+ BGND+ RT	4	18.2
Radical hemivulvectomy+ BGND	1	4.5
Radical vulvectomy+ BGND+ RT	1	4.5
Radical hemivulvectomy+ BGND + RT	1	4.5
WLE	1	4.5
WLE+ CMT	1	4.5
WLE+ RT	1	4.5
BGND + RT	5	22.7
BGND + CCRT	2	9.1
BGND	1	4.5
Total	**22**	**100**

WLE = Wide local excision
BGND = Bilateral groin node dissection
RT = Radiation therapy
CCRT = Concurrent chemoradiation
CT = Chemotherapy

Cancer of the Vagina

- **Distribution by**
  - Age
  - Stage
  - Histology
  - Treatment

TABLE 33 : Cancer of the Vagina

No	HN	Age	Stage	Histology	Treatment	Outcome
1	2485745	67	I	Malignant Melanoma	BGND+ Brachytherapy	Under FU without disease
2	3052766	74	III	SCCA	BGND + CCRT	Under FU without disease
3	3773229	59	III	SCCA	TAH c BSO + RT	During treatment

BGND = bilateral groind node dissection
FU = follow up
SCCA = squamous cell carcinoma
RT = Radiation therapy

Cancer of the Fallopian Tube

TABLE 34 : Cancer of the Fallopian Tube 2016

Data	Case 1	Case 2	Case 3
HN	1799689	3309538	3354519
Age	61	59	53
Marital status	Married	Married	Married
Parity	0	2-0-0-2	1-0-0-1
Presenting symptoms	Pelvic pain	Pelvic mass	Urinary frequency
Stage	IIA	IIIB	IIA
Histology	Serous adenoCA, high grade	Serous adenoCA, high grade	Serous adenoCA, high grade, PD
Treatment	TAH c BSO c peritoneal washing > PT	TAH c BSO c omentectomy > PT	TAH c BSO c omentectomy c peritoneal washing > PT
Outcome	During treatment	During treatment	During treatment

Data	Case 4	Case 5	Case 6
HN	3396583	3718741	3732601
Age	73	67	61
Marital status	Married	Married	married
Parity	12-0-0-10	Refer from provincial hospital data not available	2-0-0-2
Presenting symptoms	Pelvic mass	Pelvic pain	Abdominal distension
Stage	IC2	IC3	IIIC
Histology	Serous adenoCA, high grade	Serous adenoCA, high grade	Serous adenoCA, high grade
Treatment	TAH c BSO c peritoneal washing > PT	s/p Rt.SO > TAH c Lt.SO c BPND, omentectomy c peritoneal washing > PT	NAC > TAH c BSO > PTx6
Outcome	During treatment	During treatment	Under follow up without disease

Data	Case 7	Case 8	Case 9
HN	3760308	3760313	3770494
Age	56	62	47
Marital status	Married	Single	Married
Parity	1-0-1-1	0	2-0-0-2
Presenting symptoms	Pelvic pain	Pelvic mass, pelvic pain	Pelvic pain
Stage	IIIC	IIIA2	IVB (adrenal gland metastasis)
Histology	Serous adenoCA, high grade	Serous adenoCA, high grade, PD	Serous adenoCA, high grade
Treatment	TAH c BSO > PT	TAH c BSO c debulking tumor c BPNS c omentectomy c appendectomy >	TAH c BSO c partial omentectomy c Rt.external iliac LN sampling > PT
Outcome	During treatment	During treatment	During treatment

Data	Case 10	Case 11
HN	3660596	3758621
Age	44	49
Marital status	Married	Married
Parity	1-0-0-1	2-0-1-2
Presenting symptoms	Pelvic mass	Pelvic mass
Stage	I	IIIC
Histology	Serous low malignant potential	Serous adenoCA, high grade
Treatment	Left salpingectomy	NAC >TAH c BSO c peritoneal biopsy> PT
Outcome	Under follow up without disease	During treatment

BPNS = Bilateral pelvic node sampling
CA = Carcinoma
TAH&BSO = Trans abdominal hysterectomy and bilateral salpingo oophorectomy
PT = Paclitaxel and Carboplatin
PD = Poorly differentiated
Rt = Right
LT = Left
SO = Salpingo oophorectomy

Cancer of The Peritoneum

TABLE 35 : Cancer of The Peritoneum 2016

Data	Case 1	Case 2	Case 3
HN	2423258	3220533	3723978
Age	64	51	69
Marital status	Married	Married	single
Parity	1-0-0-1	1-0-0-1	0
Presenting symptoms	Chronic abdominal pain	Abdominal pain	Abdominal distension
Stage	IIIC	IIIC	IIIC
Histology	Papillary AdenoCA	High grade serous adenoCA	High grade serous adenoCA
Treatment	s/p Explor lap to Rt.hemicolectomy c end to end ileocolonic anastomosis > NAC > TAH c BSO > PTx6	s/p TAH > BSO c debulking tumor c omentectomy c appendectomy > Carbo	TAH > BSO c lysis adhesion > PTx6
Outcome	Under FU without disease	During treatment	Under FU without disease

Data	Case 4
HN	3764635
Age	53
Marital status	Married
Parity	2-0-0-2
Presenting symptoms	Married
Stage	plan surgrey
Histology	High grade adenoCA
Treatment	NAC plan debulking tumor
Outcome	During treatment

PT = Paclitaxel + Carboplatin
PD = Poorly differentiation
MD = Moderate differentiation
NAC = Neoadjuvant chemotherapy
TAH&BSO = Trans abdominal hysterectomy and bilateral salpingo-oophorectomy

Cancer of Multiple Primary Gynecologic Organs

TABLE 36 : Cancer of the Multiple Primary Gynecologic Organs 2016

Data	Case 1 CA Corpus +CA Ovary	Case 2 CA Corpus+ CA Ovary	Case 3 CA Corpus+ CA Ovary
HN	3223664	3698913	3715812
Age	37	57	62
Marital status	Married	Single	Married
Parity	1-0-0-1	0-0-0-0	1-0-0-1
Presenting symptoms	Pelvic mass	Pelvic mass	Pelvic mass
Stage	Corpus: IA Ovary: IIB	Corpus: IIIC2 Ovary: IC	Corpus: II Ovary: IC2
Histology	Corpus: Endometrioid adenoCA grade 1 Ovary: Clear cell adenoCA	Corpus: Mixed clear cell+ serous adenoCA grade 1 Ovary: Clear cell adenoCA	Corpus: Endometrioid adenoCA grade 1 Ovary: Endometrioid adenoCA grade 1
Treatment	TAH c BSO c debulking tumor > PT	TAH c BSO c omentectomy c peritoneal washing > PTx6 > WPRT	TAH c BSO c BPNS c partial omentectomy c peritoneal washing > PTx6
Outcome	During treatment	Under follow up without disease	Under follow up without disease

CA = carcinoma
PT = Paclitaxel and Carboplatin
CT = Chemo therapy
TAH&BSO = Transabdominal hysterectomy and bilateral salpingo-oophorectomy
BPND = Bilateral pelvic node dissection
PANS = Paraaortic node sampling

Data	Case 4 CA Corpus +CA Ovary	Case 5 CA Corpus+ CA Ovary	Case 6 CA Corpus+ CA Ovary+ CA Tube
HN	3738404	3747752	3754084
Age	52	52	51
Marital status	Married	Married	Married
Parity	0-0-0-0	2-0-0-2	1-0-0-1
Presenting symptoms	Pelvic mass, pelvic pain	Pelvic mass	Pelvic pain
Stage	Corpus: II Ovary: IC3	Corpus: IA Ovary: IA	Corpus: IA Ovary: IC3 Tube: IA
Histology	Corpus: Endometrioid adenoCA grade 2 Ovary: Endometrioid adenoCA grade 2	Corpus: Endometrioid adenoCA grade 1 Ovary: Endometrioid adenoCA grade 1	Corpus: Endometrioid adenoCA grade 1 Ovary: Endometrioid borderline tumor Tube: Endometrioid adenoCA
Treatment	TAH c BSO c omentectomy > sequential CCRT	TAH c BSO c BPNS c partial omentectomy c peritoneal washing > Brachytherapy	TAH c BSO c omental biopsy c peritoneal washing > PT
Outcome	During treatment	During treatment	During treatment

Gestational Trophoblastic Disease

- Gestational Trophoblastic Tumor
- Molar Pregnancy

TABLE 37 : Gestational Trophoblastic Tumors in 2016

No	HN	Age (yr)	Initial HCGtiter	Prognosis Classification	Diagnosis	FIGO	Treatment	Result
1	3759704	35	9,080	NMGTT	Persistent mole	III	MTX	During treatment
2	3754496	28	441	NMGTT	Persistent mole	I	MTX	During treatment
3	3733450	59	89,662	NMGTT	Choriocarcinoma (patho from TAH&BSO)	II	EMA-COx2 > EMAx2 > PE	During treatment
4	3734228	28	4,456	MGTT (vagina)	Choriocarcinoma (patho from vaginal biopsy)	III	EMA-COx4	remission
5	3721352	53	250,263	MGTT (lung)	Choriocarcinoma (patho from F&C)	III	EMA-COx6	Lost to FU
6	3393743	27	140,302	MGTT (lung)	Persistent mole	III	EMA-COx9	remission
7	3699335	23	1,613	NMGTT	Persistent mole	I	MTXx14	Last FU 4/59 BHCG 1.59
8	3772216	19	893	NMGTT	Persistent mole	I	MTX	During treatment

MGTT	=	Metastatic Gestational Trophoblastic tumor
NMGTT	=	Non-metastatic Gestational Trophoblastic tumor
EMA	=	Etoposide + Methotrexate + Actinomycin D
EMA-CO	=	Etoposide + Methotrexate + Actinomycin D + Cyclophosphamide+ Vincristine
MTX	=	Methotrexate
S&C	=	suction curettage
WBRT	=	whole brain radio therapy
ICE	=	Ifosfamide+ Cisplatin+ Etoposide
CT	=	Chemotherapy

TABLE 38 : Molar Pregnancy in 2016

No	HN	Age	Gravida	GA (wk)	UT Size (wk)	HCG titer	Risk	Treatment	Pathology	Result
1	3711101	19	G1 P0	12	20	>100,000	High	S&C	Complete hydatidiform mole	Remission
2	3393743	27	G1 P0	10	28	>100,000	High	S&C	Complete hydatidiform mole	Persistent mole

FU = Follow up
UT = Uterine
GA = Gestational age

SECTION II

- **Medical Personnel and Facilities**
- **Diagnostic Procedures and Gynecologic Oncology Operations**
- **Publications & Presentations**

Medical Personnel and Facilities

TABLE 39 : Medical Personnel and Facilities in Division of Gynecologic Oncology, Chiang Mai University

Personnel and Facilities	Number
Medical doctor	8
General nurse	25
Practical nurse	18
Helper	11
Research nurse	2
Research assistant	1
Inpatient bed	50
One day chemo bed	19
Outpatient bed	7
Colposcope	3
Cryosurgery set	1
Radiosurgery (Surgitron)	3

Funds **(กองทุนของหน่วยมะเร็งวิทยานรีเวช)**

1. Gynecologic Cancer Fund (กองทุนมะเร็งทางนรีเวช)
2. Cervical Cancer Surgery Fund (กองทุนผ่าตัดมะเร็งปากมดลูก)

1st Year Fellow

- Chalaithorn Nantasupha
- Dangcheewan Tinnangwattana
- Uraiwan Khomphaiboonkij

2nd Year Fellow

- Kitiya Vutibenjarasamee, M.D.
- Krittiya Somaketarin, M.D.
- Panida Meelapkij, M.D.

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Medical Oncologists

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2. Assistant Professor Busyamas Chewaskulyong, M.D.
3. Thatthan Suksomboon charoen , MD

Diagnostic Procedures and Operations

TABLE 40 : Diagnostic Procedures and Operations for Cervical Neoplasia

Procedures & Operations	Number
Colposcopy	600
LEEP	160
Simple Hysterectomy	17
Modified Hysterectomy &PL	4
Radical Hysterectomy & PL	54
Radical parametrectomy & PL	1
Abandon Hysterectomy	2
Explor lap to BSO & lymphadenectomy	3
Explor lap to ovarian transposition & lymphadenectomy	2
Laparoscopic Radical Hysterectomy & PL	8

LEEP = Loop Electrosurgical Excision Procedure
PL = Pelvic Lymphadenectomy

TABLE 41 : Operations for Ovarian, Corpus and Vulvar Cancer.

Operations	Number
CRS for Ovarian Cancer	72
CRS for Fallopian Tube Cancer	10
CRS for Peritoneal Cancer	4
Surgical Staging for Corpus Cancer	116
Radical Vulvectomy & BGND for Vulvar Cancer	3
Radical Hemivulvectomy & BGND for Vulvar Cancer	2
Radical Local Excision & BGND for Vulvar Cancer	8
Skinning vulvectomy	1
Wide Local Excision	4
BGND	10

CRS = Cytoreductive Surgery
BGND = Bilateral Groin Node Dissection

PUBLICATIONS & PRESENTATIONS

2016

SURVIVAL OUTCOME OF STAGE IVB CERVICAL CANCER TREATED WITH CHEMOTHERAPY

Suprasert P, Boupaijit K.

Background and aims: About 10% of newly diagnosed cervical cancer revealed distant metastasis and were classified as FIGO stage IVB. The main treatment of this stage is chemotherapy. This retrospective study was conducted to find out the survival outcome of these patients.

Methods: Medical records of stage IVB cervical cancer patients treated at our center between January 2008 and December 2014 were reviewed.

Results: 52 patients who met the inclusion criteria were enrolled. The median age of these patients was 51.38 years (30-72 years). About 25% of them had underlying disease and HIV positive were identified in 7.7%. The most common histology was squamous cell carcinoma (67.3%) followed by neuroendocrine carcinoma (13.5%), adenocarcinoma (11.3), clear cell carcinoma(1.9%) and mixed type(5.7%). Multiple sites of metastasis were found in 28.8% while the most frequent single site of distant metastasis was supraclavicular and cervical lymph nodes (28.8%) followed by lung (23.1%), liver (13.5). Palliative radiation and surgery were given in 17.3% and 7,7% of the studied patients, respectively. The most common initial chemotherapy regimen was cisplatin plus 5-fluorouracil (50.0%) followed by carboplatin plus paclitaexel (17.3%), carboplatin (17.3%),cisplatin plus etoposide (9.6%) and cisplatin (5.8%). The objective response was 51.9% and 22 patients were received the subsequent regimen chemotherapy regimen due to progression of disease. With the median follow up time of 12 months, 76.9% were died. The median overall survival was 27 months and 3-year-overall survival rate was 35.7%.

Conclusion: Stage IVB cervical cancer patients revealed the modest efficacy of chemotherapy and the survival outcome was not quite good.

Abstract IGCS 2016

Survival Outcomes of Advanced and Recurrent Cervical Cancer Patients Treated with Chemotherapy: Experience of Northern Tertiary Care Hospital in Thailand.

Boupaijit K, Suprasert P.

Chemotherapy is the primary treatment for advanced and recurrent cervical cancer. To evaluate the survival outcomes of chemotherapy and the prognostic factors in this setting, we conducted a retrospective study by reviewing the medical records of advanced and recurrent cervical cancer patients treated with systemic chemotherapy at our institute between January, 2008 and December, 2014. One hundred and seventy-three patients met the criteria with a mean age of 50.9 years. 4.1% of them were HIV positive. The most common initial stage was stage IVB (30.1%) and the most common histology was squamous cell carcinoma (68.6%). Ninety-two (53.2%) patients were previously treated with concurrent chemoradiation with 53% developing combined sites of recurrence. The median recurrence free interval was 16.7 months. Cisplatin + 5 fluorouracil (5FU) (53.2%) was the most frequent first line chemotherapy followed by carboplatin + paclitaxel (20.2%) with an objective response of 39.3%. Seventy-two patients received subsequent chemotherapy. The median overall survival of all studied patients was 13.2 months. Only a recurrence free interval of less than 12 months was an independent prognostic factor for survival outcome. In conclusion, chemotherapy treatment for advanced and recurrent cervical cancer patients showed modest efficacy with a shorter recurrence free survival less than 12 months as a significant poor prognosis factor.

Published in: Asian Pac J Cancer Prev. 2016;17(3):1123-7.

Lack of Relationship of Egg White Intake with Occurrence of Leukopenia in Gynecologic Cancer Patients during Chemotherapy.

Suprasert P, Aue-Aungkul A, Pautad N.

Egg white intake during chemotherapy is common advice for cancer patients for the prevention of leukopenia. However, the benefit is uncertain. We conducted this prospective study to identify the relationship of egg white intake for gynecologic cancer patients who received carboplatin and paclitaxel and the occurrence of leukopenia. Between January 2014 and January, 2015, 81 patients were interviewed regarding their intake of egg whites before receiving subsequent chemotherapy. The basic data, the details of egg white intake and the grade of leukopenia in the previous cycle were recorded. The mean age was 54.1 years and 80% of the patients had a diagnosis of ovarian or endometrial cancer. The patients were interviewed at cycles 1-3 in 45 cases, 4-6 in 45 cases and 7-9 in two cases. Subsequent dose reduction was found in 6.2% and granulocyte-stimulating growth factors was given at 4.9%. All the patients ate egg whites with variations in the number of eggs per day as follows: less than one (3), one to two (56), three to four (14) and five to six (8). Over 70% were recommended by nurses to eat egg whites and about 63% of patients received other supplemental food. Some 44.1% of the patients who ate less than or equal to two eggs per day and 36.4% who ate more than two eggs per day developed grade 2-4 leukopenia, P = 0.61. In conclusion, the data did not provide evidence in support of the conclusion that a greater egg white intake could significantly reduce the occurrence of leukopenia.

Published in: Asian Pac J Cancer Prev. 2016;17(3):1265-7.

Outcomes of Metastatic Gestational Trophoblastic Neoplasia: Fourteen Year Experience from a Northern Thailand Tertiary Care Center.

Suprasert P, Siriaree S, Manopunya M.

Metastatic gestational trophoblastic neoplasia (GTN) is an uncommon cancer. The principal treatment consists of chemotherapy with or without surgery or radiotherapy. We here retrospectively reviewed the outcomes of metastatic GTN treated at our institute between January, 1999 and December, 2013. Sixty-three patients met the criteria. The median age was 30.0 years and almost 90% were referral cases. Nearly 40% of the studied patients presented with vaginal bleeding while 22.2% were asymptomatic. The most common antecedent pregnancy was hydatidiform mole (57.1%) followed by term pregnancy (20.6%). The median interval time from antecedent pregnancy to the development of GTN was three months and the median pretreatment B-hCG was 58,274 mIU/ ml. Stage III (74.6%) was the most common staging followed by stage IV (20.6%) and stage II (4.8%). The most frequent surgery was hysterectomy (31.7%). Thoracotomy and craniotomy were performed in three and two patients, respectively. The most common first line chemotherapy regimen was methotrexate and folinic acid (36.5%) followed by EMA (etoposide, methotrexate, actinomycin D) (34.9%), EMACO (etoposide, methotrexate, actinomycin D, cyclophosphamide, vincristine) (17.5%) with the remission rate of 66.7%. Nearly one-third of the patients were given a subsequent chemotherapy regimen after failure with the first line therapy and showed a final response rate of 73.0%. However, in stage IV, the response to first line treatment was only 38.5%. In conclusion, the outcomes of metastatic GTN were poor especially with the higher stages.

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Appropriate Bowel Preparation for Laparotomy Gynecologic Surgery: A Prospective, Surgeon-Blinded Randomized Study.

Suadee W, Suprasert P.

OBJECTIVE:

To compare the surgeon's satisfaction during gynecological laparotomy surgery and patient's satisfaction as well as quality of life (QOL) among 3 groups of bowel preparations: no enema vs. sodium chloride enema vs. soap-suds enema (SSE).

MATERIALS AND METHOD:

Three hundred and thirty three women undergoing gynecological laparotomy surgery and without risks to bowel lumen entry between November 2014 and October 2015 were randomized to receive no enema (n = 111), sodium chloride enema (n = 111) or SSE (n = 111) for bowel preparation. Surgeons, who were blinded for the type of bowel preparation, assessed the surgical visualization and the efficacy of bowel packing. The patients' satisfaction and the QOL were also assessed on the days of admission, operation, post-operation, and discharge.

RESULTS:

The patients' features of the 3 groups were well balanced. The surgeon's satisfaction was rated excellent as 56.8, 63.1 and 65.8% in the no-enema, sodium chloride and SSE groups (p = 0.830), respectively. The patients in the no-bowel-preparation group were satisfied more significantly than the other groups (p = 0.001). No significant differences in QOL were observed among the 3 groups.

CONCLUSION:

The type of bowel preparation for exploratory gynecologic surgery did not affect the surgical visualization and the QOL of the patients.

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Genotyping for Human Papillomavirus (HPV) 16/18/52/58 Has a Higher Performance than HPV16/18 Genotyping in Triaging Women with Positive High-risk HPV Test in Northern Thailand.

Khunamornpong S, Settakorn J, Sukpan K, Suprasert P, Srisomboon J, Intaraphet S, Siriaunkgul S.

BACKGROUND:

Testing for high-risk human papillomavirus DNA (HPV test) has gained increasing acceptance as an alternative method to cytology in cervical cancer screening. Compared to cytology, HPV test has a higher sensitivity for the detection of histologic high-grade squamous intraepithelial lesion or worse (HSIL+), but this could lead to a large colposcopy burden. Genotyping for HPV16/18 has been recommended in triaging HPV-positive women. This study was aimed to evaluate the screening performance of HPV testing and the role of genotyping triage in Northern Thailand.

METHODS:

A population-based cervical screening program was performed in Chiang Mai (Northern Thailand) using cytology (conventional Pap test) and HPV test (Hybrid Capture 2). Women who had abnormal cytology or were HPV-positive were referred for colposcopy. Cervical samples from these women were genotyped using the Linear Array assay.

RESULTS:

Of 5,456 women, 2.0% had abnormal Pap test results and 6.5% tested positive with Hybrid Capture 2. Of 5,433 women eligible for analysis, 355 with any positive test had histologic confirmation and 57 of these had histologic HSIL+. The sensitivity for histologic HSIL+ detection was 64.9% for Pap test and 100% for Hybrid Capture 2, but the ratio of colposcopy per detection of each HSIL+ was more than two-fold higher with Hybrid Capture 2 than Pap test (5.9 versus 2.8). Genotyping results were available in 316 samples. HPV52, HPV16, and HPV58 were the three most common genotypes among women with histologic HSIL+. Performance of genotyping triage using HPV16/18/52/58 was superior to that of HPV16/18, with a higher sensitivity (85.7% versus 28.6%) and negative predictive value (94.2% versus 83.9%).

CONCLUSIONS:

In Northern Thailand, HPV testing with genotyping triage shows better screening performance than cervical cytology alone. In this region, the addition of genotyping for HPV52/58 to HPV16/18 is deemed necessary in triaging women with positive HPV test.

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Allelic Characterization of IGF2 and H19 Gene Polymorphisms in Molar Tissues.

Piyamongkol W, Suprasert P.

BACKGROUND:

To investigate the characteristics of allelic distribution of IGF2 and H19 gene polymorphisms in molar tissues compared to normal placentas.

MATERIALS AND METHODS:

Forty-nine specimens of molar tissues as well as 100 control normal placental tissues, delivered on the same days, were collected. Polymerase chain reaction (PCR) with restriction fragment length polymorphism (RFLP) on 2% agarose gel electrophoresis was conducted to determine the allelic distribution. The ApaI polymorphism within exon 9 of IGF2 and the RsaI polymorphism within exon 5 of H19 were employed to identify the allelic distribution of the IGF2 and H19 genes, respectively. Then the data for these genes in the molar and normal placenta tissues were compared.

RESULTS:

The allelic distribution of IGF2 genes found in molar tissue were 21 (42.9%) aa (undigested), 10 (20.4%) ab (heterozygous) and 18 (36.7%) bb (digested), while in normal placenta tissue the values were 22 (22%) aa, 51 (51%) ab, and 27 (27%) bb. The allelic distribution of H19 in molar tissues was 8 (16.2%) aa (undigested), 8 (16.3%) ab (heterozygous) and 33 (67.4%) bb (digested) and in normal placental tissue was 16 (16%) aa, 36 (36%) ab and 48 (48%) bb in normal placenta tissue. These results were significantly different with P values of 0.001 and 0.037 for the allelic distribution of IGF2 and H19, respectively.

CONCLUSIONS:

Molar tissues showed significant differences of allelic distribution of IGF2 and H19 from normal placenta tissues.

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Ovarian Carcinosarcoma and Its Association with Mature Cystic Teratoma and Primary Tubal Carcinoma.

Rewsuwan S, Satabongkoch N, Suprasert P, Khunamornpong S.

Introduction. Carcinosarcoma is an uncommon form of ovarian cancers, classified as being part of the group of mixed epithelial and mesenchymal tumors. The occurrence of carcinosarcoma in association with a mature cystic teratoma and synchronous tubal carcinoma is very rare. Case Report. A 69-year-old woman presented with a pelvic mass. An abdominal computerized tomographic scan detected a 15 cm right pelvic mass which was suggestive of malignant transformation of a dermoid cyst. Intraoperative, bilateral ovarian masses (left 10 cm and right 12 cm) with diffuse peritoneal metastatic nodules were identified. Histologically, the left ovarian mass was composed of 2 components including carcinosarcoma and mature cystic teratoma, whereas the right ovarian mass represented a mature cystic teratoma with serosal surface involvement of high-grade serous adenocarcinoma. The left fallopian tube was macroscopically unremarkable but contained a 5.0 mm focus of high-grade serous adenocarcinoma in the distal part, with adjacent serous tubal intraepithelial carcinoma. Conclusion. As the fallopian tube has recently been proposed to be an origin for a majority of pelvic or ovarian high-grade serous adenocarcinomas, tubal carcinoma may be the origin for ovarian carcinosarcomas through an epithelial-mesenchymal transition. The coexistence of ovarian carcinosarcoma and teratoma in the present case should represent a collision tumor.

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Spatial and Temporal Analyses of Cervical Cancer Patients in Upper Northern Thailand

Thongsak N, Chitapanarux I, Suprasert P, Prasitwattanaseree S, Bunyatisai W, Sripan P, Traisathit P.

Background: Cervical cancer is a major public health problem worldwide. There have been several studies indicating that risk is associated with geographic location and that the incidence of cervical cancer has changed over time. In Thailand, incidence rates have also been found to be different in each region. **Methods:** Participants were women living or having lived in upper Northern Thailand and subjected to cervical screening at Maharaj Nakorn Chiang Mai Hospital between January 2010 and December 2014. Generalized additive models with Loess smooth curve fitting were applied to estimate the risk of cervical cancer. For the spatial analysis, Google Maps were employed to find the geographical locations of the participants' addresses. The Quantum Geographic Information System was used to make a map of cervical cancer risk. Two univariate smooths: x equal to the residency duration was used in the temporal analysis of residency duration, and x equal to the calendar year that participants moved to upper Northern Thailand or birth year for participants already living there, were used in the temporal analysis of the earliest year. The spatial-temporal analysis was conducted in the same way as the spatial analysis except that the data were split into overlapping calendar years. **Results:** In the spatial analysis, the risk of cervical cancer was shown to be highest in the Eastern sector of upper Northern Thailand (p-value <0.001). In the temporal analysis of residency duration, the risk was shown to be steadily increasing (p-value =0.008), and in the temporal analysis of the earliest year, the risk was observed to be steadily decreasing (p-value=0.016). In the spatial-temporal analysis, the risk was stably higher in Chiang Rai and Nan provinces compared to Chiang Mai province. According to the display movement over time, the odds of developing cervical cancer declined in all provinces. **Conclusions:** The risk of cervical cancer has decreased over time but, in some areas, there is a higher risk than in the major province of Chiang Mai. Therefore, we should promote cervical cancer screening coverage in all areas, especially where access is difficult and/or to women of lower socioeconomic status.

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Subsequent Oophorectomy and Ovarian Cancer after Hysterectomy for Benign Gynecologic Conditions at Chiang Mai University Hospital.

Jitkunnatumkul A, Tantipalakorn C, Charoenkwan K, Srisomboon J.

This study was undertaken to determine the incidence of subsequent oophorectomy due to ovarian pathology or ovarian cancer in women with prior hysterectomy for benign gynecologic conditions at Chiang Mai University Hospital. Medical records of women who underwent hysterectomy for benign gynecologic diseases and pre-cancerous lesions between January 1, 2004 and December 31, 2013 at Chiang Mai University Hospital were retrospectively reviewed. The incidence and indications of oophorectomy following hysterectomy were analyzed. During the study period, 1,035 women had hysterectomy for benign gynecologic conditions. Of these, 590 women underwent hysterectomy with bilateral salpingo-oophorectomy and 445 hysterectomy with bilateral ovarian preservation or unilateral salpingo-oophorectomy. The median age was 47 years (range, 11-75 years). Ten women (2.45 %) had subsequent oophorectomy for benign ovarian cysts. No case of ovarian cancer was found. The mean time interval between hysterectomy and subsequent oophorectomy was 43.1 months (range, 2-97 months) and the mean follow-up time for this patient cohort was 51 months (range, 1.3-124.9 months). According to our hospital-based data, the incidence of subsequent oophorectomy in women with prior hysterectomy for benign gynecologic conditions is low and all present with benign conditions.

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Anti-aging and tyrosinase inhibition effects of Cassia fistula flower butanolic extract.

Limtrakul P, Yodkeeree S, Thippraphan P, Punfa W, Srisomboon J.

BACKGROUND:

Natural products made from plant sources have been used in a variety of cosmetic applications as a source of nutrition and as a whitening agent. The flowers of Cassia fistula L, family Fabaceae, have been used as a traditional medicine for skin diseases and wound healing and have been reported to possess anti-oxidant properties. The anti-aging effect of C. fistula flower extract on human skin fibroblast was investigated.

METHODS:

The butanolic extraction of C. fistula flowers was completed and the active compounds were classified. The cytotoxicity of fibroblasts was evaluated by SRB assay for the purposes of selecting non-toxic doses for further experiments. The collagen and hyaluronic acid (HA) synthesis was then measured using the collagen kit and ELISA, respectively. Moreover, the enzyme activity, including collagenase, matrixmelloproteinase-2 (MMP-2) and tyrosinase, were also evaluated.

RESULTS:

It was found that the flower extract did not affect skin fibroblast cell growth (IC50 > 200 μg/mL). The results did show that the flower extract significantly increased collagen and HA synthesis in a dose dependent manner. The flower extract (50-200 μg/mL) also significantly inhibited collagenase and MMP-2 activity. Furthermore, this flower extract could inhibit the tyrosinase activity that causes hyperpigmentation, which induces skin aging.

CONCLUSIONS:

The C. fistula flower extract displayed a preventive effect when used for anti-aging purposes in human skin fibroblasts and may be an appropriate choice for cosmetic products that aim to provide whitening effects, and which are designated as anti-aging facial skin care products.

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Association of cytologic grade of anal "Pap" smears with viral loads of human papillomavirus types 16, 18, and 52 detected in the same specimens from men who have sex with men.

Utaipat U, Siriaunkgul S, Supindham T, Saokhieo P, Chaidaeng B, Wongthanee A, Settakorn J, Sukpan K, Ruanpeng D, Kosashunhanan N, Chotirosniramit N, Sugandhavesa P, Miura T, Chariyalertsak S.

BACKGROUND:

Human papilloma virus (HPV) load has been linked to cellular abnormalities of the uterine cervix, and proposed as predictors of HPV persistence and progression of dysplasia to cervical cancer. However, the association of HPV viral load and anal dysplasia and cancer has not been as thoroughly investigated.

OBJECTIVES:

To examine the association of the viral loads of high-risk HPV types 16, 18, and 52, with the cytologic severity grading in anal-swab specimens of MSM with and without HIV-1 co-infection.

STUDY DESIGN:

A cross-sectional study recruited 200 MSM in northern Thailand from July 2012 to January 2013. Real-time qPCR amplified portion of the HPV E6E7 gene, as well as the human β -globin gene to validate adequacy of the anal specimens and to normalize interpatient viral-load comparisons. Genotyping by linear-array assay identified and distinguished types 16, 18, and 52.

RESULTS:

HPV-16, and -18 viral loads increased with respect to the abnormality of the cytologic diagnoses ($p<0.05$ for HPV-16, $p<0.01$ for HPV-18). HIV-1 positivity was associated with higher HPV-18 viral load ($p=0.006$). HPV-16 viral loads ≥102.24 copies per 5000 anal cells, and HPV-18 loads ≥103.15, were independently associated with abnormal cytology on logistic regression ($p=0.022$, $p=0.041$, respectively). Positive predictive values were 85.2% (23/27) and 80.0% (44/55) for the high viral load of a particular HPV-16 and the combined HPV-16, -18 and -52 types, respectively.

CONCLUSIONS:

High viral loads of HPV types 16 and 18 appear to be associated with anal cytologic abnormalities. The clinical utility of HPV viral loads to predict risk for anal cancer remains to be determined by a larger prospective cohort with sufficient frequency of high-grade dysplasia.

Published in: J Clin Virol. 2016 Dec;85:48-55. doi: 10.1016/j.jcv.2016.11.001. Epub 2016 Nov 6.

Angiosarcoma Arising in Ovarian Mucinous Tumor: A Challenge in Intraoperative Frozen Section Diagnosis.

Khunamornpong S, Settakorn J, Sukpan K, Pongsuvareeyakul T, Siriaunkgul S.

Angiosarcoma of the ovary is rare but represents an aggressive type of malignant ovarian neoplasms. The purpose of this report is to describe the features of angiosarcoma arising in mucinous tumor that was misinterpreted as a benign vascular proliferation during the intraoperative consultation. A 45-year-old woman presented with an abdominal mass for 1 month. Exploratory laparotomy was performed. A 35 cm right ovarian mass submitted for intraoperative consultation was a multicystic mucinous tumor with an 8 cm area of hemorrhagic lesion between cystic locules. The frozen section diagnosis was at least mucinous borderline tumor. The hemorrhagic area, which was intraoperatively interpreted as organizing vessels associated with previous hemorrhage, represented angiosarcoma in permanent sections. Angiosarcoma may present a challenge in intraoperative frozen section diagnosis of an ovarian mass. The presence of ectatic anastomosing vessels with dissecting growth appears to be the clue to a suspicion of angiosarcoma. The presence of endothelial atypia provides further support for the diagnosis. A macroscopic hemorrhagic area in an ovarian mucinous tumor should be evaluated with care, and the possibility of angiosarcoma should be borne in mind.

Published in: Case Rep Pathol. 2016;2016:8508624. Epub 2016 Oct 31.

Comparison of Human Papillomavirus Detection in Urine and Cervical Samples Using High-Risk HPV DNA Testing in Northern Thailand.

Khunamornpong S, Settakorn J, Sukpan K, Lekawanvijit S, Katruang N, Siriaunkgul S.

Objective. To evaluate the performance of high-risk human papillomavirus (HPV) DNA testing in urine samples compared to that of cervical sample testing in Northern Thailand. **Methods.** Paired urine and cervical samples were collected during the follow-up of women with a previous positive HPV test. HPV testing was performed using the Cobas 4800 HPV Test. Linear Array assay was used for genotyping in selected cases. **Results.** Paired urine and cervical samples were obtained from 168 women. Of 123 paired samples with valid results, agreement in the detection of high-risk HPV DNA was present in 106 cases (86.2%), with a kappa statistic of 0.65 (substantial agreement). Using the cervical HPV results as a reference, the sensitivity of urine HPV testing was 68.6% (24/35) and the specificity 93.2% (82/88). For the detection of histologic high-grade squamous intraepithelial lesion or worse (HSIL+), the sensitivity of urine HPV testing was 80.0% (4/5) and the specificity 78.0% (92/118). **Conclusion.** Although urine HPV testing had a rather low sensitivity for HPV detection, its sensitivity for histologic HSIL+ detection was high. For clinical use of urine HPV testing, standardization of specimen collection and processing techniques or application of a more sensitive test, especially in the detection of HPV52 and HPV58, is necessary.

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Cytological Anal Squamous Intraepithelial Lesions Associated with Anal High-Risk Human Papillomavirus Infections among Men Who Have Sex with Men in Northern Thailand.

Ruanpeng D, Chariyalertsak S, Kaewpoowat Q,2, Supindham T, Settakorn J, Sukpan K, Utaipat U, Miura T, Kosashunhanan N, Saokhieo P, Songsupa R, Wongthanee A.

BACKGROUND:

Anal cancer, one of human papillomavirus (HPV) related malignancies, has increased in recent decades, particularly among men who have sex with men (MSM) and HIV-infected (HIV+) persons. We aimed to explore the prevalence of anal squamous intraepithelial lesions (ASIL) using Papanicolau (Pap) screening among MSM in northern Thailand and its associated factors.

METHODS:

Two hundreds MSM aged ≥18 years reporting receptive anal intercourse in the prior 6 months were recruited from July 2012 through January 2013. Medical history and behavioral data were collected by staff interview and computer-assisted self interview. Anal Pap smear, HPV genotyping, and HIV testing were performed. Two pathologists blinded to HPV and HIV status reported cytologic results by Bethesda classification.

RESULTS:

Mean age was 27.2 years (range 18-54). Overall, 86 (43.0%) had ASIL: 28 (14.2%) with atypical cells of undetermined significance (ASCUS), 1 (0.5%) with atypical squamous cells-cannot exclude high-grade squamous intraepithelial lesion (ASC-H), 56 (28.4%) with low-grade squamous intraepithelial lesion (LSIL), and 1 (0.5%) with high-grade squamous intraepithelial lesion (HSIL). ASIL was associated by univariate analysis ($p \leq 0.05$) with older age, gender identity other than bisexual (i.e., gay men and transgender women), rectal douching, anal symptoms, genital warts, HIV positivity, and high-risk-HPV infection. However, on multiple logistic regression ASIL was associated only with high-risk HPV type ($p = 0.002$) and HIV infection ($p = 0.01$).

CONCLUSIONS:

ASIL is quite common in high-risk MSM in northern Thailand and is associated with high-risk HPV types and HIV infection. Routine anal Pap screening should be considered, given the high frequency of ASIL, particularly in the HIV+. High resolution anoscopy (HRA), not done here, should be to confirm PAP smears whose sensitivity and specificity are quite variable. Timely HPV vaccination should be considered for this population.

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High performance of combined HPV testing and genotyping for HPV16/18/52/58 in triaging women with minor cervical cytological abnormalities in northern Thailand.

Khunamornpong S, Settakorn J, Sukpan K, Srisomboon J, Intaraphet S, Siriaunkgul S.

Human papillomavirus (HPV) infection is an important cause of cervical cancer. Screening with cytology or combined cytology and HPV testing helps to detect early cervical cancers and precancerous lesions (high-grade squamous intraepithelial lesion or worse [HSIL+]). Minor cytological abnormalities (atypical squamous cells of undetermined significance and low-grade squamous intraepithelial lesion) account for the majority of abnormal cervical cytology results, but only 10-20% of women with minor cytological abnormalities have histologic HSIL+. Triage tests are useful to identify the high-risk patients and reduce the colposcopy burden. This study was aimed to evaluate the triage performance of combined HPV DNA testing and genotyping. Cervical samples from women with minor cytological abnormalities, who underwent colposcopy at Chiang Mai University Hospital in northern Thailand between October 2010 and February 2014, were tested for HPV DNA using Hybrid Capture 2 (HC2). Genotyping was performed using Linear Array assay. Of 223 women with cervical histology confirmation, histologic HSIL+ was detected in 25 women (11.2%). The sensitivity, specificity, positive predictive value, and negative predictive value of 3 triage methods for histologic HSIL+ were; 100%, 47.5%, 19.4%, and 100% by HC2 only; 40.0%, 88.4%, 30.3%, and 92.1% by combined HC2 and genotypes HPV16/18; and 96.0%, 75.8%, 33.3%, and 99.3% by combined HC2 and genotypes HPV16/18/52/58. Triage using combined HC2 and genotypes HPV16/18/52/58 showed significantly greater area under the receiver operating curve than the other 2 methods ($P < 0.001$). Combined HPV DNA testing and genotyping for HPV16/18/52/58 is useful for triaging women with minor cervical cytological abnormalities in northern Thailand.

Published in: J Med Virol. 2016 Jan;88(1):135-43. doi: 10.1002/jmv.24290. Epub 2015 Jun 30.

Rapid recovery from catastrophic paraneoplastic anti-NMDAR encephalitis secondary to an ovarian teratoma following ovarian cystectomy.

Tantipalakorn C, Soontornpun A, Pongsuvareeyakul T, Tongsong T.

This report is aimed to describe a life-threatening case of anti-N-methyl-d-aspartate receptor (NMDAR) encephalitis secondary to ovarian teratoma with rapid recovery in 1 day after the removal of the tumour. A 23-year-old woman presented with sudden headache, personality changes and seizure. After neurological assessment, limbic or herpes encephalitis was provisionally diagnosed and treated with intravenous immunoglobulin, acyclovir and steroids. The patient had progressive severe neurological symptoms, requiring prolonged intubation and mechanical ventilation. An anti-NMDAR antibody test revealed positive in serum and cerebrospinal fluid at 3 weeks of admission. Pelvic ultrasound examination and CT scan revealed bilateral small ovarian teratomas. Bilateral ovarian cystectomy was performed by open surgery. The patient showed rapid improvement and no longer needed intubation 2 days after the operation. In conclusion, we described a catastrophic case of ovarian teratoma-associated encephalitis with delayed diagnosis but rapid recovery after ovarian cystectomy. This information can probably be helpful to neurologists and gynaecologists.

Published in: BMJ Case Rep. 2016 Aug 10;2016. pii: bcr2016216484. doi: 10.1136/bcr-2016-216484.

Lidocaine spray reduce the pain of colposcopic cervical biopsy: a randomized controlled trial

Wongluecha T, Tantipalakorn C, Charoenkwan K, Srisomboon J

Objective: To examine the effect of lidocaine spray in reducing pain during colposcopy-directed cervical biopsy (CDB)

Methods: Two hundred women with abnormal cervical screening test results and abnormal colposcopic findings that required a CDB during April 2015 to December 2015 were enrolled. The participants were randomly assigned into two groups. For group 1 (lidocaine spray), four puffs of 10% lidocaine spray was applied thoroughly to ectocervix. For group 2, no anesthesia were given. The cervical biopsy was taken by using punch biopsy forceps. The patients rated their pain according to a 10-cm numerical rating pain scale at different points during the procedure. The primary outcome of this study was the biopsy pain score.

Results: Of the 200 women enrolled, 100 were randomly assigned to group 1 and 100 were in group 2. The baseline, biopsy and postprocedure pain scores were comparable between the study groups. The median difference between the biopsy and the baseline pain scores and the median difference of the postprocedure pain scores from baseline were statistically significantly higher in no anesthesia group, p=0.01 and p=0.04, respectively. There were no complications observed in any participants.

Conclusion: The clinically meaningful effect of 10% lidocaine spray in reducing pain associated with CDB cannot be demonstrated in this study.

Survival outcome of elderly women with early-stage cervical cancer undergoing primary radical surgery

Sethasathien S, Charoenkwan K.

Objectives: To compare survival outcome and clinical-pathological characteristics of early-stage cervical cancer patients undergoing primary surgery between the patients aged 60 or above and a younger cohort.

Methods: Medical records of women with stage IA (with positive conization margins) to IIA cervical cancer undergoing primary radical surgery from January 2003 to December 2014 were reviewed. The patients were divided into two groups according to age at diagnosis; < 60 group and > 60 group. Survival outcomes and clinical-pathological data were compared between the groups. Survival curves were generated using Kaplan-Meier methods. The survival outcomes were compared by using the log-rank test. Multivariable analysis was performed by using the Cox proportional hazard model taking into account age groups and other potential confounding factors.

Results: Of 1,516 women undergoing radical surgery during the study period, 113 women (7.5%) were 60 or above. Stage IB2 disease, gross tumor, and adenocarcinoma were more common in the younger group. However, parametrial and uterine metastases were more prevalent in the older group. Type 3 hysterectomy, pelvic node dissection, median number of pelvic node resected, and median operative time were higher in the younger group. There were no between group difference in perioperative morbidities. The recurrence-free survival (RFS) and overall survival (OS) were comparable between the groups. In multivariable analysis, only histology and higher stage were significantly associated with RFS.

Conclusion: The survival and perioperative outcomes of carefully selected early-stage cervical cancer patients' aged 60 years or older undergoing primary surgery are comparable to the younger patients.