9 7

9.5/10 10 2.410/10

13 3.2/10 0.9/10

50~70 3~4

2019 2015

5.80/10 13

8.83/10 7 2.61/10

17 2015 2.37/10

13 3.56/10 11

1.11/10 16

2015 6.77/10 10.36/10

3.04/10 4.55/10

6.89/10 2.06/10 2015

2.69/10 4.01/10 1.31/10

1.95/10 3.00/10 0.85/10

50%

2~3

4-

20%

β- 4-

2

DNA

2-

4-

HER-2 HRAS BCL-2

FGFR3 C-myc MDM2 MSH2

DNA DNA

P53 RB

P21 17 13 9

15%~50%

/

1.

80%~90%

10%

Ta T1

1.

1

2

3

13%~75% 85%~100%

84% G1

16%

90%

DNA

DNA

22 NMP22

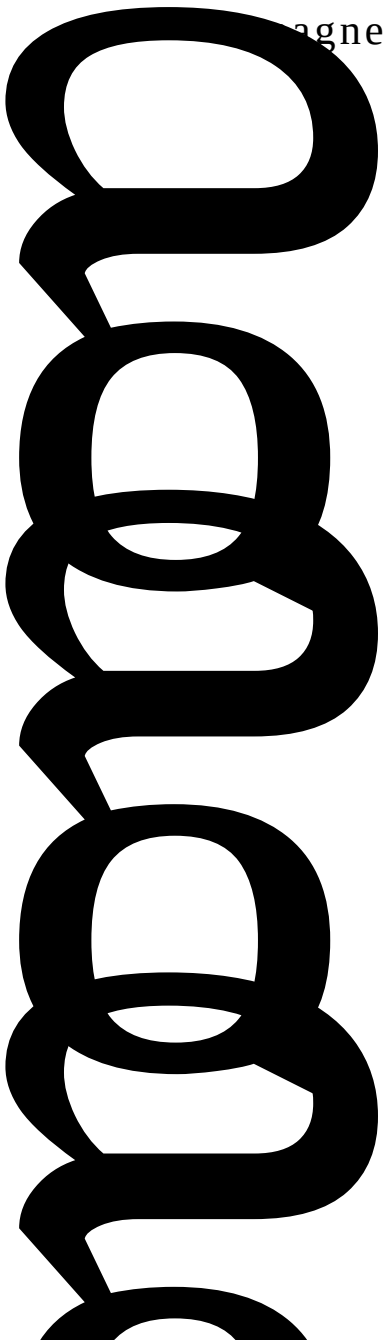
BTAstat BTAtrak -

fluorescence in situ

hybridization FISH

2.

CT CT computed tomography urography CTU MRI magnetic resonance urography





2 CT CT +

1~5mm

CT

CT

T1 T2~T3a

MIBC CT

sion weighted imag

MRI

MRI T3a CT

CT MRI

90%~94%

87%~95%

^{11}C - ^{11}C-

PET-CT CT

MRI MIBC

PET-CT MRI

3.

1

non-muscle-invasive

bladder cancer NMIBC

2%

5- 5- aminolevulinic acid ALA

hexyl aminolevulinate HAL

14%~25%

Meta 12 2258 NMIBC

MIBC

63%

81%

narrow band imaging NBI NBI

415nm 540nm

NBI

NBI

17.1% 42%

NBI

NBI

NMIBC

2 transurethral resection

of bladder tumours TURBt

TURBt

3

CTU MRU

4. 1

1

CT MRI

TURBt

NBI

MIBC

FISH

1.

2.

MRI CT

MRI

3.

4.

5.

2004 WHO

90%

3%~7% <2%

2016 WHO

2

2 2016 WHO

/

Müllerian

/ /

1.

2.

Grade G

WHO WHO 1973

WHO 2004　2016　2004

1973　WHO

3　G1　2　3　GI

WHO 2004/2016

papillary urothelial neoplasms of low malignant potential　PUNLMP

2004

3

3　WHO 1973　2004

WHO 1973
1
2
3
WHO 2004

WHO 1973　WHO 2004

2004

1.

2.

3.

2013 ISUP GATA3 CK7 CK20 P63 HMWCK CK5/6

CD44 CK20 P53

ALK1 SMA desmin P63 HMWCK CK5/6



T3a

T3b

T4

T4a

5 2017 AJCC

		TNM		
0a		Ta	N0	M0
0is		Tis	N0	M0
		T1	N0	M0
		T2a	N0	M0
		T2b	N0	M0
	A	T3a	N0	M0
		T3b	N0	M0
		T4a	N0	M0
		T1 T4a	N1	M0
	B	T1 T4a	N2-3	M0
	A	T4b	N	M0
		T	N	M1a
	B	T		

RCT

NMIBC

TURBt

MIBC

T2 4aN0M0

/

NMIBC

NMIBC Ta T1

Ta T1 Tis NMIBC

75 Ta 70% T1 20% Tis 10% Ta

T1 NMIBC

T1

NMIBC

Tis

≥8

>1 / T1

G3 Tis

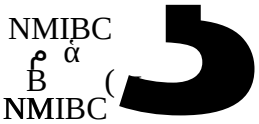
7 NMIBC



NMIBC TaG1 PUNLMP

≤3 cm Tis

NMIBC NMIBC



NMIBC 1 G3



1cm

TURBt

Ta/G1

NBI TURBt

2. NMIBC

NMIBC

TURBt 4%~78%

22 45

2~6

3

4 24

NMIBC

BCG

BCG

MIBC

NMIBC

NMIBC TURBt

NMIBC

T1

BCG

TURBt+BCG

8 NMIBC

NMIBC
TURBt NMIBC NBI Tis TURBt TaG1/ T1 G3

2~6

NMIBC

NMIBC

NBI

NMIBC

RB

NMIBC TURBt 5

24%~84%

MIBC NMIBC

9 10

1. 9

1

TURBt

/ NMIBC

2844 NMIBC TURBt

C 27% 36%

34%

2278 NMIBC TURBt

5 35%[*hazard ratio*

HR 0.65 *P*<0.001

NMIBC

1

3

20~60mg

1000mg 30~50mg

50~80mg 30~50mg

10~20mg

0.5~2

pH

6

1000mg NS 50ml 1

NS GS

2.

BCG

BCG NMIBC TURBt

BCG BCG

Th1

BCG

1 BCG NMIBC

BCG

TURBt TURBt BCG

NMIBC

NMIBC BCG

NMIBC 5 42%~65%

5%~8% NMIBC

RCT NMIBC BCG

BCG 1

2015 EORTC 2 BCG

1~3 7.4 T1G3 5

BCG 6 2 1

3 1

10 1 19

RCT 1 19 BCG 1

1 15

BCG 60~120mg BCG 50~60ml

2 BCG

120mg 1 / 6 BCG 1~3

1 3 6 12 18 24 36

1 3 1 15

BCG BCG 1/3 BCG

3 BCG

BCG 1

4 BCG

71.8% 1~2

60.1%

/

5 BCG

BCG BCG 6

1 BCG 3

BCG BCG 6

BCG 6~9

BCG BCG

BCG

BCG

3.

KEYNOTE-057

103 BCG

NMIBC 3

38.8%[95% *confidence interval CI*

29.4% 48.9%] 14.0

72.5% 96 41%

95% *CI* 31%~51% 16.2 46%

1 12.6% ≥3

18.4%

1

ALA HAL

BCG

2

C 20mg+ 50ml 42 1

10 NMIBC

NMIBC

BCG

BCG 1 3

NMIBC

Ti

Ta T1 MIBC

TURBt BCG

BCG

TURBt BCG

72%~93%

48%

10%~20% MIBC

66%

BCG 3~4

9

MIBC

RB

NMIBC TURBt

TURBt

BCG

BCG

MIBC BCG 3

NMIBC 3~6 BCG

NMIBC BCG

TURBt

BCG

NMIBC

NMIBC

CT/CTU

MRI/MRU

NMIBC 3

3

1 1

5

MIBC

77

46

Meta 3005 MIBC

5

8% 9%

GETUG/AFU V05 MIBC ddMVAC

CG

ypT0N0

42% 36% *P*=0.2

1

GC

1000mg/m^2 1 8

70mg/m^2 2 21 1

1000mg/m^2 1 8

70mg/m^2 1 2 28 1

4 21 28

21

ddMVAC

3~4

30mg/m^2 3mg/m^2

30mg/m^2 70mg/m^2 1 2

granulocyte colony stimulating factor G-CSF

CMV CMV

30mg/m^2 4mg/m^2 1 8

100mg/m^2 2 3 1

BA06 30894

976 8 CMV

10 30% 36% 16% *HR*

0.84 *P*=0.037

3~4

2.

[-1 programmed death-1 PD-

1 / -1 programmed death ligand-1 PD-

L1 B7 1] MIBC

PD-L1

CTLA-4

pT0 42% 54%

<pT2

31%

3.MIBC

cT2~4aN0M0 MIBC

MIBC

1.

1 T2 4aN0 x M0 MIBC

2 NMIBC BCG

T1G3 Tis T1G3

TURBt

3 NMIBC

4

5

2.

3.

1

2

3

4.

MIBC 3

5.

sexual-preserving techniques

SPC MIBC

SPC

3~5

disease specific survival

DSS

MIBC

SPC

6.

NMIBC 1%~10% MIBC

24% pT2a

9%~18% pT2b 22%~41% pT3 41%~50% pT4 41%~63%

1

2 92%

Cloquet

3

7.

8.

28%~64% 2.5%~2.7%

5 68% 66% 10

60% 43% 5 10

57%~69% 41%~49% 67%

62% 5 10

25%~35% 21%~34% 31%

28%

MIBC

MIBC cT2

pT3~4a

+

1.

Studer

M U

IUPU

1 87% 96% 72%

95%

1

2

3 22%

8%ţ İ 8

48%

24% 30%

3.

4.

1

2

MIBC

MIBC TURBt

« ØÖ 0Y &QBUP†

MIBC 5

45%~73% 10 29%~49%

2.

1 TURBt

TURBt

Trimodality therapy TMT Mulitimodality

Treatment MMT C 5-

MMT

TMT 2

MIBC DSS 57

30 000

TMT TMT 10 DSS

TMT

TMT

2

cTURBt

MMT T2 4a MIBC

7.7 T2 79% 22%

5 10 64% 59%

52% 35%

10 79%

43.2% 76.3%

79.2%

468 MIBC

MMT 4.3 69% 5 10

71% 65% 57%

36%

2 TURBt

cTURBt 56 44% 5

69% 8%~26% T3/4

3 TURBt TURBt

TURBt

70 28.5

4 TURBt

BCG

pT0 pT1 20% MIBC

47%

TURBt MIBC

5

MIBC MIBC

MIBC 5

53.7% 62.1% 81.5%

MIBC

MIBC

2014 Meta

945 MIBC MIBC

23% *HR* 0.77 *P*=0.049

2016 5653 pT3~pT4 /

23%

5 37% 29.1%

HR 0.70 95% *CI* 0.06 0.76

MIBC

≤pT2

pT3/4 / pN+M0

MIBC

MIBC

pT3~4 MIBC

5

10%~50%

236 pT3a~pT4a

5

OS

pT3/pT4N0 2

45~50.4Gy

54~60Gy

66~70Gy

66~74Gy

PD-1/PD-L1



10%~15%

50%

10%~30%

50%

9~15

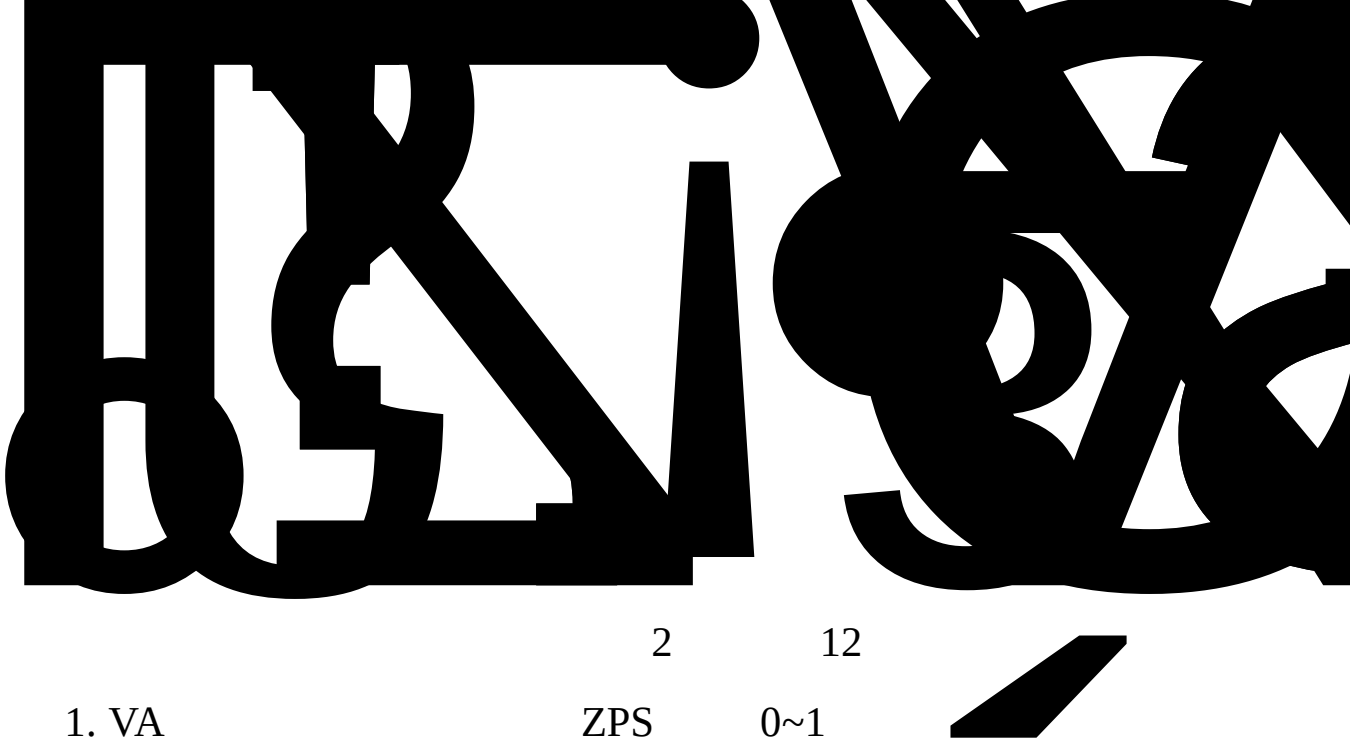
5~7

3

5cm

3 5

53 ¾



2 12

1. VA ZPS 0~1

> 50~60 ml/min

ddMVAC G-CSF

+-” İ +א q ỷ b

ḋ 1 GC

GC

405

49.4% 45.7%

G-CSF

3 + + PCG

PCG GC

55.5% 43.6%

8.3 7.6

15.8 12.7 PCG

PCG

80mg/m^2 1 8

70mg/m^2 1 2 1000mg/m^2 1

8 21 1

2. ZPS 2

30~60ml/min

PD-L1

+

1 -

area under the concentration-time curve ACU

=4.5 1 1000mg/m^2 1 8

21 1

2

1000mg/m^2 1 8 80mg/m^2 1 8

21 1

3

1000mg/m^2 1 8 21 1

1250mg/m^2 1 8 15 28 1

4 PD-1 PD-L1 PD-1/PD-L1

PD-1/PD-L1

FDA PD-L1

atezolizumab durvalumab

avelumab PD-1

pembrolizumab nivolumab

12

2

IMvigor130 KEYNOTE 361

e IO-IO

KEYNOTE-052

370 24% 5% 19%

6 67%

IMvigor-210

119 23% 9%

12

ddMVAC G-CS

PCG

PD-L1

PD-L1

+

6~9

4~6

1. JAVELIN Bladder 100

21.4 14.3

HR 0.69 *P*=0.0005

3.7 2.0

1

23.1% 2.1

9.8

PD-L1

200mg 3 1

2

25.2%

PD-L1 39.6%

2.3

3mg/kg 2 1

3 KEYNOTE-

045

542

10.3

7.4 *P*=0.002 21.1% 11.4%

15.0%

49.4% 2

4.4

62% 90.6%

200mg 3 1

4 FDA

PD-L1 IMvigor 210 310

15% 10% *P*=0.0058 11.7

84% 38/45

6.8

1.2

8.6

IMvigor211

931

17.3

11.1 10.6

P=0.41 23% 22%

3

20% 43%

5 avelumab 249

17% 6%

11% PD-L1 ≥5%

24%

Tremelimumab

immune-related

adverse events irAE

irAE

0.64%

2.

+

3.

FGFR

FGFR3 FGFR2

BLC2001 99 FGFR

40%

95% *CI* 31% 50% 3%

1 28

13

FGFR

ddMVAC G-CS

59%

Enfortumab Vedotin EV

Nectin-4 MMAE

EV-201 EV 125 PD-1/PD-L1

44% 12%

5.8 11.7

7.6 54% ≥3 EV

EV R

15

NMIBC

MIBC

16

MIBC

T3 4 N+ MIBC

4~6

9%~34% MIBC

40~45Gy/4~5

MIBC

MIBC

5

MIBC cTURBt GC

5

48% 70%

MIBC 3

64% 30%

60%~85% 5 40%~80% 5

50%~60% MIBC

cT4b

90% 50%

22% 7

30~35Gy/10

/2 30Gy/5~6 /2~3

20%~60%

3%~5%

16

MIBC cT3~4 / pN+

MIBC cT3~4 / pN+

cT2~3N Mő

4

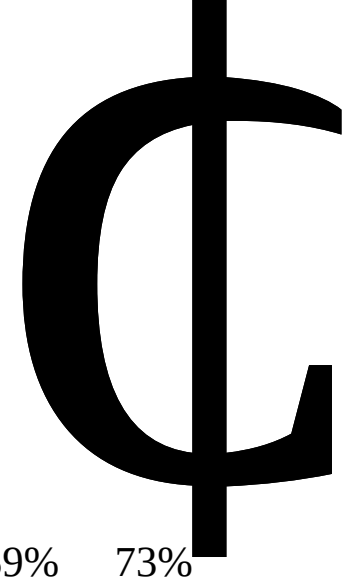
1.cT4b

cT4bM0

2~3

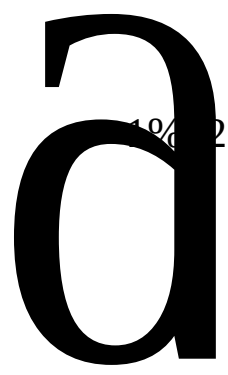
2.M1a

1388	395
	19.0

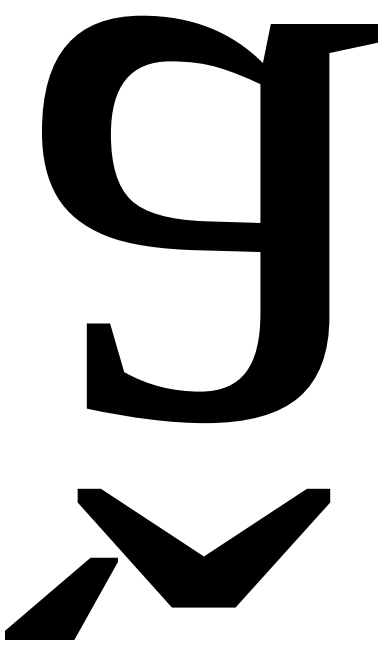


59% 73%

1% 1% 2%



10%~50%



17

2.5%

8%

93%

5 25%

33% 28%

6%

1.5%

CT MRI

1.

MIBC

5-

2.

1/3

Sheldon

2

FOLFOX 5- GemFLP 5-

ITP

2

5 40% 46

I/ 10.8 / 1.3

3.

5cm

FACT EORTC QLQ-C30 FACT-BL FACT-VCI