**Supplementary Methods**

Because we could not obtain the original data of APA, the NORMINV formula was used to generate a group of normally distributed random numbers by entering the corresponding mean and SD of each variable. Then, Mann-Whitney U test was used to compare the non-normally distributed continuous variables of APAC with APA. Additionally, the Student’s *t*-test (for normally distributed continuous variables) and the chi-square test and Fisher’s exact probability test (for categorical variables) were used to compare differences in characteristics between APAC and APA. Significance was considered when *P <* 0.05.

Survival time was calculated from the initial diagnosis of the adrenal mass to death, or it was censored at the end of follow-up. Recurrence-free survival time was defined as the time elapsing from the initial adrenal tumor diagnosis to censoring at tumor recurrence or death. Kaplan–Meier survival analysis was used to calculate the survival curves and recurrence-free survival curves. Cox regression analysis was used to determine the predictive factors for the prognosis.

**Supplementary Table 1. Basic information about all APAC cases**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case No. | Author | Publication year | Age(years)/gender | Blood pressure (mmHg) | Serum potassium (mmol/L) | Maximum diameter of the tumor (cm) | Tumor weight (g) | Metastasis | Prognosis |
| 1 | Foye[1] | 1955 | 60/M | 200/135 | 1.8 | 4.0 | / | - | Died 7 months later |
| 2 | Brooks[2] | 1957 | 40/M | 230/120 | 2.5 | 21.0 | 1400 | - | Died 1 month later |
| 3 | Kandrac[3] | 1957 | 44/F | 200/110 | 3.8 | / | / | - | / |
| 4 | Jackson[4] | 1958 | 24/F | 130/90 | 5.5 | 3.0 | 36 | - | Remained alive within 7-month follow-up |
| 5 | Zimmerman[5] | 1959 | 38/F | 200/130 | 2.1 | / | 583 | + | / |
| 6 | Guang[6] | 1963 | 51/F | 190/110 | 3.0 | 4.5 | 18.5 | - | Remained alive within 1.5-year follow-up |
| 7 | De Andrade[7] | 1965 | 24/M | 180/130 | 3.9 | 15.0 | / | + | / |
| 8 | Crane[8] | 1965 | 64/F | 200/102 | 2.3 | 16.0 | 1010 | + | Died 3 months later |
| 9 | Marquezy[9] | 1965 | 15/F | 200/100 | 2.6 | / | / | - | / |
| 10 | Knapton[10] | 1965 | 59/F | 230/130 | 1.8 | / | / | - | / |
| 11 | Santander[11] | 1965 | 50/F | 160/110 | 2.6 | / | 90 | + | Died 1 month later |
| 12 | Alterman[12] | 1969 | 68/M | 210/110 | 2.1 | 4.5 | 30 | + | Died 1 month later |
| 13 | Filipecki[13] | 1972 | 34/F | 200/110 | 2.2 | / | 320 | - | Remained alive within 6-month follow-up |
| 14 | Miyazaki[14] | 1973 | 31/M | 234/130 | / | 6.0 | 450 | - | Remained alive within 16.6-year follow-up |
| 15 | Salassa[15] | 1974 | 52/M | / | / | / | / | - | Remained alive within 16-month follow-up |
| 16 | Grim[16] | 1981 | 19/F | 150/115 | 3.4 | 10.0 | 150 | - | Remained alive within 2-month follow-up |
| 17 | Taylor[17] | 1982 | 53/M | 180/100 | 1.9 | 9.0 | 320 | - | Remained alive within 3-year follow-up |
| 18 | Slee[18] | 1983 | 41/F | 160/110 | 2.6 | 12.0 | / | - | Died 4 months later |
| 19 | Telner[19] | 1983 | 27/F | 200/120 | 2.3 | / | / | - | Died 2 months later |
| 20 | Arteaga[20] | 1984 | 56/M | 200/100 | 1.4 | 3.5 | 18.6 | + | Died 2 years later |
| 21 | Arteaga[20] | 1984 | 47/F | 170/100 | 2.0 | 8.0 | / | - | Died 11 years later |
| 22 | Arteaga[20] | 1984 | 32/F | 200/130 | 1.7 | / | 246 | - | Died 3 years later |
| 23 | Chen[21] | 1984 | 55/M | 180/110 | 1.8 | 13.0 | 1440 | - | Remained alive within 14-day follow-up |
| 24 | Greathouse[22] | 1984 | 47/F | 210/100 | 2.5 | 3.0 | / | - | Remained alive within 2-year follow-up |
| 25 | Lüscher[23] | 1984 | 58/F | 180/100 | 1.4 | / | / | - | Remained alive within 13-month follow-up |
| 26 | Lüscher[23] | 1984 | 43/M | 205/125 | 1.7 | / | / | - | Remained alive within 10-month follow-up |
| 27 | Scott[24] | 1986 | 41/M | 270/140 | 1.9 | 8.0 | 180 | - | Remained alive within 3.5-year follow-up |
| 28 | Scott[24] | 1986 | 42/M | 180/110 | 2.6 | 7.0 | 60 | - | Remained alive within 2-year follow-up |
| 29 | Scott[24] | 1986 | 54/F | 250/120 | 1.8 | 11.0 | 280 | - | Remained alive within 6-month follow-up |
| 30 | Shenker[25] | 1986 | 47/F | 200/118 | 1.6 | / | / | - | Died 6 months later |
| 31 | Shenker[25] | 1986 | 43/M | / | 2.3 | 5.0 | / | - | / |
| 32 | Shenker[25] | 1986 | 54/F | 220/100 | 1.8 | 11.0 | / | - | / |
| 33 | Farge[26] | 1987 | 40/F | 200/100 | 1.9 | 13.0 | / | - | Died 6 months later |
| 34 | Farge[26] | 1987 | 51/M | 220/130 | 1.4 | 35.0 | 1230 | + | Died 5 months later |
| 35 | Farge[26] | 1987 | 56/F | 226/114 | 3.2 | 6.0 | 84 | - | Remained alive within 10-month follow-up |
| 36 | Farge[26] | 1987 | 17/M | 188/132 | 2.3 | 15.0 | 285 | - | Remained alive within 1-year follow-up |
| 37 | Fraser[27] | 1987 | 27/M | 250/150 | 3.0 | 5.0 | / | - | Remained alive within 1.6-year follow-up |
| 38 | Isles[28] | 1987 | 47/F | 240/115 | 2.8 | 5.6 | 50 | - | Remained alive within 1-year follow-up |
| 39 | Tenschert[29] | 1987 | 58/F | 180/110 | 2.6 | / | / | - | Died 5 months later |
| 40 | Panesar[30] | 1988 | 69/F | 180/90 | 2.7 | / | / | + | Died |
| 41 | Pascual[31] | 1990 | 65/M | 140/80 | 1.7 | 20.0 | / | - | Remained alive within 1-year follow-up |
| 42 | Touitou[32] | 1992 | 44/M | 250/150 | 2.6 | 6.0 | 150 | - | Died |
| 43 | Ludvik[33] | 1993 | 47/M | 180/110 | 2.5 | 3.0 | / | - | Died 14 months later |
| 44 | Puvaneswary[34] | 1993 | 53/F | 180/110 | 2.5 | 19.0 | 855 | - | / |
| 45 | Weingärtner[35] | 1995 | 29/M | 180/120 | 2.4 | 3.0 | / | - | / |
| 46 | Feller[36] | 1997 | 42/M | 180/120 | 1.8 | 12.0 | / | + | Died |
| 47 | Taylor[37] | 1997 | 41/F | 146/98 | 1.8 | 11.0 | 220 | - | Remained alive within 2.5-year follow-up |
| 48 | Sakai[38] | 1997 | 45/F | / | 2.7 | 14.0 | 470 | - | Remained alive within 9-year follow-up |
| 49 | Muthusethupathi[39] | 1998 | 40/M | 120/80 | 2.3 | 6.0 | / | - | Remained alive within 3-month follow-up |
| 50 | Deckers[40] | 1999 | 74/M | 170/90 | 2.9 | 2.0 | / | - | Died 2.3 years later |
| 51 | Yoshimoto[41] | 2000 | 61/F | 150/100 | 1.4 | 7.0 | / | - | Remained alive within 7-month follow-up |
| 52 | Kang[42] | 2001 | 55/M | 150/105 | 2.77 | 11.9 | / | - | Remained alive within 6-month follow-up |
| 53 | Kang[42] | 2001 | 24/M | 165/90 | 2.54 | 11.0 | / | - | Died 4 months later |
| 54 | Dixon[43] | 2001 | 25/M | 200/140 | 1.7 | 3.0 | / | - | Died 1.75 years later |
| 55 | Dixon[43] | 2001 | 34/M | 170/120 | 2.0 | 7.0 | / | - | Died 4 years later |
| 56 | Mishra[44] | 2001 | 16/F | / | / | 20.0 | 500 | - | / |
| 57 | Hisamatsu[45] | 2001 | 79/F | / | / | / | / | - | Died 4 months later |
| 58 | Sweeney[46] | 2002 | 52/F | 160/110 | 2.7 | 8.0 | 44 | - | Remained alive within 1-year follow-up |
| 59 | Zhang[47] | 2003 | 28/M | 200/130 | 2.0 | 16.0 | / | - | Died 8 months later |
| 60 | Kurtulmus[48] | 2004 | 26/F | 150/100 | 2.0 | 8.0 | 185 | - | Remained alive within 3-year follow-up |
| 61 | Barzon[49] | 2005 | 42/M | 200/120 | 2.2 | 5.0 | / | - | Died 2 years later |
| 62 | Müssig[50] | 2005 | 61/F | 160/94 | 2.2 | 4.2 | 150 | - | Remained alive within 1-year follow-up |
| 63 | Tong[51] | 2005 | 37/M | 170/125 | 2.23 | 13.3 | / | - | Remained alive within 10-day follow-up |
| 64 | Seccia[52] | 2005 | 33/F | 160/95 | / | 5.5 | / | - | Remained alive within 9-year follow-up |
| 65 | Seccia[52] | 2005 | 63/F | / | / | 3.2 | / | - | Died 2 years later |
| 66 | Sun[53] | 2005 | 43/M | 206/110 | 3.1 | 5.0 | 70 | - | Remained alive within 3-month follow-up |
| 67 | Quan[54] | 2006 | 37/F | 140/110 | 2.8 | 9.5 | 496 | + | Remained alive within 3-month follow-up |
| 68 | Ali[55] | 2007 | 25/M | / | / | 8.5 | 90 | - | / |
| 69 | Carmona-Bayonas[56] | 2007 | 69/F | / | / | 8.0 | / | - | Remained alive within 11-month follow-up |
| 70 | Fareau[57] | 2007 | 65/M | 200/90 | 2.0 | 3.0 | / | - | Remained alive within 8-month follow-up |
| 71 | Abma[58] | 2008 | 52/F | 190/100 | 3.0 | 4.0 | 51 | - | Died 4.25 years later |
| 72 | Hermsen[59] | 2008 | 31/- | 180/100 | 2.6 | 9.0 | 110 | - | Remained alive within 25-year follow-up |
| 73 | Hu[60] | 2009 | 36/M | 200/110 | 2.42 | / | / | - | Remained alive within 8-year follow-up |
| 74 | Kuo[61] | 2009 | 20/M | / | 3.3 | 4.5 | / | - | Remained alive within 2-month follow-up |
| 75 | Peppa[62] | 2009 | 59/F | 170/100 | 2.7 | 6.5 | / | - | Remained alive within 1-year follow-up |
| 76 | Terui[63] | 2010 | 48/F | / | 3.8 | 5.4 | / | - | / |
| 77 | Beom[64] | 2011 | 72/M | 120/60 | 1.9 | 7.9 | / | + | Died 14 days later |
| 78 | Hsieh[65] | 2011 | 82/F | 220/119 | 1.9 | 13.0 | / | - | Remained alive within 4-month follow-up |
| 79 | Liu[66] | 2011 | 54/F | 180/100 | 1.98 | 8.5 | / | - | / |
| 80 | Späth[67] (8 cases) | 2011 | 54/M | / | 3.3 | 10.0 | / | - | / |
| 81 |
| 82 | 54/F |
| 83 |
| 84 |
| 85 |
| 86 |
| 87 |
| 88 | Song[68] | 2012 | 32/F | 130/80 | 2.5 | 4.2 | / | - | Remained alive within 7-day follow-up |
| 89 | Aghamohammadzadeh[69] | 2013 | 22/F | 190/100 | 2.7 | 6.0 | / | - | Remained alive within 365-day follow-up |
| 90 | Xu[70] | 2013 | 56/M | / | / | 8.5 | / | + | / |
| 91 | Xu[70] | 2013 | 22/M | / | / | 26.0 | / | - | / |
| 92 | Agha[71] (3 cases) | 2014 | 55/F | / | 1.7 | 5.2 | / | - | Died 1.6 years later |
| 93 | Remained alive within 2.5-year follow-up |
| 94 | 55/M | Remained alive within 2-year follow-up |
| 95 | Chowdhury[72] | 2014 | 37/F | 180/110 | 1.5 | 6.0 | / | + | Died 11 months later |
| 96 | Griffin[73] | 2014 | 76/F | 136/69 | 3.8 | 5.5 | 49.5 | - | Remained alive within 2.3-year follow-up |
| 97 | Hussain[74] | 2015 | 42/M | 140/80 | / | 2.0 | / | - | Remained alive within 2-year follow-up |
| 98 | Gundara[75] | 2015 | 77/M | 160/- | / | 2.8 | / | - | Remained alive within 2.5-year follow-up |
| 99 | Molina-Ayala[76] | 2015 | 40/M | / | 4.5 | 20.0 | 2750 | - | Died 9 months later |
| 100 | Nakano[77] | 2015 | 65/F | 160/80 | 2.2 | 7.0 | / | - | Remained alive within 4.5-year follow-up |
| 101 | Daga[78] | 2017 | 22/M | / | 2.9 | 11.0 | / | - | Remained alive within 3-month follow-up |
| 102 | Uchida[79] | 2017 | 37/F | 140/88 | 3.2 | 11.5 | 410 | - | Remained alive within 1-year follow-up |
| 103 | Baradhi[80] | 2018 | 67/F | 200/- | 2.7 | 14.0 | / | + | Remained alive within 3-year follow-up |
| 104 | Lazaro[81] | 2018 | 19/M | 180/100 | 2.7 | 7.0 | 62 | - | / |
| 105 | Yang[82] | 2018 | 49/F | 200/100 | 2.8 | 5.0 | / | - | / |
| 106 | Yang[83] | 2019 | 54/F | 189/110 | 1.6 | 5.5 | 26.5 | - | Remained alive within 9-month follow-up |
| 107 | Wang[84] | 2020 | 55/M | 200/120 | 2.2 | 8.6 | / | + | Remained alive within 7-month follow-up |
| 108 | Case 1 | / | 33/M | 250/190 | 1.93 | 8.4 | 255 | - | Remained alive within 9-months follow-up |
| 109 | Case 2 | / | 28/F | 140/106 | 1.6 | 8.5 | 125 | - | Remained alive within 7-year follow-up |
| 110 | Case 3 | / | 70/M | 196/105 | 2.06 | 7.0 | 46.2 | - | Died 2 years later |
| 111 | Case 4 | / | 35/F | 140/86 | 2.95 | 5.5 | 24.5 | - | / |

Abbreviations: APAC aldosterone-producing adrenocortical carcinoma, M male, F female

**Supplementary Table 2. Clinical features of four APAC cases**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Age(years)/gender | Symptoms | Blood pressure (mmHg) | Plasma potassium level (mmol/l) | Side of adrenal tumor | Tumor size (cm) | Tumor mass weight (g) | Metastasis | PAC (ng/dl) | PRA | Cortisol excess | Pathology results | Immunohisto-  chemistry results | Treatment | Prognosis |
| 1 | 33/M | blurred vision, nocturia, weakness of lower limbs | 250/190 | 1.93 | left | 8.4×8.2×6.3 | 255 | absent | 496 | 14.58  μIU/ml | present | nodule with a clear margin and central necrosis | Ki67 10-15%, MART-1 +,  CR +, Syn + | surgery, regional radiotherapy | remained alive without recurrence within the nine-month follow-up |
| 2 | 28/F | repetitive weakness and numbness of four extremities | 140/106 | 1.6 | left | 8.5×6.5×4.5 | 125 | absent | 39.53 | 0.04 ng/ml/h | present | vascular and capsular invasion, necrosis, fibrous bands and diffuse architecture | Ki76 10%, MART-1 + | surgery, chemotherapy, immunotherapy | lung metastases developed two years later, but remained alive within the seven-year follow-up |
| 3 | 70/M | no obvious symptoms | 196/105 | 2.06 | right | 7.0×3.5×2.5 | 55 | absent | 32.63 | 0.07 ng/ml/h | absent | mainly composed of clear cells in cytoplasm with mitotic rate of 5/50 HPF, focal necrosis and capsular invasion | Ki67 10%, MART-1 +,  Syn +,  α-inhibin + | surgery | tumor recurred at the 9th moth and died at the 12th month |
| 4 | 35/F | no obvious symptoms | 140/86 | 2.95 | right | 5.5×4.0×2.5 | 24.5 | absent | 24.37 | 0.08 ng/ml/h | absent | obvious pleomorphism of tumor cells, necrosis, a mitotic rate of ＞ 20/20 HPF and atypical mitoses | Ki67 8-10%, MART-1 +,  CR +,  α-inhibin + | surgery | lost follow-up |

Abbreviations: APAC aldosterone-producing adrenocortical carcinoma, M male, F female, PAC plasma aldosterone concentration, PRA plasma renin activity, HPF high-power fields.

**Supplementary Table 3. Clinical characteristics of APAA patients reported in the literature**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Article | Number of patients | Age  (years) | Gender  (M/F) | Duration of disease  (months) | Systolic blood pressure  (mmHg) | Diastolic blood pressure  (mmHg) | Hypokalemia (present/absent)  (n,%) | Plasma potassium level  (mmol/l) | Maximum tumor diameter  (cm) | PAC (ng/dL) | PRA (ng/ml/h) | ARR\* |
| 2008 Walz[85] | 127 | 47.8±13.1 | / | 81.6±82.8 | 152.8±22.0 | 90.6±14.7 | / | / | 1.6±0.8 | / | / | / |
| 2008 Letavernier[86] | 109 | 47.8±10.6 | 42/67 | 60.0 (24.0-132.0) | 156.0±23.0 | 98.0±14.0 | / | 3.3±0.6 | 1.6±0.6 | 44.6 (39.8-50.0) | / | 3.1 (2.7-3.5) |
| 2011 Ishidoya[87] | 174 | 52.0±11.4 | 93/81 | 120.0 | / | / | / | 3.1 | / | 22.6 | 0.2 | 3.8 |
| 2011 Wu[88] | 100 | 49.6±13.3 | 42/58 | / | / | / | / | 3.6±0.8 | / | 49.2±40.5 | 1.5±4.4 | / |
| 2014 Iwakura[89] | 102 | 51.0±1.3 | 52/50 | 132.0±12.0 | 154±2.3 | 94±1.4 | / | 3.5±0.1 | / | 26.2±1.9 | 0.4±0.1 | 5.5±0.7 |
| 2014 Miyake[90] | 1050 | / | / | / | 154.0±23.0 | 92.0±15.0 | / | / | / | / | / | / |
| 2014 Monticone[91] | 131 | 48.0±1.0 | 67/64 | / | 169.0±2.0 | 103.0±1.0 | / | 3.0±0.06 | 1.5 (1.0-2.0) | 45.3 (33.3-58) | 0.2 (0.14-0.4) | 7.6 |
| 2018 Tang[92] | 392 | 38.4±7.8 | 173/219 | 113.5±87.6 | 180.6±26.6 | 109.2±14.9 | 89.66%/10.34% | 2.5±0.6 | 1.9±0.8 | 24.2±7.0 | / | 4.6±3.7 |
| 2018 Xiao[93] | 147 | 45 (37-52) | 63/84 | 60.0 (24.0-120.0) | 175.0 (160.0-180.0) | 100.0 (100.0-110.0) | / | 2.9 (2.6-3.1) | / | 29.4 (22.1-45.7) | 0.38 (0.2-0.7) | 2.94 (1.5-5.9) |
| 2019 Shariq[94] | 152 | 51.6±10.8 | 88/64 | 120.0 (54.0-192.0) | 143.4±18.7 | 85.4±12.2 | 138(90.8%)/14(9.2%) | 3.5±0.7 | / | 36.7±47.5 | 0.7±0.8 | 2.1±2.5 |

Abbreviations: APAA aldosterone-producing adrenocortical adenoma, M male, F female, PAC plasma aldosterone concentration, PRA plasma renin activity, ARR aldosterone to renin ratio.

\* ARR was calculated as the multiple of the cut-off point (30 ng/dl per ng/ml/h)

**Supplementary Table 4. Location of metastasis and time to recurrence in APAC patients**

|  |  |  |  |
| --- | --- | --- | --- |
|  | At the initial diagnosis (n) | At the time of tumor recurrence (n) | Time to tumor recurrence (months)† |
| Liver | 7 | 19 | 9.0 (1.0-97.3) |
| Lung | 7 | 8 | 14.7 (3.0-48.7) |
| Lymph nodes | 3 | 4 | 48.7 (12.0-85.2) |
| Bone | 3 | 3 | 7.0 (3.0-24.0) |
| Vena cava | 1 | 1 | 97.3 |
| Adrenal gland | - | 18 | 12.0 (3.0-164.3) |
| Brain | - | 1 | 9.0 |
| Pericardium | - | 1 | 6.0 |

† Results were expressed as median plus range.

Abbreviations: PA primary aldosteronism, APAC aldosterone-producing adrenocortical carcinoma

**Supplementary Table 5. Imaging features of APAC**

|  |  |
| --- | --- |
| Imaging feature | Number of patients |
| Heterogeneous density | 14 |
| Calcification | 12 |
| Organ displacement | 8 |
| Intra-mass hemorrhages | 4 |
| Hypervascularization | 3 |
| Necorsis | 5 |
| Irregular margin | 2 |

Abbreviations: APAC aldosterone-producing adrenocortical carcinoma

The number of patients could not reflect the true imaging features of APAC patients, because most APAC case reports did not describe the detailed information of the images.

**Supplementary Table 6. Pathological characteristics of APAC**

|  |  |
| --- | --- |
| Pathological characteristic | Number of patients |
| Nuclear grade III or IV | 6 |
| Mitotic rate ＞5/50 HPF | 24 |
| Atypical mitoses | 8 |
| Clear cells in cytoplasm ≤25% | 10 |
| Diffuse architecture of tumor cells | 12 |
| necrosis | 29 |
| Venous structure invasion | 33 |
| Sinusoidal structure invasion | 8 |
| Tumor capsule invasion | 36 |
| Weiss score ≥3 | 31 |
| Weiss score of 1-2 | 32 |

Abbreviations: APAC aldosterone-producing adrenocortical carcinoma, HPF high-powered fields

Only 31 patients had a Weiss score ≥3, because detailed pathological information is lacking in most APAC case reports, especially those published before the Weiss criteria was proposed.

**Supplementary Table 7. Items for suspecting APAC before surgery**

|  |  |  |
| --- | --- | --- |
| Variables | Sensitivity | Specificity |
| Tumor size ＞2.8 cm | 96.8% | 95.0% |
| Elevated fold change of ARR ＞2.5 | 85.2% | 50.0% |
| PAC ＞24.2 ng/dL | 85.0% | 50.0% |

Abbreviations: APAC aldosterone-producing adrenocortical carcinoma, ARR aldosterone to renin ratio, PAC plasma aldosterone concentration, PA primary aldosteronism.

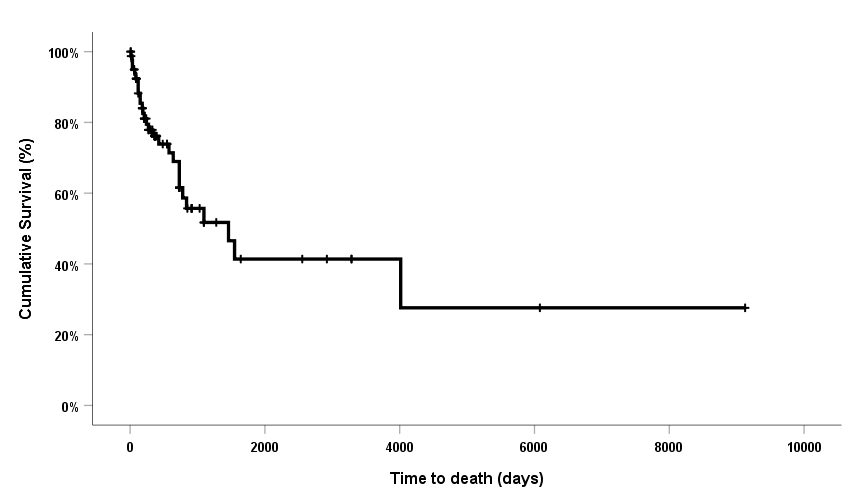
**Supplementary Table 8. Presurgery diagnostic criteria with high specifity for clinically diagnosing APAC**

|  |  |  |
| --- | --- | --- |
| Variables | Sensitivity | Specificity |
| Metastasis | 37.5% | 100.0% |
| Tumor size ＞3.5 cm | 88.4% | 99.5% |
| Elevated fold change of ARR ＞4.6 | 70.4% | 99.5% |
| PAC ＞38.4 ng/dL | 62.5% | 99.5% |
| Elevated androgen levels | 7.3% | approximately 100.0% |
| Serum potassium level ＜2.7 mmol/L | 63.6% | 99.5% |
| Systolic blood pressure ＞177 mmHg | 66.3% | 99.5% |
| Diastolic blood pressure ＞107 mmHg | 54.8% | 99.5% |

Abbreviations: APAC aldosterone-producing adrenocortical carcinoma, ARR aldosterone to renin ratio, PAC plasma aldosterone concentration, PA primary aldosteronism.

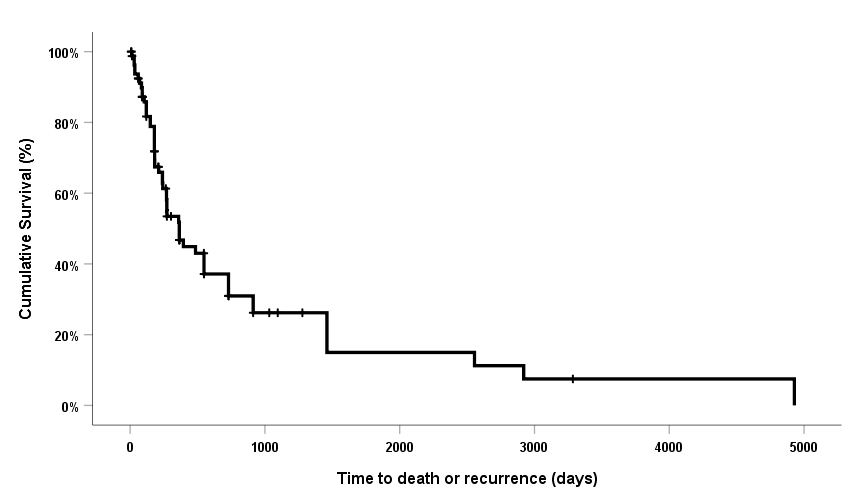
**Supplementary Figure 1 Survival and recurrence-free survival rates in PA induced by APAC**

**Supplementary Figure 1.a**



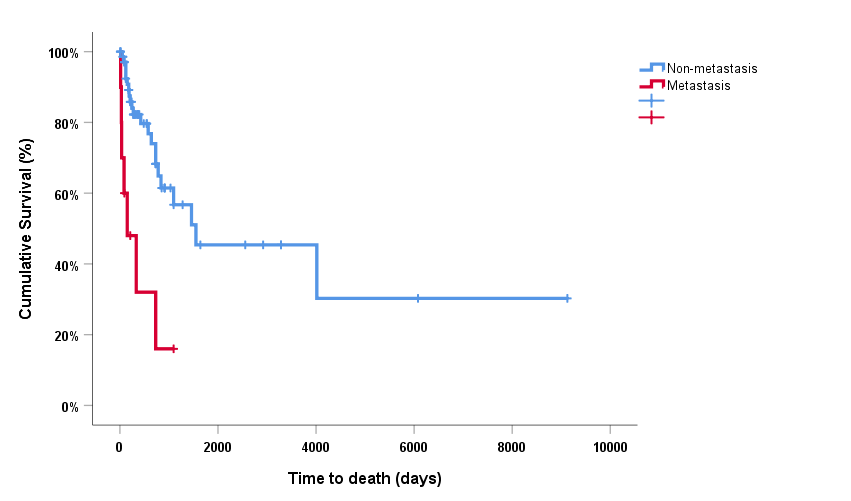
Median survival time: 1460 days (SE, 425; 95% CI, 607–2293)

**Supplementary Figure 1.b**



Median time for both tumor recurrence and death: 365 days (SE, 97; 95% CI, 219–511)

**Supplementary Figure 1.c**



Median survival time for non-metastasis patients: 1550 days (95% CI, 0–3687) , median survival time for metastasis patients: 146 days (95% CI, 0–436), *P* ≤ 0.01

Abbreviations: PA primary aldosteronism, APAC aldosterone-producing adrenocortical carcinoma, SE standard error, CI confidence interval

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