Table S1: Patients Characteristics in URSA Group

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Number | Erolling time | Age | Pregnany  history | Case history |
| 1 | 2017-09-12 | 32 | 0-0-3-0 | 2009-06 Embryo stop development at first time， abortion by medicine (gestation on 40+ days)  2015-09 Embryo stop development at second time, abortion by operation (gestation on 60+ days)  2017-09 Embryo stop development at third time. T-ET for 65 days, abortion by operation |
| 2 | 2017-09-15 | 29 | 0-0-3-0 | 2015-09 Embryo stop development at first time， abortion by medicine (gestation on 70+ days)  2016-09 Embryo stop development at second time, abortion by operation (gestation on 60+ days)  2017-09 Embryo stop development at third time, abortion by operation (gestation on 50+ days) |
| 3 | 2017-10-03 | 30 | 0-0-3-0 | 2011-08 Embryo stop development at first time，natural abortion (gestation on 60+ days)  2013-12 Embryo stop development at second time. natural abortion (gestation on 50+ days)  2017-10 Embryo stop development at third time, abortion by operation (gestation on 50+ days) |
| 4 | 2017-11-16 | 35 | 0-0-3-0 | 2006-10 Embryo stop development at first time， abortion by operation (gestation on 50+days)  2016-09 Embryo stop development at second time. natural abortion (gestation on 40+ days)  2017-11 Embryo stop development at third time. natural abortion (gestation on 50+ days) |
| 5 | 2017-11-20 | 33 | 0-0-3-0 | 2010-07 Embryo stop development at first time， abortion by operation (gestation on 50 days)  2016-11 Embryo stop development at second time, abortion by medicine. T-ET for 40 days  2017-11 Embryo stop development at third time, abortion by operation. T-ET for 30 days |
| 6 | 2017-12-18 | 34 | 1-0-2-1 | 2009 Gave birth to a boy by vaginal delivery  2016-08 Embryo stop development at first time， abortion by medicine (gestation on 60+days)  2017-12 Embryo stop development at second time, abortion by operation (gestation on 40+days) |
| 7 | 2018-01-10 | 29 | 0-0-2-0 | 2012-10 Embryo stop development at first time， abortion by medicine (gestation on 70+days)  2018-01 Embryo stop development at second time, abortion by operation (gestation on 40+ days) |
| 8 | 2018-02-28 | 35 | 1-0-4-1 | 2007 Embryo stop development at first time，nature abortion (gestation on 40+days)  2008 Gave birth to a boy by vaginal delivery  2010 Abortion by operation for unplanned pregnancy  2017-07 Embryo stop development at second time， abortion by medicine (gestation on 60days)  *2*017-12 Embryo stop development at third time， abortion by operation (gestation on 80+days) |
| 9 | 2018-02-28 | 30 | 0-0-2-0 | 2016-11 Embryo stop development at first time， abortion by medicine (gestation on 60+days)  2018-2 Embryo stop development at second time， abortion by operation (gestation on 50+days) |
| 10 | 2018-03-02 | 28 | 0-0-2-0 | 2016-02 Embryo stop development at first time， abortion by medicine (gestation on 60+days)  2018-03 Embryo stop development at second time， abortion by operation (gestation on 50 days) |
| 11 | 2018-04-02 | 33 | 00-0-3-0 | 2016-05 Embryo stop development at first time，nature abortion (gestation on 50+days)  2017-02 Embryo stop development at second time， abortion by medicine (gestation on 60+days)2012-03 Embryo stop development at third time， abortion by operation (gestation on 40+days) |
| 12 | 2018-04-04 | 32 | 0-0-3-0 | 2011-05 abortion by operation for unplanned pregnancy  2016-10 Embryo stop development at first time，nature abortion (gestation on 40+days)  2017 Embryo stop development at second time， abortion by operation (gestation on 50+days) |
| 13 | 2018-04-15 | 38 | 0-0-4-0 | 2004 Abortion by medicine for unplanned pregnancy  2014 Embryo stop development at first time，nature abortion (gestation on 40+days)  2016 Embryo stop development at second time， abortion by medicine (gestation on 50+days)  2018 Embryo stop development at third time， abortion by operation (gestation on 50+days) |
| 14 | 2018-05-09 | 29 | 0-0-3-0 | 2016 Embryo stop development at first time，nature abortion (gestation on 40+days)  2017-02 Embryo stop development at second time， abortion by medicine (gestation on 60+days)  2018-05 Embryo stop development at third time， abortion by operation (gestation on 40+days) |
| 15 | 2018-05-23 | 24 | 0-0-2-0 | 2017-10 Embryo stop development at first time， abortion by medicine (gestation on 50+days)  2018-05 Embryo stop development at second time， abortion by operation (gestation on 50+days) |
| 16 | 2018-06-04 | 25 | 0-0-3-0 | 2015 Embryo stop development at first time， abortion by operation (gestation on 40+days)  2016 Embryo stop development at second time， abortion by medicine (gestation on 60+days)  2018-06 Embryo stop development at third time， abortion by operation (gestation on 40+days) |
| 17 | 2018-06-20 | 30 | 0-0-2-0 | 2017-01 Embryo stop development at first time， abortion by medicine (gestation on 60+days)  2018-06 Embryo stop development at second time， abortion by operation (gestation on 40+days) |
| 18 | 2018-07-02 | 29 | 0-0-2-0 | 2017-07 Embryo stop development at first time， nature abortion (gestation on 40+days)  2018-07 Embryo stop development at second time， abortion by medicine (gestation on 70+days) |
| 19 | 2018-09-21 | 31 | 0-0-3-0 | 2014-11 Embryo stop development at first time，nature abortion (gestation on 50 days)  2017-12 Embryo stop development at second time， abortion by medicine (T-ET for 30+days)  2018-09 Embryo stop development at third time， abortion by operation (T-ET for 30+days) |
| 20 | 2018-09-25 | 24 | 0-0-3-0 | 2013 Tubal pregnancy for tubal resection  2016 Embryo stop development at first time,  abortion by medicine (gestation on 80+days)  2018 Embryo stop development at second time， abortion by operation (T-ET for 30+days) |
| 21 | 2018-09-26 | 26 | 0-0-3-0 | 2017-09 Embryo stop development at first time,  abortion by operation (gestation on 59 days)  2018-07 Embryo stop development at second time， abortion by operation (gestation on 40+ days)  2018-09 Embryo stop development at third time， abortion by operation (gestation 50+days) |
| 22 | 2018-10-15 | 32 | 0-0-2-0 | 2012 Embryo stop development at first time，nature abortion (gestation on 53days)  2018 Embryo stop development at second time，abortion by operation (T-ET for 30 days) |
| 23 | 2018-10-15 | 28 | 0-0-2-0 | 2012 Embryo stop development at first time， abortion by medicine (gestation on 45 days)  2018 Embryo stop development at second time，abortion by operation (gestation on 50+days) |
| 24 | 2018-10-22 | 27 | 0-0-3-0 | 2012-12 abortion by operation for unplanned pregnancy  2018-03 Embryo stop development at first time， abortion by medicine (T-ET for 30 days)  2018-10 Embryo stop development at second time， abortion by operation (T-ET for 40 days) |
| 25 | 2018-10-22 | 29 | 0-0-2-0 | 2017-11 Embryo stop development at first time， abortion by medicine (gestation on 60+ days)  2018-10 Embryo stop development at second time， abortion by medicine (gestation on 60+ days) |
| 26 | 2018-10-30 | 31 | 0-0-3-0 | 2007 abortion by operation for unplanned pregnancy  2017 Embryo stop development at first time， abortion by operation (gestation on 50+ days)  2018 Embryo stop development at second time， abortion by operation (gestation on 50+ days) |
| 27 | 2018-11-02 | 33 | 0-0-3-0 | 2014-07 Embryo stop development at first time,  abortion by operation  2016-05 Embryo stop development at second time， abortion by operation  2018-11 Embryo stop development at third time， abortion by operation |
| 28 | 2018-11-02 | 30 | 0-0-2-0 | 2016-02 Embryo stop development at first  time，nature abortion (gestation on 45 days)  2018-11 Embryo stop development at second time， abortion by operation (gestation on 50+ days) |
| 29 | 2018-11-05 | 33 | 1-0-3-1 | 2008 Embryo stop development at first time，nature abortion (gestation on 40 days)  2013 Gave birth to a boy by vaginal delivery  2017 Embryo stop development at second time， abortion by medicine (gestation on 40 days)  2018-11 Embryo stop development at third time， abortion by operation (gestation on 50+days) |
| 30 | 2018-11-07 | 29 | 0-0-3-0 | 2014 Embryo stop development at first time，nature abortion (gestation on 30+days)  2016 Embryo stop development at second time， abortion by operation (gestation on 50+days)  2018 Embryo stop development at third time， abortion by operation (T-ET 40days) |
| 31 | 2018-11-06 | 28 | 0-0-2-0 | 2017-01 Embryo stop development at first time， abortion by medicine (gestation on 90 days)  2018-11 Embryo stop development at second time， abortion by operation (gestation on 84 days) |
| 32 | 2018-11-25 | 32 | 1-0-2-1 | 2013 Gave birth to a girl by cesarean section  2017 Embryo stop development at first time，nature abortion (gestation on 70 days)  2018 Embryo stop development at second time， abortion by operation (gestation on 60+days) |
| 33 | 2018-11-25 | 31 | 0-0-2-0 | 2016-03 Embryo stop development at first time， abortion by medicine (gestation on 60+days)  2018-11 Embryo stop development at second time， abortion by operation (gestation on 60+days) |
| 34 | 2018-11-28 | 35 | 0-0-2-0 | 2015 Embryo stop development at first time， abortion by medicine (gestation on 40 days)  2018-11 Embryo stop development at second time， abortion by operation (T-ET 60 days) |
| 35 | 2018-12-01 | 35 | 0-0-4-0 | 2012 Abortion by operation for unplanned pregnancy  2013 Tubal pregnancy  2014 Embryo stop development at first time, natural abortion  2018 Embryo stop development at second time, abortion by operation |
| 36 | 2018-12-10 | 35 | 1-0-4-1 | 2006 abortion by operation for unplanned pregnancy  2011 Gave birth to a boy by vaginal delivery  2014 Embryo stop development at first time，nature abortion (gestation on 50+days)  2017 Embryo stop development at second time， abortion by medicine (gestation on 60 days)  2018 Embryo stop development at third time， abortion by operation (gestation on 60+days) |
| 37 | 2018-12-12 | 35 | 0-0-4-0 | 2016 Embryo stop development at first time，nature abortion  2017 Embryo stop development at second time，nature abortion  2018-04 Embryo stop development at third time， abortion by medicine (gestation on 60+days)  2018-12 Embryo stop development at the fourth time，abortion by operation (gestation on 70+days) |
| 38 | 2019-01-08 | 31 | 0-0-3-0 | 2015 Embryo stop development at first time，nature abortion (gestation on 30+days)  2018 Embryo stop development at second time, abortion by medicine (gestation on 30+days)  2019 Embryo stop development at third time， abortion by operation (gestation on 60+days) |
| 39 | 2019-01-09 | 29 | 0-0-2-0 | 2017-08 Embryo stop development at first time， abortion by operation (gestation on 70+days)  2018 Embryo stop development at second time, abortion by operation (gestation on 60+days) |
| 40 | 2019-01-10 | 24 | 0-0-2-0 | 2018 Embryo stop development at first time， abortion by operation (gestation on 45days)  2019-01Embryo stop development at second time, abortion by operation (gestation on 45 days) |
| 41 | 2019-01-19 | 28 | 0-0-2-0 | 2015-05 Embryo stop development at first time， abortion by operation (gestation on 40+days)  2019-01 Embryo stop development at second time, abortion by operation (gestation on 50 days) |
| 42 | 2019-02-06 | 33 | 0-0-2-0 | 2018 Embryo stop development at first time， abortion by operation (gestation on 50+days)  2019-02 Embryo stop development at second time, abortion by operation (gestation on 60 days) |
| 43 | 2019-02-10 | 36 | 0-0-3-0 | 2015 Embryo stop development at first time，nature abortion. (gestation on 40+days)  2017 Embryo stop development at second time， abortion by medicine (gestation on 60+days)  2019-02 Embryo stop development at the third time， abortion by operation (gestation on 60+days) |
| 44 | 2019-02-11 | 32 | 0-0-2-0 | 2016 Embryo stop development at first time，nature abortion. (gestation on 50+days)  2019-02 Embryo stop development at second time， abortion by operation (gestation on 60+days) |
| 45 | 2019-02-13 | 28 | 0-0-2-0 | 2017 Embryo stop development at first time，nature abortion. (gestation on 40+days)  2019 Embryo stop development at second time， abortion by medicine (gestation on 60+days) |
| 46 | 2019-02-17 | 29 | 0-0-2-0 | 2018 Embryo stop development at first time，nature abortion. (gestation on 40+days)  2019 Embryo stop development at second time， abortion by medicine (gestation on 70+days) |
| 47 | 2019-02-23 | 30 | 0-0-2-0 | 2016 Embryo stop development at first time. Abortion by operation. (gestation on 40+days)  2019 Embryo stop development at second time， abortion by operation (gestation on 50+days) |
| 48 | 2019-02-26 | 30 | 0-0-2-0 | 2017 Embryo stop development at first time， abortion by operation (gestation on 20 days)  2019 Embryo stop development at second time， abortion by medicine (gestation on 60+days) |
| 49 | 2019-02-27 | 26 | 0-0-2-0 | 2017 Embryo stop development at first time， abortion by medicine (gestation on 70+days)  2019 Embryo stop development at second time， abortion by operation (gestation on 40+days) |
| 50 | 2019-03-10 | 30 | 0-0-2-0 | 2017-08 Embryo stop development at first time， abortion by medicine (gestation on 60+days)  2019-03 Embryo stop development at second time， abortion by operation (gestation on 55 days) |
| 51 | 2019-03-12 | 36 | 1-0-4-1 | 2013 Embryo stop development at first time， abortion by medicine (gestation on 40+days)  2014 Gave birth to a boy by vaginal delivery  2016-02 Embryo stop development at second time， abortion by medicine (gestation on 60+days)  2017-02 Embryo stop development at third time， abortion by medicine (gestation on 60+days)  2019-03 Embryo stop development at the firth time， abortion by operation (gestation on 50 days) |
| 52 | 2019-03-15 | 29 | 0-0-3-0 | 2015 abortion by operation for unplanned pregnancy  2018 Embryo stop development at first time， abortion by medicine (gestation on 60+ days)  2019 Embryo stop development at second time， abortion by operation (gestation on 70+days) |
| 53 | 2019-03-19 | 29 | 0-0-2-0 | 2017-10 Embryo stop development at first time， abortion by medicine (gestation on 60 days)  2019-03 Embryo stop development at second time， abortion by operation (gestation on 60+days) |
| 54 | 2019-03-21 | 38 | 1-0-3-1 | 2008 Embryo stop development at first time， abortion by medicine (gestation on 30 days)  2009 Embryo stop development at second time， abortion by operation (gestation on 70+days)  2010 Gave birth to a boy by vaginal delivery  2019 Embryo stop development at third time， abortion by operation (gestation on 40+days) |
| 55 | 2019-03-30 | 28 | 0-0-2-0 | 2018 Embryo stop development at first time， abortion by medicine (gestation on 50+days)  2019 Embryo stop development at second time， abortion by operation (gestation on 70+days) |

Table S2: Patients Characteristics in Control Group

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Number | Erolling time | Age | Pregnany history | Case history |
| 1 | 2018-03-02 | 22 | 0-0-1-0 | 2018-03 voluntary abortion to terminate pregnancy |
| 2 | 2018-03-02 | 21 | 0-0-1-0 | 2018-03 voluntary abortion to terminate pregnancy |
| 3 | 2018-03-02 | 24 | 0-0-1-0 | 2018-03 voluntary abortion to terminate pregnancy |
| 4 | 2018-03-03 | 23 | 0-0-1-0 | 2018-03 voluntary abortion to terminate pregnancy |
| 5 | 2018-03-05 | 26 | 0-0-1-0 | 2018-03 voluntary abortion to terminate pregnancy |
| 6 | 2018-03-05 | 28 | 1-0-1-1 | 2015-06 gave birth to a boy by vaginal delivery  2018-03 voluntary abortion to terminate pregnancy |
| 7 | 2018-03-05 | 25 | 0-0-1-0 | 2018-03 voluntary abortion to terminate pregnancy |
| 8 | 2018-03-06 | 30 | 1-0-1-1 | 2013-10 gave birth to a boy by vaginal delivery  2018-03 voluntary abortion to terminate pregnancy |
| 9 | 2018-03-06 | 20 | 0-0-1-0 | 2018-03 voluntary abortion to terminate pregnancy |
| 10 | 2018-03-06 | 28 | 0-0-1-0 | 2018-03 voluntary abortion to terminate pregnancy |
| 11 | 2018-03-18 | 23 | 0-0-1-0 | 2018-03 voluntary abortion to terminate pregnancy |
| 12 | 2018-03-21 | 22 | 0-0-1-0 | 2018-03 voluntary abortion to terminate pregnancy |
| 13 | 2018-03-21 | 29 | 1-0-1-1 | 2016-05 gave birth to a girl by vaginal delivery  2018-03 voluntary abortion to terminate pregnancy |
| 14 | 2018-03-29 | 21 | 0-0-1-0 | 2018-03 voluntary abortion to terminate pregnancy |
| 15 | 2018-04-02 | 24 | 0-0-1-0 | 2018-04 voluntary abortion to terminate pregnancy |
| 16 | 2018-04-04 | 25 | 0-0-1-0 | 2018-04 voluntary abortion to terminate pregnancy |
| 17 | 2018-04-24 | 32 | 2-0-1-2 | Gave birth to a girl by vaginal delivery at 2010 and 2015 respectively  2018-04 voluntary abortion to terminate pregnancy |
| 18 | 2018-04-25 | 20 | 0-0-1-0 | 2018-04 voluntary abortion to terminate pregnancy |
| 19 | 2018-04-30 | 21 | 0-0-1-0 | 2018-04 voluntary abortion to terminate pregnancy |
| 20 | 2018-05-05 | 24 | 0-0-1-0 | 2018-05 voluntary abortion to terminate pregnancy |
| 21 | 2018-05-11 | 26 | 0-0-1-0 | 2018-05 voluntary abortion to terminate pregnancy |
| 22 | 2018-05-15 | 22 | 0-0-1-0 | 2018-05 voluntary abortion to terminate pregnancy |
| 23 | 2018-05-15 | 28 | 0-0-1-0 | 2018-05 voluntary abortion to terminate pregnancy |
| 24 | 2018-06-22 | 22 | 0-0-1-0 | 2018-06 voluntary abortion to terminate pregnancy |
| 25 | 2018-07-03 | 20 | 0-0-1-0 | 2018-07 voluntary abortion to terminate pregnancy |
| 26 | 2018-07-25 | 21 | 0-0-1-0 | 2018-07 voluntary abortion to terminate pregnancy |
| 27 | 2018-08-02 | 25 | 0-0-1-0 | 2018-08 voluntary abortion to terminate pregnancy |
| 28 | 2018-08-26 | 23 | 0-0-1-0 | 2018-08 voluntary abortion to terminate pregnancy |
| 29 | 2018-09-12 | 33 | 2-0-1-2 | Gave birth to a boy and a girl by vaginal delivery at 2011 and 2015 respectively  2018-09 voluntary abortion to terminate pregnancy |
| 30 | 2018-09-17 | 25 | 0-0-1-0 | 2018-09 voluntary abortion to terminate pregnancy |
| 31 | 2018-09-17 | 20 | 0-0-1-0 | 2018-09 voluntary abortion to terminate pregnancy |
| 32 | 2018-09-23 | 22 | 0-0-1-0 | 2018-09 voluntary abortion to terminate pregnancy |
| 33 | 2018-11-10 | 21 | 0-0-1-0 | 2018-11 voluntary abortion to terminate pregnancy |
| 34 | 2018-11-10 | 25 | 0-0-1-0 | 2018-11 voluntary abortion to terminate pregnancy |
| 35 | 2018-12-17 | 26 | 0-0-1-0 | 2018-12 voluntary abortion to terminate pregnancy |
| 36 | 2018-12-20 | 25 | 0-0-1-0 | 2018-12 voluntary abortion to terminate pregnancy |
| 37 | 2018-12-12 | 23 | 0-0-1-0 | 2018-12 voluntary abortion to terminate pregnancy |
| 38 | 2018-12-12 | 21 | 0-0-1-0 | 2018-12 voluntary abortion to terminate pregnancy |
| 39 | 2019-01-07 | 29 | 1-0-1-1 | 2015-12 gave birth to a girl by cesarean section  2019-01 voluntary abortion to terminate pregnancy |
| 40 | 2019-01-07 | 24 | 0-0-1-0 | 2019-01 voluntary abortion to terminate pregnancy |
| 41 | 2019-01-07 | 28 | 0-0-1-0 | 2019-01 voluntary abortion to terminate pregnancy |
| 42 | 2019-01-16 | 23 | 0-0-1-0 | 2019-01 voluntary abortion to terminate pregnancy |
| 43 | 2019-01-17 | 26 | 0-0-1-0 | 2019-01 voluntary abortion to terminate pregnancy |
| 44 | 2019-02-06 | 22 | 0-0-1-0 | 2019-02 voluntary abortion to terminate pregnancy |
| 45 | 2019-02-06 | 28 | 0-0-1-0 | 2019-02 voluntary abortion to terminate pregnancy |
| 46 | 2019-02-07 | 23 | 0-0-1-0 | 2019-02 voluntary abortion to terminate pregnancy |
| 47 | 2019-02-12 | 20 | 0-0-1-0 | 2019-02 voluntary abortion to terminate pregnancy |
| 48 | 2019-02-12 | 22 | 0-0-1-0 | 2019-02 voluntary abortion to terminate pregnancy |
| 49 | 2019-02-17 | 26 | 0-0-1-0 | 2019-01 voluntary abortion to terminate pregnancy |
| 50 | 2019-02-20 | 20 | 0-0-1-0 | 2019-02 voluntary abortion to terminate pregnancy |
| 51 | 2019-02-20 | 23 | 0-0-1-0 | 2019-02 voluntary abortion to terminate pregnancy |
| 52 | 2019-03-11 | 25 | 0-0-1-0 | 2019-03 voluntary abortion to terminate pregnancy |
| 53 | 2019-03-11 | 21 | 0-0-1-0 | 2019-03 voluntary abortion to terminate pregnancy |
| 54 | 2019-03-19 | 24 | 0-0-1-0 | 2019-03 voluntary abortion to terminate pregnancy |
| 55 | 2019-03-19 | 22 | 0-0-1-0 | 2019-03 voluntary abortion to terminate pregnancy |