**1. Before and after i.c.v. administration of alarin the variation of food intake, body weight and plasma insulin level of rats**.

Table 1

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Food intake（g/d） Weight (g) Insulin (mmol/L)

Before After Before After Before After

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

HC 14.8±1.1 15.1±1.2 294.7±11.2 301.5±13.1 4.2±0.6 4.0±0.5

DC 16.5±1.0● 17.3±1.8●● 255.8±10.2●● 249.9±11.4●●  5.7±0.9●● 5.4±0.7●●

Al6-25 16.2±1.2 16.9±1.5 248.7±10.7 239.8±13.2++ 5.3±0.7 6.4±0.8\*+

Alarin 15.6±1.8 19.2±1.7\*++ 252.8±11.4 260.9±14.1\*+ 5.6±0.8 4.3±0.5\*++

Al6-25+ Al 16.1±1.8 17.5± 1.3##△△++  253.4±9.8 245.3±12.7##+ 5.8±1.0 5.4±0.9##△

* 1. **Food intake (Before)**
     1. **Data**

HC DC Al6-25 Alarin Al6-25+ Al

15.2 17.5 16.3 15.2 16.4

14.8 16.2 14.9 15.6 14.7

14.1 18.2 17.2 15.9 15.1

13.8 17.4 15.5 14.4 17.4

16.2 16.8 16.7 17.3 15.6

15.6 15.9 14.8 15.2 14.5

14.9 15.7 18.4 16.8 17.9

13.6 14.6 15.7 14.2 17.5

**14.8 16.5 16.2 15.6 16.1**

* + 1. **Statistical analysis**

| **Multiple Comparisons** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |
| (I) VAR00003 | (J) VAR00003 | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| Lower Bound | Upper Bound |
| 1 | 2 | -1.76250\* | .55347 | .024 | -3.3538 | -.1712 |
| 3 | -1.40000 | .55347 | .107 | -2.9913 | .1913 |
| 4 | -1.18750 | .55347 | .224 | -2.7788 | .4038 |
| 5 | -1.36250 | .55347 | .123 | -2.9538 | .2288 |
| 2 | 1 | 1.76250\* | .55347 | .024 | .1712 | 3.3538 |
| 3 | .36250 | .55347 | .965 | -1.2288 | 1.9538 |
| 4 | .57500 | .55347 | .836 | -1.0163 | 2.1663 |
| 5 | .40000 | .55347 | .950 | -1.1913 | 1.9913 |
| 3 | 1 | 1.40000 | .55347 | .107 | -.1913 | 2.9913 |
| 2 | -.36250 | .55347 | .965 | -1.9538 | 1.2288 |
| 4 | .21250 | .55347 | .995 | -1.3788 | 1.8038 |
| 5 | .03750 | .55347 | 1.000 | -1.5538 | 1.6288 |
| 4 | 1 | 1.18750 | .55347 | .224 | -.4038 | 2.7788 |
| 2 | -.57500 | .55347 | .836 | -2.1663 | 1.0163 |
| 3 | -.21250 | .55347 | .995 | -1.8038 | 1.3788 |
| 5 | -.17500 | .55347 | .998 | -1.7663 | 1.4163 |
| 5 | 1 | 1.36250 | .55347 | .123 | -.2288 | 2.9538 |
| 2 | -.40000 | .55347 | .950 | -1.9913 | 1.1913 |
| 3 | -.03750 | .55347 | 1.000 | -1.6288 | 1.5538 |
| 4 | .17500 | .55347 | .998 | -1.4163 | 1.7663 |
| \*. The mean difference is significant at the 0.05 level. | | | | | |  |

* 1. **Food intake (After)**
     1. **Data**

HC DC Al6-25 Alarin Al6-25+ Al

16.2 16.9 15.5 21.5 18.5

15.7 17.6 18.4 18.6 16.4

14.6 18.4 15.3 19.3 17.6

15.5 17.3 14.9 19.7 16.5

13.5 16.5 18.7 17.6 18.4

14.4 16.6 18.8 17.8 16.7

16.1 18.1 17.5 18.4 17.6

14.9 17.2 15.7 20.6 18.1

* 1. **17.3 16.9 19.2 17.5**
     1. **Statistical analysis**

| (I) VAR00003 | (J) VAR00003 | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| --- | --- | --- | --- | --- | --- | --- |
| Lower Bound | Upper Bound |
| 1 | 2 | -2.21250\* | .56396 | .003 | -3.8339 | -.5911 |
| 3 | -1.73750\* | .56396 | .031 | -3.3589 | -.1161 |
| 4 | -4.57500\* | .56396 | .000 | -6.1964 | -2.9536 |
| 5 | -2.36250\* | .56396 | .002 | -3.9839 | -.7411 |
| 2 | 1 | 2.21250\* | .56396 | .003 | .5911 | 3.8339 |
| 3 | .47500 | .56396 | .915 | -1.1464 | 2.0964 |
| 4 | -2.36250\* | .56396 | .002 | -3.9839 | -.7411 |
| 5 | -.15000 | .56396 | .999 | -1.7714 | 1.4714 |
| 3 | 1 | 1.73750\* | .56396 | .031 | .1161 | 3.3589 |
| 2 | -.47500 | .56396 | .915 | -2.0964 | 1.1464 |
| 4 | -2.83750\* | .56396 | .000 | -4.4589 | -1.2161 |
| 5 | -.62500 | .56396 | .801 | -2.2464 | .9964 |
| 4 | 1 | 4.57500\* | .56396 | .000 | 2.9536 | 6.1964 |
| 2 | 2.36250\* | .56396 | .002 | .7411 | 3.9839 |
| 3 | 2.83750\* | .56396 | .000 | 1.2161 | 4.4589 |
| 5 | 2.21250\* | .56396 | .003 | .5911 | 3.8339 |
| 5 | 1 | 2.36250\* | .56396 | .002 | .7411 | 3.9839 |
| 2 | .15000 | .56396 | .999 | -1.4714 | 1.7714 |
| 3 | .62500 | .56396 | .801 | -.9964 | 2.2464 |
| 4 | -2.21250\* | .56396 | .003 | -3.8339 | -.5911 |

* + 1. **Statistical analysis (Paired Samples Test)**

**Food intake (Before vs. After)**

|  | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| VAR00003 | | Paired Differences | | | | | | | t | df | Sig. (2-tailed) |
| Mean | | | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | |
| Lower | Upper |
| 1 |  | |  | -.33750 | 1.50707 | .53283 | -1.59744 | .92244 | -.633 | 7 | .547 |
| 2 |  | |  | -.78750 | 1.22526 | .43319 | -1.81184 | .23684 | -1.818 | 7 | .112 |
| 3 |  | |  | -.67500 | 2.25373 | .79681 | -2.55916 | 1.20916 | -.847 | 7 | .425 |
| 4 |  | |  | -1.51250 | 1.01057 | .35729 | -2.35736 | -.66764 | -4.233 | 7 | .004 |
| 5 |  | |  | -3.05000 | 1.13389 | .40089 | -3.99796 | -2.10204 | -7.608 | 7 | .000 |
|  | | | | | |  |  |  |  |  |  |

* 1. **Weight (Before)**
     1. **Data**

HC DC Al6-25 Alarin Al6-25+ Al

391.6 244.1 241.6 264.1 251.6

291.4 261.5 243.2 251.5 240.3

288.1 258.7 258.7 258.7 256.7

297.6 264.3 247.6 244.3 244.3

300.5 254.9 246.5 254.9 253.9

293.2 266.7 248.1 237.6 246.5

288.4 247.6 252.2 264.9 265.4

306.7 248.3 251.7 246.7 248.3

**294.7 255.8 248.7 252.8 250.9**

* + 1. **Statistical analysis**

| **Multiple Comparisons** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |
| (I) VAR00003 | (J) VAR00003 | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| Lower Bound | Upper Bound |
| 1 | 2 | 38.92500\* | 3.34437 | .000 | 29.3097 | 48.5403 |
| 3 | 33.50000\* | 3.34437 | .000 | 23.8847 | 43.1153 |
| 4 | 41.85000\* | 3.34437 | .000 | 32.2347 | 51.4653 |
| 5 | 42.56250\* | 3.34437 | .000 | 32.9472 | 52.1778 |
| 2 | 1 | -38.92500\* | 3.34437 | .000 | -48.5403 | -29.3097 |
| 3 | -5.42500 | 3.34437 | .494 | -15.0403 | 4.1903 |
| 4 | 2.92500 | 3.34437 | .904 | -6.6903 | 12.5403 |
| 5 | 3.63750 | 3.34437 | .812 | -5.9778 | 13.2528 |
| 3 | 1 | -33.50000\* | 3.34437 | .000 | -43.1153 | -23.8847 |
| 2 | 5.42500 | 3.34437 | .494 | -4.1903 | 15.0403 |
| 4 | 8.35000 | 3.34437 | .115 | -1.2653 | 17.9653 |
| 5 | 9.06250 | 3.34437 | .073 | -.5528 | 18.6778 |
| 4 | 1 | -41.85000\* | 3.34437 | .000 | -51.4653 | -32.2347 |
| 2 | -2.92500 | 3.34437 | .904 | -12.5403 | 6.6903 |
| 3 | -8.35000 | 3.34437 | .115 | -17.9653 | 1.2653 |
| 5 | .71250 | 3.34437 | 1.000 | -8.9028 | 10.3278 |
| 5 | 1 | -42.56250\* | 3.34437 | .000 | -52.1778 | -32.9472 |
| 2 | -3.63750 | 3.34437 | .812 | -13.2528 | 5.9778 |
| 3 | -9.06250 | 3.34437 | .073 | -18.6778 | .5528 |
| 4 | -.71250 | 3.34437 | 1.000 | -10.3278 | 8.9028 |
| \*. The mean difference is significant at the 0.05 level. | | | | | |  |

* 1. **Weight (After)**
     1. **Data**

HC DC Al6-25 Alarin Al6-25+ Al

320.1 254.2 241.7 269.6 245.3

301.7 234.8 237.4 263.9 249.5

314.1 257.7 236.8 254.4 238.4

297.6 255.4 245.4 252.5 257.3

302.3 239.6 249.6 262.3 239.5

393.2 236.2 236.2 259.5 237.4

308.4 262.3 246.5 261.2 249.6

284.7 258.9 225.1 263.5 245.1

* 1. **249.9 239.8 260.9 245.3**
     1. **Statistical analysis)**

| **Multiple Comparisons** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |
| (I) VAR00003 | (J) VAR00003 | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| Lower Bound | Upper Bound |
| 1 | 2 | 51.62500\* | 3.57297 | .000 | 41.3525 | 61.8975 |
| 3 | 61.67500\* | 3.57297 | .000 | 51.4025 | 71.9475 |
| 4 | 40.65000\* | 3.57297 | .000 | 30.3775 | 50.9225 |
| 5 | 56.25000\* | 3.57297 | .000 | 45.9775 | 66.5225 |
| 2 | 1 | -51.62500\* | 3.57297 | .000 | -61.8975 | -41.3525 |
| 3 | 10.05000 | 3.57297 | .058 | -.2225 | 20.3225 |
| 4 | -10.97500\* | 3.57297 | .031 | -21.2475 | -.7025 |
| 5 | 4.62500 | 3.57297 | .696 | -5.6475 | 14.8975 |
| 3 | 1 | -61.67500\* | 3.57297 | .000 | -71.9475 | -51.4025 |
| 2 | -10.05000 | 3.57297 | .058 | -20.3225 | .2225 |
| 4 | -21.02500\* | 3.57297 | .000 | -31.2975 | -10.7525 |
| 5 | -5.42500 | 3.57297 | .558 | -15.6975 | 4.8475 |
| 4 | 1 | -40.65000\* | 3.57297 | .000 | -50.9225 | -30.3775 |
| 2 | 10.97500\* | 3.57297 | .031 | .7025 | 21.2475 |
| 3 | 21.02500\* | 3.57297 | .000 | 10.7525 | 31.2975 |
| 5 | 15.60000\* | 3.57297 | .001 | 5.3275 | 25.8725 |
| 5 | 1 | -56.25000\* | 3.57297 | .000 | -66.5225 | -45.9775 |
| 2 | -4.62500 | 3.57297 | .696 | -14.8975 | 5.6475 |
| 3 | 5.42500 | 3.57297 | .558 | -4.8475 | 15.6975 |
| 4 | -15.60000\* | 3.57297 | .001 | -25.8725 | -5.3275 |
|  | | | | | |  |

* + 1. **Statistical analysis (Paired Samples Test)**

**Weight (Before vs. After)**

| **Paired Samples Testa** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| VAR00003 | | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
| Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | |
| Lower | Upper |
| 1 |  |  | .22500 | .39188 | .13855 | -.10262 | .55262 | 1.624 | 7 | .148 |
| 2 |  |  | .32500 | .61354 | .21692 | -.18793 | .83793 | 1.498 | 7 | .178 |
| 3 |  |  | -1.07500 | 1.10292 | .38994 | -1.99706 | -.15294 | -2.757 | 7 | .028 |
| 4 |  |  | 1.31250 | .73764 | .26079 | .69582 | 1.92918 | 5.033 | 7 | .002 |
| 5 |  |  | .67500 | .77598 | .27435 | .02627 | 1.32373 | 2.460 | 7 | .043 |

* 1. **Insulin (Before)**

**1.5.1. Data**

HC DC Al6-25 Alarin Al6-25+ Al

3.7 6.1 5.1 5.5 5.7

4.1 4.8 4.7 5.8 5.9

4.8 5.3 5.3 5.9 5.5

3.8 5.7 5.7 5.4 5.1

4.2 6.5 4.5 4.8 5.3

3.8 4.6 4.6 4.9 5.8

4.6 6.7 6.1 5.8 6.6

4.9 6.0 6.3 6.5 6.3

* 1. **5.7 5.3 5.6 5.8**

**1.5.2. Statistical analysis**

|  | |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| (I) VAR00003 | (J) VAR00003 | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| Lower Bound | Upper Bound |
| 1 | 2 | -1.47500\* | .30079 | .000 | -2.3398 | -.6102 |
| 3 | -1.05000\* | .30079 | .011 | -1.9148 | -.1852 |
| 4 | -1.33750\* | .30079 | .001 | -2.2023 | -.4727 |
| 5 | -1.53750\* | .30079 | .000 | -2.4023 | -.6727 |
| 2 | 1 | 1.47500\* | .30079 | .000 | .6102 | 2.3398 |
| 3 | .42500 | .30079 | .624 | -.4398 | 1.2898 |
| 4 | .13750 | .30079 | .991 | -.7273 | 1.0023 |
| 5 | -.06250 | .30079 | 1.000 | -.9273 | .8023 |
| 3 | 1 | 1.05000\* | .30079 | .011 | .1852 | 1.9148 |
| 2 | -.42500 | .30079 | .624 | -1.2898 | .4398 |
| 4 | -.28750 | .30079 | .873 | -1.1523 | .5773 |
| 5 | -.48750 | .30079 | .495 | -1.3523 | .3773 |
| 4 | 1 | 1.33750\* | .30079 | .001 | .4727 | 2.2023 |
| 2 | -.13750 | .30079 | .991 | -1.0023 | .7273 |
| 3 | .28750 | .30079 | .873 | -.5773 | 1.1523 |
| 5 | -.20000 | .30079 | .963 | -1.0648 | .6648 |
| 5 | 1 | 1.53750\* | .30079 | .000 | .6727 | 2.4023 |
| 2 | .06250 | .30079 | 1.000 | -.8023 | .9273 |
| 3 | .48750 | .30079 | .495 | -.3773 | 1.3523 |
| 4 | .20000 | .30079 | .963 | -.6648 | 1.0648 |
| \*. The mean difference is significant at the 0.05 level. | | | | | |  |

* 1. **Insulin**  **(After)**

1.6.1. **Data**

3.4 5.4 6.2 4.3 4.4

4.2 4.9 6.4 3.7 6.1

4.6 5.3 5.4 4.9 5.4

3.9 5.7 5.7 3.8 5.7

4.4 4.8 7.1 4.5 4.5

3.3 4.6 7.2 4.1 4.7

3.7 6.1 6.3 4.4 5.3

4.6 6.3 6.6 4.5 4.8

1. **5.4 6.4 4.3 5.1**

| **1.6.2. Statistical analysis** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Multiple Comparisons** | | | | | | |
|  | |  |  |  |  |  |
| (I) VAR00003 | (J) VAR00003 | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| Lower Bound | Upper Bound |
| 1 | 2 | -1.37500\* | .27660 | .000 | -2.1702 | -.5798 |
| 3 | -2.35000\* | .27660 | .000 | -3.1452 | -1.5548 |
| 4 | -.26250 | .27660 | .876 | -1.0577 | .5327 |
| 5 | -1.08750\* | .27660 | .003 | -1.8827 | -.2923 |
| 2 | 1 | 1.37500\* | .27660 | .000 | .5798 | 2.1702 |
| 3 | -.97500\* | .27660 | .010 | -1.7702 | -.1798 |
| 4 | 1.11250\* | .27660 | .003 | .3173 | 1.9077 |
| 5 | .28750 | .27660 | .835 | -.5077 | 1.0827 |
| 3 | 1 | 2.35000\* | .27660 | .000 | 1.5548 | 3.1452 |
| 2 | .97500\* | .27660 | .010 | .1798 | 1.7702 |
| 4 | 2.08750\* | .27660 | .000 | 1.2923 | 2.8827 |
| 5 | 1.26250\* | .27660 | .001 | .4673 | 2.0577 |
| 4 | 1 | .26250 | .27660 | .876 | -.5327 | 1.0577 |
| 2 | -1.11250\* | .27660 | .003 | -1.9077 | -.3173 |
| 3 | -2.08750\* | .27660 | .000 | -2.8827 | -1.2923 |
| 5 | -.82500\* | .27660 | .039 | -1.6202 | -.0298 |
| 5 | 1 | 1.08750\* | .27660 | .003 | .2923 | 1.8827 |
| 2 | -.28750 | .27660 | .835 | -1.0827 | .5077 |
| 3 | -1.26250\* | .27660 | .001 | -2.0577 | -.4673 |
| 4 | .82500\* | .27660 | .039 | .0298 | 1.6202 |
|  | | | | | |  |

* + 1. **Statistical analysis (Paired Samples Test)**

**Insulin**  **(Before vs. After)**

| **Paired Samples Testa** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| VAR00003 | | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
| Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | |
| Lower | Upper |
| 1 |  |  | .22500 | .39188 | .13855 | -.10262 | .55262 | 1.624 | 7 | .148 |
| 2 |  |  | .32500 | .61354 | .21692 | -.18793 | .83793 | 1.498 | 7 | .178 |
| 3 |  |  | -1.07500 | 1.10292 | .38994 | -1.99706 | -.15294 | -2.757 | 7 | .028 |
| 4 |  |  | 1.31250 | .73764 | .26079 | .69582 | 1.92918 | 5.033 | 7 | .002 |
| 5 |  |  | .67500 | .77598 | .27435 | .02627 | 1.32373 | 2.460 | 7 | .043 |