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The aim of this study was to clarify the effect of aging on ECG using both normotensive and hypertensive rats.

Methods Total 409 rats involving 136 males and 273 females consisted of 31 male stroke-prone SHR (SHRSP), 93 female SHRSP, 53 male stroke-resistant SHR (SHRSR), 97 female SHRSR, 52 male Wistar Kyoto rats (WKY) and 83 female WKY. Male SHRSP were aged 1.5 to 18 months, female SHRSR aged 1.5 to 26 months, male SHRSR aged 1 to 28 months, female SHRSR aged 1.5 to 32 months, male WKY aged 1 to 34 months and female WKY aged 1 to 47 months. These rats were anesthetized with intraperitoneal injection of 10% urethan solution in one ml per 100 g of body weight. Electrocardiography (ECG) was recorded with needle electrodes of 12 leads like human subjects, using ECG recorder and polygraph system (Nihon Kohden RM 6000) under non-filter condition.

Results Systolic blood pressure, which was measured by tail-cuff method under non-anesthetized condition, was 201±22 mmHg (M±SD) in male SHRSP, 182±21 mmHg in female SHRSP, 168±14 mmHg in male SHRSR, 156±15 mmHg in female SHRSR, 127±11 mmHg in male WKY and 123±11 mmHg in female WKY. There were significantly positive correlations between aging and PQ interval or SV1+RV5 in all 3 strains of both sexes (Table). Among 3 strains of male rats aged 15 to 18 months and of female rats aged 13 to 20 months, the longest PQ interval was found significantly in SHRSP and the shortest PQ interval in WKY; 12 male SHRSP was 0.06±0.005 sec, 9 male SHRSR 0.057±0.005 sec, 9 male WKY 0.045±0.005 sec, 54 female SHRSP 0.058±0.007 sec, 31 female SHRSR 0.054±0.007 sec and 52 female WKY 0.047±0.006 sec.

Conclusion The prolongation of PQ interval on ECG by aging was found in both normotensive rats (WKY) and hypertensive rats (SHRSR and SHRSP). The hypertensive rats showed longer PQ interval as compared to the normotensive rats. Therefore, the presence of hypertension may accelerate aging effect on PQ interval.

<table>
<thead>
<tr>
<th>Case Number</th>
<th>PQ interval (y) to Age (x)</th>
<th>SV1+RV5 Voltage (y) to Age (x)</th>
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</table>
| Male SHRSP  | y = 0.0411 + 0.0012x  
   r = 0.574  | y = 3.274 + 0.596x  
   r = 0.513  |
| Female SHRSP| y = 0.0440 + 0.0008x  
   r = 0.55  | y = 2.754 + 0.723x  
   r = 0.458  |
| Male SHRSR  | y = 0.0485 + 0.0005x  
   r = 0.62  | y = 7.967 + 0.4908x  
   r = 0.653  |
| Female SHRSR| y = 0.0446 + 0.0005x  
   r = 0.44  | y = 7.21 + 0.714x  
   r = 0.543  |
| Male WKY    | y = 0.0398 + 0.0005x  
   r = 0.67  | y = 8.328 + 0.445x  
   r = 0.59  |
| Female WKY  | y = 0.0402 + 0.0005x  
   r = 0.524 | y = 10.427 + 0.238x  
   r = 0.549 |

r: Correlation Coefficient