# Acepromazine-Dexmedetomidine-Ketamine (ADK) for field anaesthesia in European hares *(Lepus europaeus)*

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Although lagomorphs are known to have increased anaesthetic risk, they are difficult to handle and often need chemical restraint to minimise struggling and stress during clinical examinations and surgical procedure[1,2]. Few reports investigated anaesthetic protocols in the hares[3,4,5]. Aim of the present study was to evaluate the anaesthetic and cardiorespiratory effects of ADK combination in hares undergoing tagging, blood sampling and ocular ultrasonography. Acepromazine 1%, Dexmedetomidine 0.05% and Ketamine 5% were mixed in the volumetric ratio of 1:1:8. Eighteen healthy hares (*Lepus europaeus*), 10 males and 8 females, weighting 2.3±0.8 kg, were given 0.45 ml/kg ADK by intramuscular injection in *m. quadriceps femoris*. Temperature (T°), heart rate (HR) respiratory rate (RR), non-invasive blood pressure (DAP, MAP, SAP) were recorded before the induction (T0), and 1 (T1), 10 (T10), 20 (T20) and 30 (T30) minutes later. Anaesthetic depth was assessed by the absence or presence of the ear pinch and withdrawal reflexes. Blood samples were collected at T10 for biochemistry. Data were analysed using JMP[6] program. Physiological variables at each time point were compared initially by a one-way analysis of variance (ANOVA) for repeated measurements and with a paired Student's t-test ($P \leq 0.05$). Induction time was 4.5±2.2 minutes and sleep time was 36.8±18.9 minutes. Serum cortisol at T10 was 14.3±5.4 ng/ml. Recovery was smooth and uneventfully for all the hares. Physiological variables were reported in table 1.

| | T0 | T1 | T10 | T20 | T30 |
|---|---|---|---|---|---|
| **T°C** | 40.01±0.56$^{A}$ | 40.28± 0.79$^{A}$ | 39.66±0.74$^{B}$ | 38.64±0.90$^{Cc}$ | 38.05±0.45$^{bC}$ |
| **HR** | 124.50±2.23$^{B}$ | 163.64 ±31.81$^{Aa}$ | 145.33±00.99$^{b}$ | 136.67±31.16 | 127.37±24.19 |
| **RR** | 115.17±38.02 | 112.90± 40.46 | 93.89±52.22 | 81.22±40.31 | 86.88±41.51 |
| **MAP** | | 77.71±21.17$^{a}$ | 66.38±17.04 | 61.54±13.53 | 58.00±12.38$^{b}$ |

***Table 1:*** *Physiological variables at each point time (mean±SD). Capital letters indicate significant differences for P≤0.01; small letters indicate significant differences for P≤0.05*

Anaesthesia with a combination of agents has potential advantages. Each component may potentiate each other's action, lower individual dose requirements and produce surgical anaesthesia more safely[7]. Results show that chemical restraint obtained with the ADK combination is adequate to perform clinical examination, non-invasive diagnostic procedure and blood sampling in hares. The anaesthetic protocol investigated produced a smooth and fast induction, an adequate anaesthetic depth, a low incidence of untoward side-effects and zero mortality in this experimental group. Short duration anaesthesia of adequate depth was achieved, whereby physiological parameters remained within acceptable range. Further investigations are indicated into the effects of continuous or repeated *boli* of ADK administration to maintain anesthesia.

## Key words
*Hares, ketamine, dexmedetomidine, acepromazine*

## References

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