Effect of Antihistamine on Acceleration of Wound healing in Rabbits

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Introduction

- Wound healing or wound repair is the natural process of regeneration of tissue after injured.
The surgical intervention may need for treating some diseases in animals. Because it is more stressful and painful for animals and may lead to a decrease in productivity and may cause more economic loss.
- Difficulty to keep the wound clean and control the contamination and infection.

- Especially in veterinary medicine and because the environment of the farm that not easy to control the infection as much as in OP and recovery room.
They are many step and factor affect on wound healing:

1. Inflammatory phase.
2. Prepare phase.
3. End or maturation phase
The first phase is inflammatory phase

- Vasoconstriction by serotonin and bradykinine
- Vasodilatation by histamine and interleukin that release from mast cell
2. The second phase is prepare stage

A. The angiogenesis: new capillary growth.

B. Fibroplasias: proliferation of fibroblast to production and growth of collagen and at the end growth of epithelium cell in wound area.
3. The end phase of healing is maturation stage at this step increase of strength of wound area.
The histamine cause increase in vascular permeability and promote angiogenesis and lead to release and escape from capillary to tissue.

There is many studies about histamine and other factor of wound healing and the affectivity on healing.
- Hypothesis: the effect of antihistamine on acceleration of wound healing.

- Antihistamine may block action of histamine by prevent binding of histamine with each receptor especially (H1 and H2 receptor) and decrease activity of histamine on wound area and may be lead delay the healing.
Methodology:

- 10 rabbit at weight about 1500g and age 4 month had been randomly selected and divided to tow groups, first group was given antihistamine and second are use as control (placebo)
(1) use general Anesthesia for rabbit
(2) shaving the hair of rabbit
(3) disinfected area at sit of skin incision
(4) skin incision
(5) antihistamine or placebo injected at wound area
(6) suture the skin and measuring edge of wound

(7) daily investigation of heart rate, respiratory rate, temperature of wound area and animal and epithelialization tissue for 14 days

Recommendation:
## Worksheet for every single animal:

<table>
<thead>
<tr>
<th>Exp. Time</th>
<th>Duration (min)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:05</td>
<td>5</td>
<td>Prepare the tools that want to use</td>
</tr>
<tr>
<td>11:10</td>
<td>5</td>
<td>Catching the rabbit</td>
</tr>
<tr>
<td>11:15</td>
<td>5</td>
<td>Shaving the abdomen region</td>
</tr>
<tr>
<td>11:16</td>
<td>1</td>
<td>Clean the abdomen region</td>
</tr>
<tr>
<td>11:18</td>
<td>2</td>
<td>General anesthesia application</td>
</tr>
<tr>
<td>11:20</td>
<td>2</td>
<td>Disinfection the abdomen region</td>
</tr>
<tr>
<td>11:25</td>
<td>5</td>
<td>Skin incision</td>
</tr>
<tr>
<td>11:26</td>
<td>1</td>
<td>Antihistamine and normal saline is administration</td>
</tr>
<tr>
<td>11:27</td>
<td>1</td>
<td>Suture the skin</td>
</tr>
<tr>
<td>11:29</td>
<td>2</td>
<td>Administration of medication</td>
</tr>
<tr>
<td>11:30</td>
<td>1</td>
<td>Put the animal in clean dry area</td>
</tr>
</tbody>
</table>

Every step will be recorded in specific form for each animal
Wound temperature:

\[ p = 0.061 \]
Heart rate:

$p=0.045$
Respiratory Rate:

p=0.313
Rectal temperature:

p=0.022
Recommendation: Histopathology must be done for more accuracy in result.
Several research found on wound healing process to accelerate return the organs to normal structure and function as soon as after the surgery
R.D ABROWSKI, Cz. MASLINSKI and ALICJA OLCZAK on 1977 (The role of histamine in wound healing).

D. Gutowska in 2014 (histamine enhances keratenocyte-mediated resolution of inflammation by promoting wound healing and response of infection).
References


2. Fundamental of small animal surgery

3. R.D ABROWSKI , Cz. MASLINSKI and ALICJA OLCZAK on 1977 (The role of histamine in wound healing).


