

Life-saving dogs

Case Report

Holger Fischer¹, Claudia Stöllberger^{1*},
Josef Finsterer²

*1 2nd Medical Department, Krankenhaus Rudolfstiftung,
Juchgasse 25, 1030 Wien, Österreich*

*2 Krankenhaus Rudolfstiftung,
Juchgasse 25, 1030 Wien, Österreich*

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Abstract: Dogs can play an important role in their owners' lives. As well as providing a source of comfort, emotional support, and entertainment, there is now evidence suggesting that dogs may promote their owners' health. The mechanisms of these beneficial effects, however, are unclear. The important role of dogs in their owners' medical emergencies is illustrated by two cases of patients admitted to our intensive care unit, in whom untrained domestic dogs saved lives by alerting the family. Companion dogs may react to emergencies of their owners and save lives. Clarifying how dogs perceive medical emergencies might stimulate design of emergency alarm systems.

Keywords: *Epilepsy • Sudden cardiac death • Dogs • Ventricular fibrillation • Subarachnoid hemorrhage*

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Dogs can play an important role in their owners' lives. As well as providing a source of comfort, emotional support, and entertainment, there is now evidence suggesting that dogs promote their owners' health, which is illustrated by two cases.

A 43-year-old, previously healthy woman had severe headache in August 2009, but did not see a physician. Three weeks later, her husband came home at 1.00 a.m. and found her and their dog, a 5-month-old beagle, sleeping. The husband fell asleep in another room. At 3.00 a.m. he was awakened by the dog, which rapped on the floor in front of him. Then the dog jumped on him and started running between the wife's bedroom and the husband. He found his wife shivering, unconscious, and lying in vomit. The diagnosis of subarachnoid hemorrhage from rupture of a right-sided carotid artery aneurysm was made on cerebral computed tomography, and the aneurysm was successfully clipped the next day.

In August 2009, a 50-year-old man had an anterior wall infarction. An occlusion of the left anterior descending coronary artery was treated by re-canalization, and two drug-eluting stents were implanted. Ten days after the intervention chest pain, dizziness and dyspnea developed. He returned to the hospital. Since neither an electrocardiogram (ECG) nor blood tests were indica-

tive of a recurrent infarction, he was discharged. Several hours later, he took a rest on his bed. Suddenly, his dog, a 5-year-old bull terrier, started to whimper and run between the bedroom and his wife, who was in the kitchen. Whimpering, he jumped on the patient. The wife believed that the dog wanted to play and told the dog to let her husband rest. Then, she looked at her husband more carefully and realized that he was unconscious. She called the emergency medical service, and resuscitation was started. Emergency ECG showed ventricular fibrillation. After defibrillation, a stable sinus rhythm was achieved; the patient was intubated and admitted to the hospital. Acute coronary angiography excluded a stent thrombosis. The patient was cooled for 24 hours and then awakened.

In both cases the dogs were the first to react to alterations of their owners' physical condition. The dogs' alertness and subsequent reactions prompted the relatives to check on the patients and then find their lives in danger. Without the dogs' reaction, the delay between onset of symptoms and appropriate help would have been longer and presumably could have led to severe neurologic impairment, or even death.

The ability of dogs to detect diseases in their owners has been described in cases of melanoma and bladder

* E-mail: claudia.stoellberger@chello.at

cancer [1,2]. Most probably, dogs recognize volatile organic compounds, and this is currently being investigated extensively for the development of cancer biomarkers [3].

Dogs can also reliably predict the onset of epileptic seizure in their human owners [4], and hypoglycemia in dog owners may be accompanied by behavioral reactions of their dogs [5]. How dogs detect these emergencies and other life-threatening situations like in our cases is unclear. Probably, olfactory sensations related to sweating, perception of changes of muscle tremor or behavioral alterations play a role. Because the relationships between humans and dogs date back to prehistoric times, it is quite reasonable to conclude that dogs have become familiar with emergencies in humans [6]. It can

be hypothesized that clarification of the mechanisms by which dogs perceive medical emergencies could stimulate design of new emergency alarm systems.

A limitation of the present case report is its descriptive nature, similar to many publications about companion animals and human health. To date, there have been no rigorous, randomized, double-blind, controlled clinical trials to investigate whether companion animals are beneficial for psychological or physical health, as would be expected for any other therapeutic intervention [7]. Increased knowledge is highly desirable, so that human-companion animal relationships, interventions and therapies can be promoted where appropriate and evaluated for the benefit of the health of the community.

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