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Review article

Animal assisted intervention: A systematic review of benefits and risks

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ABSTRACT

Introduction: The therapeutic use of animals has been debated for decades, and its use explored in a variety of settings and populations. However, there is no uniformity on naming these interventions. Evidence based knowledge is essential to implement effective strategies in hospital. This review focused on the use of animal programs for hospitalized patients, and considered the potential risks.
Methods: The following databases were searched: PubMed, Scopus, PsychInfo, Ebsco Animals, PROQUEST, Web of Science, CINAHL, and MEDLINE, and PRISMA guidelines were adhered to.
Results: Out of 432 articles were identified 36 articles suitable for inclusion into the review. Data was heterogeneous in terms of age of patient, health issue, animals used and the length of interactions, which made comparison problematic. Studies on children, psychiatric and elderly patients were the most common. The animal-intervention programs suggested various benefits such as reducing stress, pain and anxiety. Other outcomes considered were changes in vital signs, and nutritional intake. Most studies used dogs, but other animals were effectively employed. The major risks outlined were allergies, infections and animal-related accidents. Zoonosis was a possible risk, as well as common infections as Methicillin-resistant Staphylococcus Aureus. The implementation of simple hygiene protocols was effective at minimizing risk. The literature suggested that the benefits outweighed by far the risks.
Conclusion: The human relationship with animals can be useful and relatively safe for inpatients with various problems. Moreover, the implementation of security precautions and the careful selection of patients should minimize the risks, particularly those infection-related. Many aspects remain unclear, further studies are required.

Contents

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1. Introduction

The Animal Assisted Therapy (AAT) is a health intervention, meant to improve physical, social, emotional or cognitive functioning, with animals as integral part of the treatment [1]. The therapeutic use of animals was argued for decades and many associations employ this intervention in order to improve care.

The interest shown by the scientific community is proven not only by the amount of articles published, but also by the specific trainings offered by many universities and in particular by the inception of specific law to regulate this practice [2].

The "Pet Partners" (an organization dedicated to improve people's health through the interaction with animals) pointed out the differences between AAT and Animal Assisted Activity (AAA), less structured and mainly composed by pet visitation) [3]. The AAA, as described above, is slightly structured and it includes, primarily, pet-visitation. These kind of activities are in general spontaneous, grouping several patients, and poorly standardized with regard to duration and type of activities. On the contrary, the AAT sessions are strictly organized considering both the activity type and the duration. Indeed, each AAT session presents individualized goals and is conducted by specifically trained couples (handler and animal) [3]. Unfortunately, there is no uniformity on naming these interventions and AAT, AAA and other names are used, often, in a confusing way. To make even harder to compare the studies different animals were used. Although dog is the most common, generally every species can be employed.

Animal interventions have been studied for different pathologies including mental disorders [4] and cancer [5]. In particular, some interventions focused on frail patients as elderly [6,7] or children [5,8]. Furthermore, AAT and AAA are implemented in different settings like hospitals, nursing homes and schools [4,5]. The employment of Animal-Assisted Interventions (AAI) resulted increasingly popular, especially among pediatric patients. Chur-Hansen et al. conducted a critical review regarding AAI for children inpatients. This review focused primarily on the methodology of the retrieved studies. Precisely, the authors concluded that the evidences regarding AAI are scant, and more standardized studies (in particular RCTs) about this topic are required [9]. Another recent review considered only the available RCTs regarding AAT, retrieving overall eleven studies (published from 1990 to 2012). The authors outlined a relatively low quality of the recovered papers. However, the study highlighted some benefits of the AAT, especially in case of psychiatric disorders. The animals employed in these interventions were disparate, from dogs to dolphins or ferrets. The authors identified some areas requiring further insights such as costs, reasons to refuse the intervention and potential adverse effects. Moreover, the authors highlighted how the description of the intervention in terms of length, activities and settings, in the studies included in the review, was not always obvious [4].

The outcomes considered, in order to define the AAI benefits, are heterogeneous, incorporating subjective outcomes as the quality of life [10,11], but also objective parameters as vital signs [12], hemodynamic measures [13] and nutritional intake [14]. A 2007 review and meta-analysis, firstly, assessed the quantitative effects of AAT. The meta-analysis included 49 studies, and suggested a significant improvement in the following examined areas: autism-spectrum symptoms, behavioral problems, and emotional well-being. The authors described the AAT as a worthy intervention, necessitating, however, further insights [15].

Furthermore, the risks of implementing animal therapeutic interventions especially in hospitals are not negligible, and these hazards must be considered [16,17].

An accurate knowledge of the effectiveness and risks of animal use in hospital is essential to implement effective strategies in this setting. Nevertheless, data considering animal interventions are often heterogeneous. To our knowledge, no previous reviews estimated the evidence on the use of animal-interventions for inpatients. The aim of this review was to focus on Animal Assisted Therapy/Activity for hospitalized patients, to provide a clearer view on the status of the evidence supporting this practice, as well as the potential risks.

2. Methods

This review followed the Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA) statements [18].

Multiple search strategies were employed to summarize the existing evidence relating to animal assisted therapy or animal assisted activity for inpatients. Searches for papers reporting data about the effectiveness or the risks of animal use in hospitals were carried out using the following databases: PubMed, Scopus, PsychInfo, Ebsco Animals, PROQUEST, Web of Science, CINAHL and MEDLINE.

Three researchers (EC, GP and GV) independently performed a systematic search using the following strings: "Animal assisted activity" AND hospital, "Animal assisted therapy" AND hospital, "Animal assisted intervention" AND hospital, "Pet therapy" AND hospital, "Animal assisted activity" AND hospitalization, "Animal assisted therapy" AND hospitalization, "Animal assisted intervention" AND hospital, "pet therapy" AND hospitalization.

Studies were considered eligible for inclusion if they:

- were conducted in hospitals or in long-term care facilities
- were written in English, Spanish or Portuguese
- considered interventions of "Animal Assisted Therapy", "Animal Assisted Activity" or "Animal Assisted Intervention"

No restriction was performed based on inpatient age, pathology, or type of animal used. All types of papers were included, since RCTs were few and did not give a complete overview of the topic.

Articles were excluded if they:

- were conducted outside the hospital
- were published before 2000
- used robotic animals
- were case reports or letters to the editor

Three investigators (EC, GP and GV) independently conducted a first literature search, sorting sources by title and abstract. Then, the eligible studies for full text review were selected. During the first screening, the irrelevant or duplicated papers were excluded. The search was completed through a reference list screening. Finally, the researchers independently assessed the articles considering the criteria enunciated above.

2.1. Data extraction

The investigators, solving any discrepancies by consensus, independently extracted data from the selected studies, collecting information about the country, the study design, the setting, the sample characteristics, the type of intervention, the outcomes, the results and the potential risks.

3. Results

The search returned 432 results. After removing the duplicates and irrelevant results, 64 articles for full text review were obtained. The final selection obtained 36 sources (see Fig. 1). Eight studies were conducted on children, five referred to psychiatric population, six considered elderly patients, six were performed in the