

Hirudotherapy (Medical Leech Therapy): Current Perspectives and Nursing Care

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ABSTRACT

Hirudotherapy (Medicinal Leech Therapy) is known as one of the traditional treatment methods. The Food and Drug Administration's classification of medicinal leeches as "medical devices" in 2004 strengthened their place in modern healthcare systems and increased their prevalence. Hirudotherapy possesses anticoagulant, analgesic, and anti-inflammatory effects. Studies in the literature show that it provides symptomatic improvement in conditions such as osteoarthritis, chronic venous insufficiency, and migraine. From a nursing perspective, hirudotherapy involves significant responsibilities in terms of patient safety and management of care processes. Nurses must assess the patient's contraindications before the procedure, ensure aseptic conditions during the procedure, and closely monitor bleeding control and signs of infection afterward. While the clinical use of leech therapy is becoming increasingly common, the limited number of studies in the literature is noteworthy. This indicates the need for more scientific research on the effectiveness and safety of the application. A multidisciplinary approach and increased scientific evidence are important in the treatment. This review study was conducted to explain hirudotherapy in light of scientific and current data, and especially to draw attention to the role, responsibilities, and care approaches of nurses in this practice.

Keywords: Hirudotherapy, Nursing approach, Complementary therapy

1. INTRODUCTION

Hirudotherapy is considered a treatment method that utilizes the therapeutic properties of leeches. Today, leech therapy (hirudotherapy) is a method that is particularly included in complementary and alternative medicine practices worldwide, but is also accepted in modern medicine with certain indications (Alemi et al., 2022; Marsden & Ng, 2014). The first evidence regarding hirudotherapy comes from written sources in Egypt dating back to 1500 BC (Hosseini et al., 2024; Singh, 2010). Leech therapy is mentioned in Sanskrit inscriptions from the 1300s BC (Gödekmerdan et al., 2021). Hippocrates, inspired by the ancient Egyptians, Mesopotamians, Aztecs, and Mayans, developed leech therapy in Greece (Ayhan & Mollahaliloğlu, 2018). Kolofonlu Nicander (200 BC) is known to be the first physician to use leeches for therapeutic purposes. Furthermore, in the literature... It is stated that leech therapy was also used by the Roman philosopher Galen (Lui & Barkley, 2015; Ayhan & Mollahaliloğlu, 2018).

This form of treatment was also

mentioned by Ibn Sina (Avicenna) in his work 'Al-Qanun fi't-Tibb' around 1020 AD.¹ The use of leeches for therapeutic purposes was described by Linnaeus in 1758 by *Hirudo medicinalis*. It was first named as such. Leeches were used extensively in Europe in the 1800s (Parlakpınar & Polat, 2021; Sağlam et al., 2016). Leech therapy peaked in the early 19th century, especially in France and Russia, with reports indicating that more than 130 million leeches were used annually (Sağlam et al., 2016; Singh, 2010; Ayhan & Mollahaliloğlu, 2018). In Europe, hirudotherapy is more widely used in clinical practice in countries such as Germany and Russia (Parlakpınar & Polat, 2021; Jadidi et al., 2023). Hirudotherapy is most commonly used in plastic and reconstructive surgery, particularly in tissue flaps. venous It is used to relieve congestion (Bahman & Tansaz, 2019; Ayhan and Mollahaliloğlu, 2018).

2. GENERAL SITUATION IN THE WORLD AND IN TURKEY

Hirudotherapy is a method used worldwide, particularly within complementary

and alternative medicine practices, but also accepted in modern medicine with specific indications (Pourrahimi, 2020; Houschyar et al., 2015). Hirudotherapy is widely used in plastic and reconstructive surgery, especially in tissue flaps. It is used to relieve venous congestion (Jadidi et al., 2023; Ayhan and Mollahaliloğlu, 2018). The therapeutic effect of leeches stems from the bioactive substances they secrete, primarily hirudin, which have anticoagulant, analgesic, and anti-inflammatory properties (Kalaycı et al., 2021; Wollina et al., 2016). Thanks to these substances, local circulation is increased, edema is reduced, and tissue healing is supported. Studies in the literature show that they provide symptomatic improvement in conditions such as osteoarthritis, chronic venous insufficiency, and migraine (Lui & Barkley, 2015; Pourrahimi, 2020; Ansari et al., 2019). However, systematic reviews on a global scale highlight that the evidence regarding efficacy is heterogeneous and that more robust randomized controlled trials are needed. In this process of leech farming, climate factors, such as solar radiation and wind (Mammadova^{1,2}, 2012), should especially be taken into consideration.

In Turkey, leech (Mammadova et al., 2025) therapy (hirudotherapy) is a long-standing treatment method considered within the scope of traditional and complementary medicine practices. This method was legally established with the "Regulation on Traditional and Complementary Medicine Practices" published in 2014 and has been applied within specific standards since then.

3. MECHANISM OF ACTION AND SIDE EFFECTS

Hirudotherapy exerts its therapeutic effect through bioactive substances with anticoagulant, anti-inflammatory and vasodilator effects secreted by medicinal leeches during blood sucking. Therefore, venous insufficiency, especially in rheumatic diseases, osteoarthritis, and venous complications developing after plastic surgery (Ayhan & Mollahaliloğlu, 2018). It is used as supportive treatment in conditions such as congestion (Çiftci, 2021; Sunil et al., 2015; Singh & Rajoria, 2020).

Side effects of leech therapy are mostly mild and temporary. The most common complications are local allergic reactions such as redness, itching, edema, and bruising at the application site (Kalaycı et al., 2021;

Pourrahimi, 2020; Marsden & Ng, 2014; Gödekmerdan & Kalaycı, 2021). In addition, rarely, prolonged bleeding and infection (especially *Aeromonas*) may occur. Systemic effects such as hypotension and lymphadenopathy can also be observed (Parlakpınar & Polat, 2021; Wollina et al., 2016). Therefore, prophylactic antibiotic use is recommended in many countries (Kalaycı et al., 2021; Pourrahimi, 2020; Ansari et al., 2019).

4. Responsibilities of Nurses

From a nursing perspective, hirudotherapy involves significant responsibilities in terms of patient safety and the management of care processes. Nurses should adopt an approach that forms the basis of nursing care both before and after the application. In this context, the patient's contraindications should be evaluated; aseptic conditions must be ensured during the procedure; bleeding should be monitored after the procedure; you should closely monitor for signs of infection; patient education should be provided; post-procedure wound care and monitoring should be performed; early diagnosis of complications; and psychological support

5. CONCLUSION

While the clinical use of leech therapy is becoming increasingly common, the limited number of studies in the literature is noteworthy. This indicates the need for more randomized controlled trials regarding the effectiveness and safety of the practice. However, it is generally considered a safe method when applied with appropriate patient selection and under sterile conditions. Nevertheless, systematic reviews conducted on a global scale highlight that the evidence regarding effectiveness is heterogeneous and that more robust randomized controlled trials are needed. Hirudotherapy is accepted in certain clinical areas worldwide, standardization of the practice and an increase in the level of scientific evidence are needed. Consequently, leech therapy is a complementary treatment method requiring a multidisciplinary approach, but with increased scientific evidence. Therefore, it is crucial that the application is performed by trained healthcare professionals. Nurses have significant responsibilities in ensuring safe and effective care during this process.

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