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# Blood transfusions in palliative care: a method to improve quality of life or a double-edged sword? A mini-review

## Abstract

Blood transfusions are uncommon in the palliative care setting. There are no guidelines to make decisions about blood transfusions in palliative care. Certainly, these decisions cannot be made based on the haemoglobin level only. Occasionally the issue of blood transfusion is being discussed with the family. Instead of being a bridge to recovery and self-sufficiency of the bone marrow, like in non-palliative medicine, blood transfusions are appreciated as buying some quality time for the patient. However, this issue is questionable in light of available data and experience. Blood transfusion can boost the patient's energy for days or a week, but it can also have more adverse effects including re-bleeding and unexplained death. Controlled data on this subject are absent. In the discussions on blood transfusions with the patients and their families these aspects should not be forgotten. Blood transfusions remain, not without reason a rare but possible procedure in palliative care.

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## Introduction

Transfusion of blood components is a common procedure in many hospital wards. However, the same is not so obvious in palliative care. In palliative care settings, it is used, sometimes, to alleviate bothersome symptoms of anaemia like fatigue and shortness of breath but sometimes also in patients who are actively bleeding to increase haemoglobin (Hb) concentrations and provide respite for a while. Blood transfusion is

usually a “bridging treatment” used until the bone marrow restores the production of new blood cells. In palliative care, the effects of blood transfusions are usually short-lived and should be used with caution. The value of blood transfusion in the end-of-life care population has not been thoroughly studied, and there is a lack of high-quality evidence demonstrating its benefits and guidelines to optimize this therapy [1]. Moreover, for ethical reasons, it is almost impossible to study the value of blood transfusions in this population.

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## The setting and the guidelines

Anaemia in end-of-life care is common and is estimated to be around 70% (77% of men, 68% of women) [2]. It has a multifactorial origin, which consists of chronic usually inflammation-associated diseases, poor consumption and/or increased metabolism and excretion of iron and vitamins in cachectic patients or bone marrow failure due to previous oncologic therapy. Anaemia-related symptoms of fatigue, weakness, and shortness of breath, which reduce the quality of life of palliative patients, may be an indication for blood transfusion [3]. A restrictive transfusion strategy is adopted when the Hb concentration falls below 70 g/L (4.3 mmol/L) until the Hb concentration is within 70–90 g/L (4.3–5.5 mmol/L). In the case of active bleeding, acute coronary syndrome or chronic anaemia, the threshold of 80 g/L (5.0 mmol/L) is recommended according to the guidelines of the National Institute for Health and Clinical Excellence (NICE 2015), the American Association of Blood Banks (AABB 2016) or the Polish National Blood Centre (NCK 2020) [4–6].

## Indications for blood transfusions in palliative care

One should not forget the fact, that in everyday medical practice situations are often ambiguous and patients are diverse in terms of the course of the disease, circumstances, wishes and demands. For this reason, the focus should primarily be on the patient's well-being and the diagnostic tests should be seen as an auxiliary and not the main tool to undertake decisions. One should treat the patients not numbers. It is also important to emphasize the fact that the decision on blood transfusions needs to be individualized and respect ethical principles of autonomy, beneficence, non-maleficence and justice.

## Palliative care practice

It should be noted that these national guidelines are created for the general patient population. Patients in the terminal stage of the disease, not uncommon with progressive cachexia, are a diverse group and an overly liberal approach to blood transfusions may be associated with a higher risk of adverse effects and the risk of reduced, instead of improved, quality of life in the final weeks. This latter is obviously in contradiction to the idea of palliative care. The studies on the benefits of blood transfusion in the palliative care population are limited. Neoh et al. in a prospective study conducted among 275 patients, aimed to

describe the practice of blood transfusion in UK adult hospices and compared palliative care practice to the National Institute for Health and Clinical Excellence (NICE) guidelines and concluded that the benefits of blood transfusion appear to be limited [7]. The improvement lasting 30 days was observed in 83 patients (18%). 142 (31%) patients had transient improvement (< 14 days) and 50 patients (11%) had no benefit at all. One-third of patients died after 30 days which is not unusual in the palliative care setting. Moreover, in another survey by the same group Neoh et al. aimed at finding out the attitudes of palliative care physicians toward the practice of blood transfusion and comparing them with NICE guidelines [8] The authors reported that attitudes toward blood transfusion among palliative care physicians varied, i.e., young resident doctors were more restrictive than specialist doctors [8].

In a retrospective study aimed to understand the practice of blood transfusion among patients with advanced disease in 8 Northern England hospices, Brown et al. revealed that the practice is not common (1 in 20 admitted patients receive a transfusion) and half of the in-patients died within 5 weeks [9]. A slightly longer survival was found in ambulatory patients, which was probably associated with better health status. Interestingly, a detailed analysis showed that physical performance did not improve after the transfusion based on an objective assessment of daily life activities. The authors emphasize that the physical performance analysis included a subset of the entire sample and may not have been representative of all patients receiving a blood transfusion. Furthermore, Brown et al. [9] imply that the modified Barthel score used by them may have been too strict to determine slight improvement after the transfusion. However, one should not forget the high mortality rate of patients undergoing blood transfusions, which may be associated with unrecognized adverse effects of blood transfusion, especially if deaths occurred in the first week after the procedure [10].

## Adverse effects of blood transfusions

Bleeding is an important issue in the use of blood transfusions in palliative care, which in the population of patients at the end of life may be caused by cancer as well as by previous treatment including chemotherapy and radiotherapy and also occur as a result of coagulopathy. These complications should be treated with compression dressings, topical haemostatics, radiation therapy or endoscopic procedures [11]. Blood transfusions for these indications are usually not recommended. However, some authors point to

the probability of increased bleeding in palliative care patients after blood transfusions [12]. This phenomenon, observed at least once by one of the authors is not fully understood and the reasons for this should be sought in clot rupture after blood volume replenishment, elimination of hypotension or immunomodulatory effects [13]. Furthermore, one should not forget about the fact that red blood cells are suspended in saline with sodium citrate, which prevents blood clotting. Therefore, the administration of a large number of blood units (which is unusual in palliative care) can cause hypocalcaemia and increase bleeding [14]. There are no data on the frequency of these phenomena among patients in the last weeks of life. A retrospective study involving palliative patients who experienced bleeding and received a blood transfusion for this reason is necessary in the future. These studies should report any adverse effects (including re-bleeding) as well as unexpected deaths.

## Conclusions

Blood transfusions in palliative care may have benefits in reducing the symptoms of anaemia, but like any medical procedure, transfusions may be associated with adverse effects and reduced quality of life [15]. The lack of guidelines that would allow the selection of patients who could achieve benefit from this procedure is undoubtedly related to the lack and inability to perform randomized clinical trials comparing the effectiveness in patients with advanced diseases. The decision to transfuse blood is undoubtedly very tough and should be taken carefully. There are situations when the family insists on a blood transfusion. This article may help to weigh the arguments and achieve consensus between the family and the palliative care team.

## Article information and declarations

### Author contributions

MB wrote the scientific essay and did all the literature research under the supervision of Prof. ZŻ. The Polish text was then translated and edited under the supervision of Prof. ZŻ.

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