

Nursing practices related to pain assessment and management during haemodialysis sessions: a national study

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ABSTRACT

Introduction: Proper assessment and management of pain impact the well-being of patients undergoing hemodialysis.

Objective: To analyze the management of pain by nursing professionals nationally during hemodialysis.

Methodology: After obtaining informed consent, a national cross-sectional descriptive study was conducted in March-April 2023 using an online questionnaire addressed to hemodialysis nurses. Sociodemographic variables, type of healthcare center, work experience, pain assessment procedures, analgesia administration during hemodialysis, self-assessment of knowledge, and demand for training were collected. Descriptive and bivariate analyses (Chi-square test, Student's t-test, Mann-Whitney U test) were performed, with a significance level 0.05.

Results: There were 241 participants from 17 autonomous communities, 77.6% women, with a mean age of 43.70±9.99 years. 42.7% considered the pain management approach inadequate; 80% did not use specific protocols, and 95.9% believed they would be helpful. 66% rated their knowledge of pain management as "None/Low." Only one administered the analgesic pre-filter. 96.7% considered it worthwhile to receive specific training. We found a statistically significant relationship between "frequency of pain assessment" and "adequate pain management" ($p<0.001$) and between "administration of post-filter analgesics" and "existence

of pain management protocols" ($p=0.002$). Professionals with <5 years of experience considered themselves to have lower levels of knowledge ($p=0.022$), while those with ≥ 5 years of experience considered specific training more useful ($p=0.048$).

Conclusion: Professionals perceive pain management during hemodialysis as inadequate, and they demand more training and the existence of specific protocols. Professionals with less than five years of experience reported lower levels of knowledge, whereas those with more than five years of experience considered specific training more beneficial.

Keywords: pain; hemodialysis; analgesia; pain management; pain assessment.

RESUMEN

Prácticas enfermeras relacionadas con la evaluación y tratamiento del dolor durante la sesión de hemodiálisis: estudio nacional

Introducción: Una adecuada evaluación y manejo del dolor repercute en el bienestar de los pacientes en hemodiálisis.

Objetivo: Analizar el manejo del dolor por el profesional de enfermería durante la hemodiálisis a nivel nacional.

Metodología: Estudio descriptivo transversal nacional, realizado en marzo-abril 2023, mediante un cuestionario online dirigido a enfermeras de hemodiálisis, previo consentimiento informado.

Se recogen variables sociodemográficas, tipo de centro, experiencia laboral, procedimiento evaluación dolor y administración analgesia durante la hemodiálisis, autoevaluación conocimientos y demanda de acciones formativas.

Se realizó un análisis descriptivo y bivariado (test Chi2, T-Student, U-Mann Whitney), nivel de significancia 0,05.

Resultados: 241 participantes de 17 comunidades autónomas, 77,6% mujeres, edad media 43,70±9,99 años.

Un 42,7% consideraba inadecuado el abordaje del dolor; el 80% no utilizaba protocolos específicos y el 95,9% opinaba que sería útil tenerlos.

El 66% evaluaron sus conocimientos sobre el manejo del dolor como "Nada/Poco". Un administraba el analgésico prefiltrado. Un 96,7% consideraron útil recibir formación específica. Encontramos relación estadísticamente significativa entre "frecuencia evaluación dolor" y "adecuado manejo del mismo" ($p < 0,001$) y "administrar analgésicos postfiltro" y "existencia de protocolos de manejo dolor" ($p = 0,002$).

Los profesionales con <5 años de experiencia consideran tener peor nivel de conocimientos ($p = 0,022$), siendo aquellos con ≥ 5 años de experiencia quienes consideran útil recibir formación ($p = 0,048$).

Conclusión: Los profesionales valoran el manejo del dolor durante la hemodiálisis como inadecuado, demandan más formación y la existencia de protocolos específicos. Son los profesionales con menos de 5 años de experiencia quienes manifestaron tener peor nivel de conocimientos, sin embargo son aquellos con más de 5 años de experiencia los que consideraron más útil recibir formación específica.

Palabras clave: dolor; hemodiálisis; analgesia; manejo del dolor; evaluación del dolor.

INTRODUCTION

Pain is an unpleasant perception that interferes with patients' quality of life¹, and is considered one of the main health problems due to its significant social and economic impact²⁻⁴. The International Association for the Study of Pain (IASP) defines pain as "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage⁵."

Chronic noncancer pain is recognised as a public health problem, affecting 20%–35% of the global population, 19% of the European population, and 17% of the Spanish population⁶.

One of the main challenges in pain management is achieving adequate quantification of pain¹. In the hospital setting,

pain management and control are often insufficient, which negatively affects the quality of care perceived by the patient⁷. A comprehensive assessment of pain requires analysing both the pain reported by the patient and the effectiveness of the treatment administered, while also recording and evaluating any potential adverse effects¹.

In patients with kidney disease, numerous studies have shown that pain is the most frequent symptom. However, it is often not adequately managed, mainly because it is not properly identified, not assessed, or goes unnoticed by health care professionals^{2,8-12}.

Some authors advocate the use of analgesic ladders in the haemodialysis (HD) population and recommend the use of fixed regimens for chronic pain control, avoiding, as far as possible, the administration of analgesia on demand¹³. Nevertheless, in practice there are insufficient data on chronic pain management in HD^{10,13}, and a lack of robust scientific evidence to enable effective pain control¹²⁻¹³.

There is very little literature of good methodological quality addressing the characteristics of intradialytic pain. Studies are needed that separately analyse the pain experienced by patients during HD sessions and the chronic pain experienced outside them².

During HD sessions, nurses spend the most time in direct contact with patients, continuously assessing their status, including the presence or absence of pain, acting on and reporting any incidents, and, when necessary, administering analgesia during the session¹⁴.

In our setting, there is limited evidence regarding the knowledge and attitudes of nursing professionals toward pain management during HD. Although numerous studies have investigated pain in HD, most are single-centre studies addressing either pain at vascular access puncture or pain more generally. These typically focus on assessing the degree and type of pain and the analgesia used, but do not consider aspects such as nurses' perceptions, knowledge level, routine practices regarding analgesia administration, or the identification of patient needs by professionals.

Analysing nursing practice in pain management during HD sessions may help to understand the current situation, identify the needs recognised by these professionals, and determine potential areas for improvement.

The overall aim of this study was to evaluate variability in pain management practices by nursing professionals during HD sessions across different centres and Autonomous Communities in Spain.

The specific endpoints were to analyse nurses' self-perception of their knowledge regarding intradialytic pain management and to identify potential areas for improvement reported by professionals in relation to intradialytic pain management.

RESULTS

A total of 241 professionals from 17 Autonomous Communities responded to the questionnaire. Of these, 70.5% (n=170) worked in public centres and 29.5% (n=71) in private or contracted centres (**figure 1**). The mean age of respondents was 43.70 ± 9.99 years, with a mean of 14.49 ± 10.37 years of professional experience in haemodialysis (HD); 77.6% (n=187) were women.

A total of 70.1% (n=109) of respondents considered it frequent for patients to experience pain during HD sessions. Regarding the management of this pain, 42.7% (n=103) perceived that it was inadequately managed, compared with 56.4% (n=136) who considered it adequate; 0.8% (n=2) did not respond. Among the main reasons cited for inadequate pain management (n = 45 free-text responses): 42.3% (n = 19) noted a lack of sensitivity towards pain by unit staff (both physicians and nurses), leading to delayed and ineffective diagnosis and treatment, with placebo use reported in some cases; 22.3% (n=10) identified the absence of specific protocols; 17.7% (n=8) stated that validated pain scales were not used and assessment relied more on professional perception; and 17.7% (n=8) reported a lack of individualisation of analgesia regimens, with ineffective treatments prescribed, delaying adequate pain control.

Table 1 shows responses regarding pain assessment/reevaluation, documentation, and the existence/use of specific protocols. In most cases, pain was assessed only if reported by the patient; a validated scale was used in 13.7% (n=33) of cases. All respondents (100%, n=241) reported conducting some form of pain reevaluation. The most frequent method of documentation in the patient's medical record was a free-text note without a numerical score; 3.7% (n=9) indicated that they did not document pain at all.

Regarding protocols for pain management and intradialytic analgesia, 80% (n=193) reported that they either did not have protocols or were unaware of their existence. Of these, 138 worked in public centres and 56 in private/contracted centres. Relative to the total number of professionals by centre type, 81.1% of those in public centres and 78.8% of those in private/contracted centres reported no knowledge of or access to protocols.

When asked whether they considered protocols useful for HD pain management, 95.9% (n=231) responded affirmatively, compared with 3.7% (n=9) who did not; 0.4% (n=1) did not respond.

Table 1. Descriptive analysis of the responses to questions on pain assessment and recording, and the use of protocols.

Variables	Frequency	Percentage
Frequency of pain assessment in HD	241	100%
I never assess it	3	1.2%
Only if the patient reports pain	125	51.9%
Once in each HD session	25	10.4%
As often as necessary	88	36.5%
Pain assessment: procedure	241	100%
I ask the patient directly	41	17%
I observe signs and symptoms	10	4.1%
I observe signs and symptoms and ask directly	157	65.1%
I use a validated scale	33	13.7%
Pain recording	241	100%
I do not record it	9	3.7%
In a free-text comment	170	70.5%
By indicating the score obtained on the validated scale	19	7.9%
Free-text comment and score obtained on the validated scale	43	17.8%
Pain reassessment: procedure	241	100%
Do not reassess pain	0	0%
I ask the patient directly	71	29.5%
Yes, I observe signs and symptoms of pain	4	1.7%
Yes, I observe signs and symptoms and ask the patient	145	60.2%
Yes, I use the same validated scale I used previously	21	8.7%
Existence/use of specific protocols	241	100%
They do not exist or I am not aware of them	193	80%
They exist, but I do not know where to find them	4	1.7%
They exist, I know where to find them, but I have not consulted them	3	1.2%
They exist, I know where to find them, I have consulted them, but I do not follow the recommendations	4	1.7%
They exist, I know them and follow the recommendations	36	15%
No response	1	0.04%

The most widely used analgesic during HD sessions was paracetamol, followed by metamizole, with intravenous administration being the most frequent route (**figure 2**).

When asked about knowledge of whether the administered analgesic was dialysable, 56.0% (n=135) did not know if ketorolac is dialysed, 49.4% (n=119) for morphine, 42.7% (n=103) for tramadol, 32.4% (n=78) for metamizole, and 22.8% (n=55) for paracetamol.

A total of 41% (n=99) reported usually administering intravenous analgesia during HD via the arterial line. **table 2** shows responses to this question and reasons for choosing one line over another.

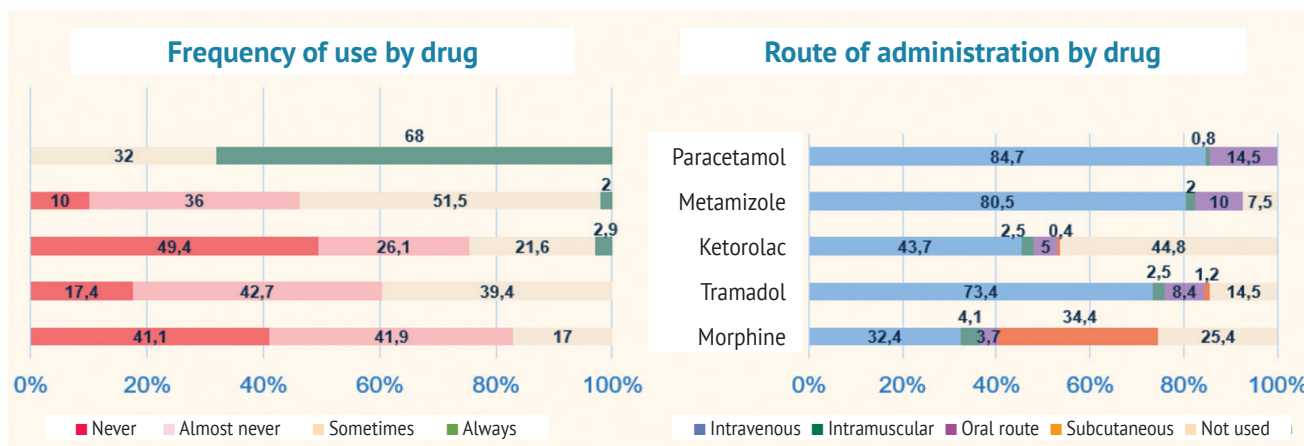


Figure 2. Frequency of use and route of administration according to the analgesic used.

Most respondents (65.5%, n=158) rated their knowledge of pain management in HD as “poor.” Nearly all (96.7%, n=233) considered specific training on these aspects useful (figure 3).

Bivariate analysis showed that greater frequency of pain assessment was associated with the perception of providing adequate pain management (p<0.001). A statistically significant association was also found between administration of analgesics via the venous line (postfilter) and the availability of protocols for pain management in the centre (p=0.002).

Professionals with ≤5 years of experience rated their knowledge level as poorer (p=0.022), whereas those with >5 years of experience were more likely to consider specific training useful (p=0.048).

Table 2. Descriptive analysis of the reasons why the drug is administered through the arterial or venous line of the haemodialysis circuit.

Reasons for administration via this line	Line through which intravenous analgesia is administered	
	Arterial line pre-filter n=99 (41%)	Venous line post-filtre n=142 (59%)
According to my centre’s protocol	11	40
Usual practice in my centre, although not protocolised	67	38
Because the rest of my colleagues do it this way	1	2
I consider the selected line to be the most effective	7	61
It makes no difference; both lines are equally effective	2	1
In my centre we do not have the material to administer it through the other line	11	0

DISCUSSION

This study analyses the perception of pain management during HD sessions from the perspective of nurses at the national level. To our knowledge, no prior publications have specifically addressed this issue within this field.

Pain is a frequent symptom among patients during HD sessions¹⁵⁻¹⁶, findings consistent with the perceptions of most professionals participating in this study. Nevertheless, nearly one-third of respondents did not consider pain to be a frequent problem.

Pain management during HD sessions was considered inadequate by 42% of the professionals, who identified lack of awareness of pain among healthcare staff as one of the main causes. Feldman et al. highlighted that some professionals do not feel responsible for addressing signs or symptoms not directly related to kidney disease or dialysis, which negatively affects analgesic management¹⁷. Pain must be understood as a multidimensional problem requiring an approach that transcends traditional professional divisions¹⁸⁻¹⁹. It is intrinsically linked to a specific social situation and will continue to exist and reproduce as long as it is regarded as the most human and natural of emotions¹⁹. According to García Espinosa et al., adopting a new perspective that recognises both individual and social experiences is essential in order to progress towards solutions to this problem¹⁸.

Patient attitudes may also hinder adequate diagnosis and pain control. At times, patients are satisfied with only moderate relief, do not request additional analgesia, or even refuse it for fear of adverse effects²⁰. In our study, more than half of professionals reported assessing pain only when the patient verbalised it, which risks failing to identify those with unexpressed pain. Moreover, our results showed that professionals who assessed pain more frequently perceived pain management to be better.

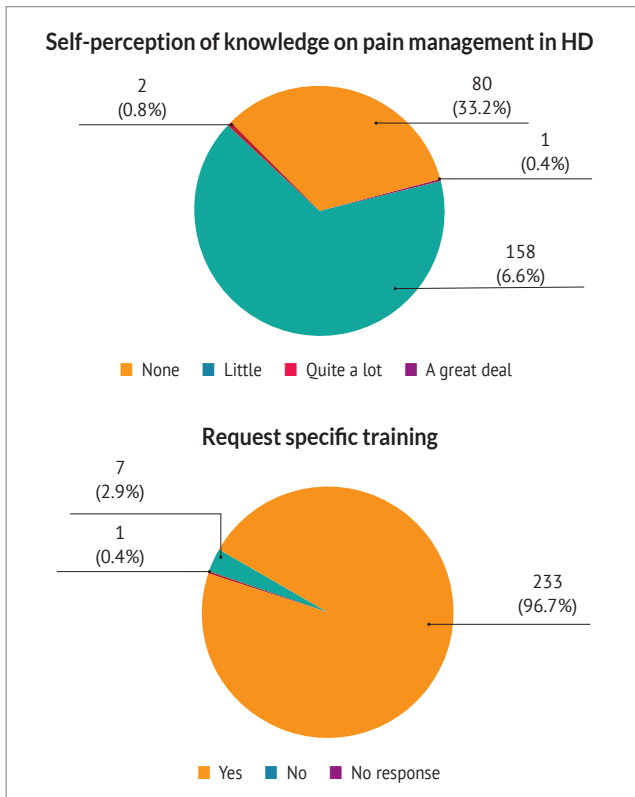


Figure 3. Perception of knowledge level and need for specific training in pain management during haemodialysis among nephrology nurses.

Nephrology nurses are accustomed to providing highly specialised care, for which protocolisation is essential¹⁴. The development of care protocols requires identifying the best evidence, expanding knowledge, supporting professional updates, and promoting scientific research²¹. Nearly all participants considered protocols for pain management useful; however, 80% reported either not having them in their units or being unaware of their existence. Professionals also identified lack of protocols as one of the reasons for inadequate pain management.

The detection and management of pain in patients receiving HD is complex. Therefore, it is necessary to explore patients' own perceptions of their pain experiences, and to implement mechanisms for early assessment and identification²². Pain has been described as the fifth vital sign⁷⁻²³, and, as such, must be assessed periodically. Quantifying pain intensity using validated scales is essential for its detection, treatment, and follow-up²⁴. Our findings indicate that more than 85% of professionals evaluate pain by observing signs and symptoms and/or asking the patient directly, but they do not use validated scales. Consequently, documentation of pain is often in free-text format, without objective scoring, limiting the capacity to track information or analyse its evolution.

There is also wide variability in clinical practice concerning intradialysis analgesic administration. Sánchez-Ospina et al.²⁵

observed that most analgesics (80%) were administered via the arterial line or pre-filter, whereas in our results this figure was much lower (41%). Furthermore, many professionals were unaware of which analgesics are dialysable during HD. In our study, a statistically significant association was observed between the availability of pain management protocols and the use of the venous line for analgesic administration. Administration via the arterial line or pre-filter may result in lower serum drug levels, depending on the type of HD used and the drug's molecular weight, among other factors²⁵. As previously emphasised, consensus documents on drug administration in relation to haemodialysis are needed from the Scientific Societies²⁵.

Many health care professionals do not feel adequately prepared to manage pain²⁶, making education and training one of the main strategies for improvement^{10,23,24}. Almost all professionals in our study considered specific training in pain management during HD to be useful, with a significant proportion recognising deficits in their knowledge.

As Davidson et al.²⁶ underline, current data provide a strong imperative to establish pain management as an educational, clinical, and research priority in nephrology. It is necessary to integrate strategies that enable continuous pain management, involving professionals in their routine practice, and identifying areas of knowledge development to improve the quality of life of patients receiving HD²⁷.

This study has the inherent limitations of its methodology. Although the sociodemographic characteristics of the participants are representative of the Spanish nursing population according to data from the National Statistics Institute (INE 2022)²⁸, there was no equitable representation across centres or autonomous communities. Additionally, a social desirability bias may have influenced responses, as professionals were asked about aspects of their own daily clinical practice. Nevertheless, the findings provide valuable insights as a starting point to contextualise the current situation.

Based on these results, we can conclude that Spanish nephrology nurses perceive pain management during HD sessions as an area in need of improvement. They identified variability in clinical practice regarding analgesic administration and expressed the need for specific training and the establishment of protocols for pain management. Professionals with fewer than 5 years of experience reported lower knowledge levels, whereas those with more than 5 years of experience considered specific training to be particularly useful.

It would be desirable for institutions and scientific societies to respond to this situation by developing specific training programmes and consensus documents/protocols to achieve better pain control in HD patients, thereby contributing to an improvement in their quality of life.

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Conflicts of interest

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