Article review

Waiting times for hip arthroplasty: a 10 years-long review

Tiempos de espera para la artroplastia de cadera: una revisión de 10 años

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ABSTRACT

Introduction: Waiting times for elective surgery are indicators for health services quality due to their effect on health, patient satisfaction and the perceived quality of health-care.

Objective: The aim of the study was to do a narrative review of the literature about the waiting times for hip arthroplasty, a frequently done and highly successful surgical intervention.

Methods: In February-March 2025 a narrative review was performed using the electronic database PubMed and, after the analysis of the titles, abstracts and full texts 10 manuscripts were identified as eligible for the review. The articles have been published between 2016 and 2024; the studies have been conducted from 1998 to 2020; they involved a minimum of 79 to a maximum of 190103 participants. Studies have been conducted in United Kingdom (UK), Canada,Austria, Netherlands, Denmark, South Africa, Slovenia.

Conclusions: The review showed a progressive increase of waiting times for hip arthroplasty (with a peak due to COVID-19 pandemic) and showed that a longer waiting time is associated with a poorer quality of life.

Keywords: hip arthroplasty; hip replacement; waiting time; review.

RESUMEN

Introducción: Los tiempos de espera para cirugía electiva constituyen un indicador clave de calidad en sistemas sanitarios, que influye directamente en los resultados clínicos, satisfacción de los pacientes y percepción de la efectividad institucional. Este fenómeno reviste especial relevancia en procedimientos de alta demanda como la artroplastia total de cadera (ATC).

Objetivo: Realizar una revisión narrativa de la evidencia disponible sobre los tiempos de espera preoperatorios en ATC, analizando su variabilidad temporal, impacto clínico y factores determinantes.

Métodos: Se ejecutó una búsqueda sistemática en PubMed (febrero-marzo 2025) siguiendo metodología PRISMA para revisiones narrativas. Tras screening de títulos/abstracts y evaluación de textos completos, se seleccionaron 10 estudios que cumplían con los criterios de elegibilidad. La muestra incluyó investigaciones publicadas entre 2016-2024 (período de ejecución 1998-2020), con cohortes desde 79 hasta 190.103 participantes, procedentes de siete sistemas sanitarios: Reino Unido, Canadá, Austria, Países Bajos, Dinamarca, Sudáfrica y Eslovenia.

Conclusiones: Nuestra revisión mostró un aumento progresivo de los tiempos de espera para la artroplastia de cadera, con un pico debido a la pandemia de covid-19; y mostró muestra correlación directa entre demoras prolongadas con peor calidad de vida.

Palabras clave: artroplastia de cadera; reemplazo de cadera; tiempo de espera; revisión.

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Introduction

Total hip replacement (THA) is a frequently done and highly successful surgical intervention. The procedure is undertaken to relieve pain and improve function in individuals with advanced arthritis of the hip joint[1] and leads to substantial improvements in the generic health-related quality of life (HRQoL).[2,3] More than 1 million arthroplasties are done every year worldwide, and this number is projected to double within the next two decades. Symptomatic osteoarthritis is the indication for surgery in more than 90 % of patients, and its incidence is increasing because of an ageing population and the obesity epidemic.[4]

Waiting time has been defined as "*the total time that a patient spends in a facility from arrival at the registration desk until the time she/he leaves the facility or last service*". More specifically it is the length of time between enrolling a patient on a waiting list and the period that a patient takes at each point of service before being treated.[5] Commonly, system-level monitoring of waiting time focuses on the time patients wait at home for an initial health care provider appointment,[6] time to diagnosis,[7] or for an elective procedure.

Waiting times for elective surgery are a frequently included key performance indicator for health services, often reported to the public and keenly profiled by media.[6] Increasing waiting times for elective surgery is a major concern for policymakers and healthcare staff in many countries, due to its effect on health, patient satisfaction and the perceived quality of health-care.[8] So the aim of the study was to do a narrative review of the literature about the waiting times for hip arthroplasty in order to have an overview of this topic and analyze factors that could influence these times.

Methods

In February-March 2025 a search for original peer-reviewed papers was performed in the electronic database PubMed (Medline). The key search terms were “hip arthroplasty AND waiting times”, “hip arthroplasty AND waiting list”, “hip replacement AND waiting times”, “hip replacement AND waiting list”. The inclusion criteria that were chosen for our narrative review were: type of article (original articles, but also letters to the editor or short communications if containing original data); date of publication between 2015 and 2025; language (italian, english or french); availability of essential information (country, study period, source of the data/study design, number of participants, waiting times).

Other interesting data have also been collected. Studies were selected in a 2-stage process. First the titles and the abstracts from electronic searches were analyzed. Finally the full manuscripts to select the eligible manuscripts according to the inclusion criteria were collected and read.

Results

The literature search yielded 1056 publications. The titles and the abstracts of these manuscripts were screened, resulting in 26 studies considered potentially eligible for full text analysis (798 were duplicate, 3 were review, 131 were published before 2015, 90 were not in line with the aim of the study, 8 were in other languages-5 Chinese, 3 German). Finally, after the analysis of the full texts 10 manuscripts were identified as eligible for the review (16 excluded because not in line with the aim of the study)[9,10,11,12,13,14,15,16,17,18] (fig.).

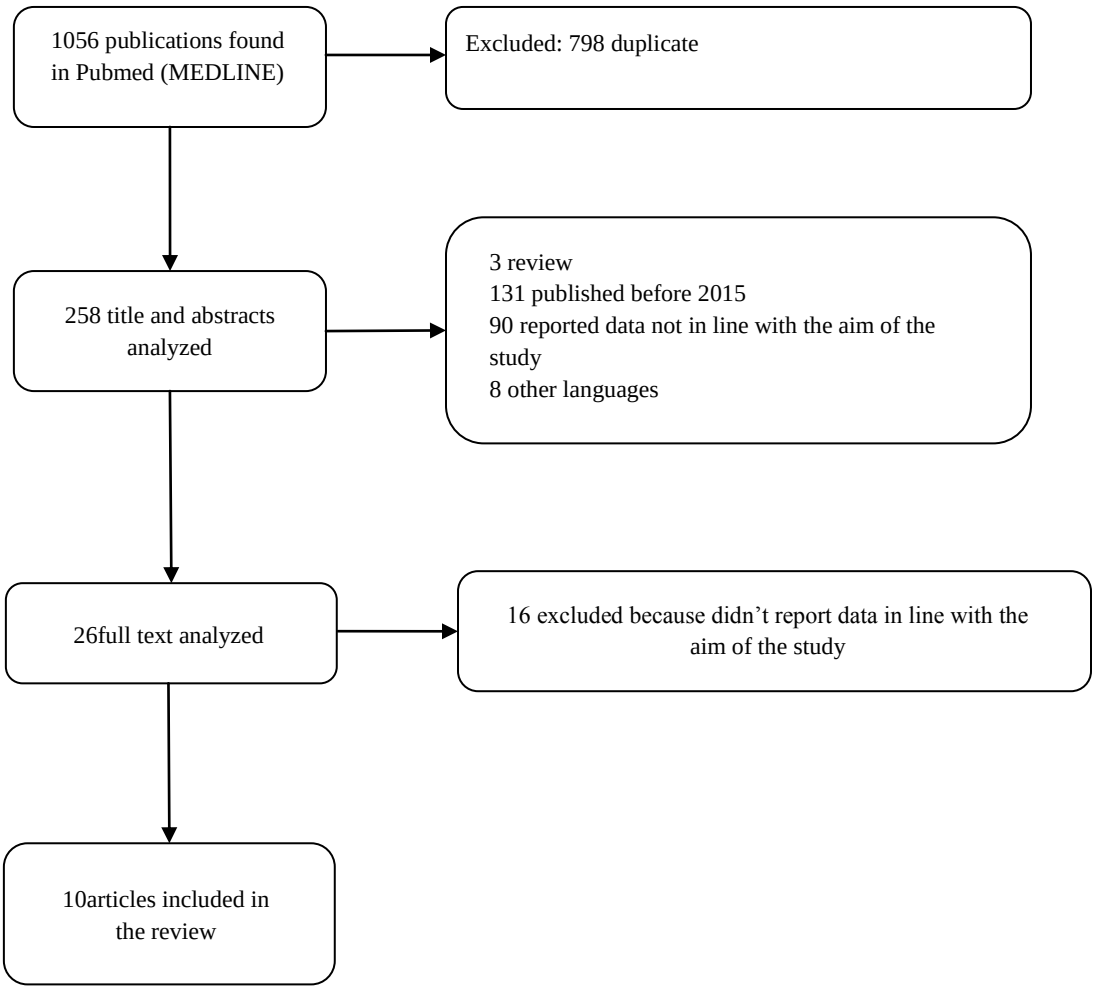

Fig. - Flow diagram for identifying studies included in the non-systematic (narrative) review.

The articles have been published between 2016 and 2024; the studies have been conducted from 1998 to 2020; they involved a minimum of 79 to a maximum of 190103 participants. Studies have been conducted in United Kingdom (UK), Canada, Austria, Netherlands, Denmark, South Africa, Slovenia. The principal results of the review are shown in table.

Table – Selected characteristics of the studies included in the review

Author	Country	Study period	Study Design	Participants	Age	Waiting time	Other findings

Jabbal, 2024	UK	1998-2021	Data held in the Scottish Arthroplasty Project (SAP)	4224 in 1998 8018 in 2019 4070 in 2020	n/r	159.5 days in 1998 220.8 days in 2002 78.8 days In 2013 144.3 days in 2019 283.7 days in 2021	The incidence of total hip arthroplasty grew steadily from 1998 to a maximum of 147.2 per 100,000 in 2015. This then plateaued until 2020. The minimum incidence was in 2021, with 35.3 procedure performed per 100,000 population.
Jager, 2024	Canada	2013-2019	Cross-sectional analysis using the Wait Times Information System (WTIS) database	70814 (54.1 % female)	66.93 (SD 11.2)	108.47 days (SD 86.8, range 1-473)	Not relevant
Kraus, 2024	Austria	2019 (july-december)	Survey (Anonymous self compiled questionnaire)	196	n/r	8.9 weeks (IQR: 4.5-18)	Waiting times were found to be different by hospital type (private for profit hospitals had shorter waiting times), by insurance (patients with supplementary health insurance had shorter waiting times), by patients' perceived pain (patients with severe pain had shorter waiting times).
Latijnhouwers, 2022	Netherlands, Denmark	2014-2020	Population-based cohort study using the Dutch Arthroplasty Register and the	Netherlands: 33664 65.4 % female pre-COVID- 19 64.1 % during COVID-19 Denmark:	n/r	Average additional waiting times: 2.4 months in Netherlands, 1.1 months in Denmark*	Mean QALY loss of 0.049 (SD 0.031) in Netherlands and 0.024 (SD 0.014) in Denmark.

			Danish Hip and Knee Arthroplasty Register	10578 57.1 % female pre-COVID- 19 56.6% during COVID-19			
Levasic, 2022	Slovenia	2019 - 2020	Data extracted from The Health Insurance Institute of Slovenia	6322 (54 % female in 2019, 55 % in 2020)	2019: Male 66.64 (SD 10.26) Female 69.18 (SD 10.24) 2020: Male 66.14 (SD 10.87) Female 69.71 (SD 10.50)	Median 393 days in 2019 Median 472 days in 2020	Surgery volumes decreased by 84 % in April 2020, increased by 99 % in august 2020, and then dropped again by 86 % in November 2020.
Thu Vo, 2022	Canada	2011 - 2019	Database used: Orthopedic Central Intake (OCI), Total Joint Assessment Center (TJAC)	808	55.07 % were older than 65 years	Median 269 days (priority 1) Median 315 days (priority 2) Median 476 days (priority 3)	Patients in priority 1 and 2 were more likely to have consultations booked earlier than those in priority 3.
Pietrzak, 2021	South Africa	2020 (20 june - 10 july)	Prospective cross-sectional telephonic interviews	79 (65.95 % female)	50.28 (SD 8.9)	28.29 mo (SD 34.87, range 3-264 mo)	Patients awaiting for more than 3 years were 4.3 fold more likely to want surgery compared to those awaiting surgery for less than 1 years Increased joint pain experienced by 55.49 % patients

							since the postponement of their arthroplasty. 61,75 % patients experienced anxiety about getting infected with COVID-19. 87,57 % patients accepted the reasoning behind the delay of elective surgery in response to the COVID-19 pandemic.
Seddigh, 2021	Canada	2011-2017	Databases used include Patient Access Registry Nova Scotia (PARNS), the Canadian Inpatient hospital Discharge Access database (DAD), and National Ambulatory Care Reporting System	6627 (55 % female)	66 (range 13 - 99)	267 days (range 1-2015) and 95th percentile waited 742 days	Waiting times increased from 247 days in 2011 to 299 in 2017. Mean length of stay decreased from 4.9 days in 2011 to 3.3 days in 2017. No significant difference in length of stay for patients waiting longer than 180 days.
Gutacker, 2016	UK	2009-2014	Administrative data linked with data from a national patient-reported outcome measures	190103	67.7 (SD 11.3)	81.7 days (SD 50.5)	There were substantial differences in waiting time across hospitals (mean waiting time was 46.2 days in private hospitals, and 89.8 in public hospitals).
Nikolova, 2016	UK	2009-	PROM	29303	68.40	78 days	Older patients

		2010 (1 april 2009 - 1 novem ber 2010)	data linked to Hospital Episode Statistics database	(Female 60 %)	(SD 10.90)		waited longer for hip replacement surgery Patients without disabilities waited longer Additional weeks of waiting reduced EQ-VAS, EQ-5D and Oxford Hip Scores for hip replacement patients by 0.06 %, 0.05 % and 0.01 % respectively

Nota: *according to what reported in the report OECD Health Policy Studies Waiting Times for Health Services https://doi.org/10.1787/242e3c8c-en the average waiting time in both the countries is about 50 days the period 2008-2018.

Leyenda: IQR = interquartile range; n/r = not reported or not inferable from the article; SD = standard deviation.

Discussion

Primary total hip arthroplasty (THA) constitutes the standard of care for treatment of end-stage hip osteoarthritis and provides pain relief and improved joint function.[19] It is predicted that demand and volume of this procedure will increase in coming years due to higher demand for improved mobility and quality of life in an aging population.[20]

In normal circumstances, waiting times and waiting lists generally arise as the result of an imbalance between the demand for and the supply of health services. This can be for a consultation with a general practitioner or a specialist, or getting a diagnostic test or surgical or other elective treatments. Although some waiting times can improve the efficiency in the utilisation of resources by reducing idle capacity, when waiting times become long (e.g. above two or three months for elective treatments) more resources will need to be devoted by providers to manage waiting lists and prioritise patients and patient dissatisfaction will increase.[21]

The narrative review that has been performed confirmed a progressive increase in waiting time for hip arthroplasty, with a peak due to COVID-19 pandemic. Waiting times for elective (non-urgent) treatment, which is usually the longest wait, have stalled over the past decade in many countries, and started to rise again in some others even before the COVID-19 outbreak.[21]

The COVID-19 pandemic has exerted substantial pressure on healthcare services. Although the disease has mainly directly affected the acute emergency setting, the resulting reduction in hospital resources has constrained the capacity available for elective treatments. To manage the first wave of COVID-19 cases, many countries postponed all non urgent procedures in public hospitals.[22,23] For example in UK, during the first 32 months of the pandemic, the waiting list increased by 2.6 million to 7.2 million by end of October, 2022.[24] The narrative review highlighted that longer waiting times negatively influenced the quality of life. For patients, waiting time associates with worse health outcomes and can result in loss of independence, social isolation, and depression.[23]

This phenomenon is largely described in literature for surgical and non surgical procedures. For example a study conducted at the University of Ottawa Eye Institute concluded that patients who waited more than 6 months to undergo cataract surgery experienced more vision loss, a reduced quality of life and increased rate of falls compared with patients who had wait times of less than 6 weeks.[25] Some authors observed that a longer waiting time reduces health-related quality for knee replacement;[18] among patient suffering from psychosis longer waiting time is significantly associated with a deterioration in patient outcomes.[26]

The narrative review evidenced a positive element: waiting times tend to be shorter for patients who experienced severe pain or disability. Pain is one (not the only) important factor determining quality of life (QOL) and clinically relevant improvements in pain may lead to changes in disability and QOL.[27,28] Moreover, people with disabilities are less likely to access health services than those without disabilities, have greater health needs, and are more likely to have worse outcomes and lower life expectancy.[29]

Some articles of the narrative review showed that waiting times tend to be shorter for patients treated in private for profit hospitals and for patients with supplementary health insurance. Socio-economic inequalities in waiting times for care have been observed in several countries:[30] Landi et al[31] reported that individuals with lower education and economic resources had a higher risk of experiencing excessive waiting times for diagnostic and specialist visits. For elective surgery, socioeconomic inequalities were present but appeared to be lower.

Some limitations should be considered: first of all, the review was not systematic, but it could be considered a narrative review conducted on a single database. Another weakness is the not-total comparability of some data: for example the quality of life has been measured using different scales. Finally, some information result to be fragmented: there is lack of information in some years so the temporal trend result to be incomplete; and seven countries are not enough representative of the worldwide situation.

Conclusions

The narrative review showed a progressive increase of waiting times for hip arthroplasty (with a peak due to COVID-19 pandemic) and showed that a longer waiting time is associated with a poorer quality of life. Long waiting times are usually the result of an imbalance between the demand for and the supply of health services and tend to generate dissatisfaction for patients because the pain and discomfort remain while people wait.

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Conflict of interest

The authors declare that there is no conflict of interest.