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ORIGINAL ARTICLE

Hip precautions after primary total hip arthroplasty: a qualitative exploration of clinical reasoning

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ABSTRACT

Purpose: Hip precautions are movement restrictions that are often advised following primary total hip arthroplasty (PTHA) for osteoarthritis (OA), but there is limited evidence supporting their effectiveness in preventing dislocation. This study aimed to explore the clinical reasoning behind the continuation and discontinuation of hip precautions following PTHA for OA.

Materials and methods: Semi-structured interviews were conducted with therapists and surgeons at six centres using precautions and six centres not using precautions across secondary or tertiary NHS sites in England. Interviews were transcribed verbatim and thematically analysed.

Results: Interviews were conducted with fourteen surgeons and eighteen therapists. Of these clinicians, eight surgeons and ten therapists routinely advised precautions. Clinicians continued to use precautions to avoid dislocation by creating a boundary to movement, particularly important when dealing with patients who "push" these boundaries. Clinicians discontinued precautions because of a perceived negative impact on patients and the lack of supporting evidence. In the absence of a rise in dislocation rates for these centres, others have now changed practice.

Conclusion: This study offers insight into the clinical reasoning behind the continuation and discontinuation of hip precautions following PTHA for OA. The use of precautions remains controversial and further work is required to determine whether or not they should be advised.

➤ IMPLICATIONS FOR REHABILITATION

- Redesign of future rehabilitation pathways for primary total hip arthroplasty should take into account viewpoints from across the multidisciplinary team to aid decision making.
- Concern for patient behaviours, dislocation and litigation may be barriers to changing practice for rehabilitation after primary total hip arthroplasty.
- Clinicians may be discontinuing hip precautions because of known surgical advances, a perceived negative impact on patients and a lack of supporting evidence for historical practice.
- Individualised rehabilitation considerations are necessary for patients with risk factors that predispose them to dislocation after primary total hip arthroplasty, regardless of whether hip precautions are advised as standard at their given centre.

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Hip dislocation; occupational therapy; orthopaedic surgery; physical therapy modalities; rehabilitation; total hip replacement

Introduction

In 2018, the National Joint Registry reported that 92,874 patients underwent primary total hip arthroplasty (PTHA), with osteoarthritis (OA) the main indication for 89% of these procedures [1]. The posterior surgical approach [2] accounts for 75% of all PTHA [1] with the remaining surgeries being taken up by anterior [3] and lateral approaches [4]. Each approach disrupts different musculature, with differing advantages and disadvantages. The posterior approach allows for excellent visualisation with a low femoral fracture risk; however, it requires detachment of the short external rotators with a posterior capsulectomy, theoretically increasing the risk of dislocation [5]. The anterior approach minimises disruption of musculature, but involves poor exposure of the femur, which may lead to femoral shaft fractures or component malpositioning [5]. The lateral approach improves femoral exposure and theoretically lowers the dislocation risk, but gluteal tendon splitting can adversely affect gait pattern [5].

The incidence of hip dislocation after arthroplasty varies from 0.2% to 10% [6]. Dislocation can lead to avascular necrosis of the femoral head, arthritis, ankylosis and nerve injury [7,8]. Surgical techniques have advanced over the years in an attempt to improve hip stability. Surgical improvements include soft tissue repair, which have reduced dislocation rates from 4% to 1% [9], optimisation of prostheses orientation [10] and increased femoral head sizes [11–13]. These advances in surgical techniques have led to improved stability following PTHA using the posterior approach. Anecdotally, it is thought that applying "hip precautions" may reduce the risk of dislocation, which include avoiding activities that cause the hip joint to be flexed over 90°, adducted or internally rotated [14]. Precautions are often advised by surgeons for six to twelve weeks [15].

Practice involving precautions has been changing nationally. To our knowledge, six centres in the UK have discontinued these following PTHA, citing advances in surgical techniques as the rationale for changing practice [11–13]. Studies exploring the role

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Supplemental data for this article can be accessed here.

of hip precautions after the anterior surgical approach [6] have suggested that discontinuing standard hip precautions yields a faster return to function and increased patient satisfaction without affecting dislocation rates [16]. Studies focusing on the posterior approach have either not been controlled trials or had insufficient statistical power to apply their findings to wider clinical practice [17,18]. A recent review of practice illustrated variation in assistive equipment provision and the duration of precaution application [19]. Whilst the survey discussed precautions, it did not address the underpinning clinical reasoning behind them.

There is no clear consensus on the use of precautions. This present study aimed to explore the application of clinical reasoning behind both the continuation and discontinuation of hip precautions following PTHA for OA. Perspectives of surgeons, physiotherapists and occupational therapists were sought from centres using precautions and centres not using precautions in order to gain a broader understanding of clinicians' clinical reasoning.

Methods

Semi-structured interviews focusing on the clinical reasoning behind the continuation and discontinuation of precautions were conducted. The discussion guide was developed by physiotherapists and occupational therapists at one institution (see Online Supplementary Material). The guide sought expert opinion from eight clinical specialists (five physiotherapists and three occupational therapists), who specialised in the management of patients with lower limb orthopaedic disorders. The discussion guide was developed based on a consensus of what was believed to be important information to elicit viewpoints.

Recruitment and sampling

Purposive sampling was applied to select six centres that had discontinued hip precautions and six centres that continued to use precautions after PTHA. Initial contact was made by the lead author via e-mail or telephone in order to gauge interest. Aside from the host institution, no prior relationship had been established between the study staff and any of the other centres. Snowball sampling [20] was conducted by contacting local therapists who then established contact with their corresponding surgeons. A participant information sheet was emailed to all prospective participants. This information sheet included information about the aims for the project and its rationale. Once the clinicians contacted expressed interest in being interviewed, an interview date was then scheduled. With regard to the centre selection process, centres could be secondary or tertiary sites and be based anywhere in England. To obtain varied perspectives, at least one surgeon and one therapist were interviewed at each site and no limit on number of clinicians interviewed per site was established. The inclusion criteria specified that interviewees be senior therapists or consultant orthopaedic surgeons engaging in the field of PTHA for OA in their clinical practice.

Data collection

The interview schedule included closed and open-ended questions that were designed to be discussion prompts rather than a rigid interview structure. Information sheets were reviewed and consent forms detailing the audio recording of the interview were signed by participants prior to interview. One investigator (RTM) conducted the interviews. Therapists and surgeons were interviewed separately to elicit separate therapist and surgeon viewpoints on the use of precautions following PTHA for OA. The majority of therapy interviews were conducted individually, but participants were given the option to be interviewed in pairs or groups of three if required to accommodate clinician schedules. A face-to-face interview at each participant's centre was preferred, but video/phone conferencing was made available if required. All interviews were audio recorded and transcribed verbatim. Following the first interview, the interview guide was reviewed by two researchers to determine whether any changes were required.

Data analysis

Commonly occurring themes in data from the interviews were identified by RTM (female, orthopaedic specialist physiotherapist). Interviews were subsequently reviewed separately by AWG (male, orthopaedic specialist physiotherapist) to independently identify themes.

Following completion of all interviews, the process involved first examining the data and identifying themes [21]. A coding framework was then developed in a spreadsheet to facilitate organisation of data into "major themes". "Major themes" were classified as regularly occurring phenomenon as described by participants. Interview transcripts were then coded on a line by line basis and data were attributed to the relevant sections within the framework depending on assigned codes.

Once the coding process was complete, discussions were held between RTM and AWG surrounding the content of data to conceptualise the data and attribute meaning. As variations between "major themes" were identified, "minor themes" were created to allow for further explanation of the data. Relevant excerpts of data were used to support the communication of these themes.

A third person was available to resolve disagreements if required but was not needed. The COREQ (COnsolidated criteria for REporting Qualitative research) Checklist was applied to aid with data reporting (see Online Supplementary Material).

Data were link anonymised (a unique code assigned to each participant) to preserve participant anonymity. The unique participant identifier was used to retain the links to the original data source (Centre A, Surgeon = AS) and was also used for relevant quotes in the results section.

Ethics

Prior to starting this NHS staff led project, local NHS Research and Development approvals were obtained for the purpose of interviewing NHS staff members in accordance with Health Research Authority guidelines (Reference: SE17.022). Informed written consent was obtained prior to the audio recording of each interview.

Reflexivity

This study was conducted to answer a question that could potentially lead to a change in practice, which demonstrates potential preconceptions in favour of changing practice. Whilst the authors of this paper were interested in understanding reasoning both for and against hip precautions, it was important to establish mechanisms to ensure that the research was balanced in order to not be swayed in favour of the status quo or change:

1. A range of senior clinicians were invited to discuss the interview schedule, with particular attention focussed on non-biased wording of questions.

2. Separate reviews were conducted by two authors (RTM & AWG) with a third available to resolve any disputes, with particular attention focussed towards potential preconceptions.
3. The results were presented and discussed between members of the research team, with particular attention focussed towards potential preconceptions.

It was agreed from the outset that the purpose of this study was to add to the debate and highlight underlying clinical reasoning rather than make recommendations for changing practice. A strategy for the paper, therefore, was established to illuminate a range of views on this topic.

Results

The interviews took place over a period of five months in 2016. In total, fourteen surgeons and eighteen therapists were recruited. No clinicians withdrew after agreement to interview. All interviews took place at the clinicians' centres. The average interview duration was 33 min 34 s (range 14–68 min), which was determined by clinician availability. All interviews were audio recorded and transcribed verbatim. No additional notes were taken during or following each interview. No repeat interviews were conducted. Clinicians were recruited from twelve centres across England (Table 1). Of the centres recruited, there were two tertiary centres, one that advised precautions and one that had discontinued precautions. The posterior surgical approach was favoured by the majority of surgeons interviewed. At least one surgeon and one therapist were interviewed at each site. At some sites, more than one surgeon or therapist was interviewed due to a higher number of participants identified during the sampling process. The interview transcripts were kept securely at the lead research site. Copies were not given to the participants for feedback. The first interview was treated as a "pilot." After a review of the first interview, no changes were deemed necessary; the interview guide and process remained unchanged and the findings from the first interview were included in the results. Data saturation, the end of new insights arising from the data, appeared to occur by interview 28; however, to ensure certainty, data collection continued for four additional interviews, during which no new insights were obtained.

Results are presented in three separate sections: (1) major themes associated with the continued use of precautions, (2) major themes associated with the discontinuation of precautions and (3) minor themes associated with variation in practice.

Abbreviations are used for the relevant quotes to preserve participant anonymity. The centre code is followed by the profession type. If more than one clinician from a given profession was interviewed at that site, then a number is added to identify the clinician (Centre C, Surgeon, Clinician Number One = CS1).

Table 1. Centre and clinician information.

Centre code	Use of precautions yes/no	Surgeon (S)	PT (P)	OT (O)	Surgical approach	Type of centre
A	Yes	1	1[a]	0	Posterior	Secondary
B	Yes	1	1[b]	1[b]	Anterolateral	Secondary
C	Yes	2	2[b]	1[b]	Posterior	Tertiary
D	Yes	1[a]	1	0	Posterior	Secondary
K	Yes	2	1[b]	1[b]	Posterior	Secondary
L	Yes	1	1	0	Posterior	Secondary
E	No	1	0	1	Posterior	Secondary
F	No	1	0	1	Posterior	Secondary
G	No	1	1	0	Posterior	Secondary
H	No	1	1	0	Posterior	Tertiary
I	No	1	1,1[a]	1	Direct anterior	Secondary
J	No	1	0	1	Posterior	Secondary

[a]Video/phone conferencing interviews.
[b]Joint PT/OT interviews.

Themes associated with the continued use of precautions

Creation of boundaries

Clinicians continuing to use precautions emphasised the need to create clearly defined boundaries to limit patients with poor movement habits who might be inclined to move their hips into extreme positions. They emphasised that many patients need clearly defined rules to aid understanding and compliance:

> You get two patients; ones who will never do what they're told so they need to be given a list of restrictions, you get the others who want to prove they can do everything within a week … If you give them a list of precautions, then they'll do what they're told if they want to have a good outcome.(CS1)

Protection of soft tissue during physiological healing times

Clinicians discussed the need for caution with hip movements to optimise soft tissue healing and scar formation. They described the role of scar formation in improving proprioception and stability of the hip:

> You need scar tissue at the back to give you a degree of proprioception. You've got to let your short rotators heal. You've got to let the muscles heal.(AS)

Avoidance of increased dislocation rates

The avoidance of dislocation was frequently emphasised as an important reason to continue using precautions. The potential risk for recurrent dislocations following an initial dislocation episode was also a concern for clinicians:

> If I slow down 98 patients to save one dislocation, it's worth it because if you dislocate, you're never confident in your hip ever.(AS)

Reluctance to change historical practice in the absence of robust evidence

It was agreed that the application of hip precautions is historical with little supporting evidence; however, clinicians were reluctant to discontinue their use without robust evidence supporting their removal. The concern, involving potential blame from patients and possible litigation if dislocation were to occur, was a driving factor for many surgeons:

> For me to change … I would want to have good evidence to stand up to that side of things to say that it definitely makes no difference. All it takes is one of those cases to take over your life, so I would want to be very certain that was defensible.(KS1)

Themes associated with the discontinuation of precautions

Progression of surgical techniques

Surgical advances, such as increased frequency of soft tissue repair and improved precision of implant positioning, justified discontinuing precautions. Increased femoral head sizes were also thought to contribute towards improved stability. Clinicians commented on the mismatch between the advances in surgery and the lack of advance surrounding hip precautions:

> We know things a lot better now. We know about safe zones, with the increased size of femoral heads … I put them in the positions where they're likely to dislocate, so the untoward sleeping positions … Because if it dislocates in that position, then I don't accept that and I will reposition the components.(GS)

The need to challenge historical practice

Surgeons and therapists commented on the historical nature of hip precautions and the lack of supporting evidence. A supportive environment and culture that allowed for historical practice to be challenged facilitated change in these centres:

> People just do things that they've done before, their unit has done before … You can imagine if you were in a hospital and you were appointed as a new consultant, and you said I'm not doing hip precautions but everybody else did, and then you had a dislocation, they would all turn to you and say 'Ha, there you go!' See I didn't face that here … I didn't have that fear or that anxiety of saying I'm not going to use hip precautions.(ES)

Improvement in patient experience

Many clinicians focussed on the increase in patient function and decrease in patient anxiety following the discontinuation of hip precautions. They described improving the patient journey as an important justification for changing practice:

> [Removing precautions] is just about giving back the patients' potential for function, and when you think about why a patient's having a hip replacement, they're not having it to have a fantastically anatomically correct body. They're having it because they want to play with their grandkids, and they want to swim, and they want to play golf, and they want no pain.(FO)

Reductions of costs

Upon discontinuing precautions, assistive equipment was provided to patients based on functional need. This was cited as a positive outcome of changing practice:

> We now give out equipment to about 37 per cent, 38 per cent of patients. So, we've saved about £30,000 each year.(HP)

Expansion of the occupational therapy role

The potential for changing the role of occupational therapists in moving to a more specific, functional needs-based treatment was mentioned by therapists:

> That was one of the things that I wanted to challenge for us as a profession, because for me, not having precautions means that we've got a much bigger role, and much more autonomy, and much more fun to be had with our patients.(FO)

Minor themes associated with variation in care

Deliberate variation in care

All clinicians interviewed acknowledged that if the surgery is performed correctly with the components in the optimal positions, then dislocation is unlikely to occur with basic active hip movements. All emphasised the need to treat patients as individuals and vary their care according to individual needs. They acknowledged there would be circumstances where precautions are required:

> I think you could probably predict the ones you have to be really careful with, because they have abnormal anatomy, their abductors don't function, they've got some sort of neuromuscular disorder.(BS)

Unintentional variation in care

There was general agreement on the definition of standard hip precautions in all centres. However, the duration of precaution application varied between centres, from two weeks to three months. These discrepancies occasionally occurred unintentionally within the same centre:

> Some [surgeons] who use the posterior approach think that they only have those precautions for the first six weeks and they're not aware of the fact that it clearly states in our guidelines online that it's twelve.(CP1)

Discussion

Summary of findings

This study investigates clinical reasoning behind the continuation and discontinuation of hip precautions following PTHA for OA. Clinicians continue to use of hip precautions to create movement boundaries, to protect soft tissue, to keep the rate of dislocation low and because there is insufficient robust research to justify a change in practice. Clinicians have stopped using precautions due to advances in surgical techniques, to improve patient experience, to reduce costs, to take into account the expanded occupational therapist role and to challenge historical practice.

Findings in context

Clinicians not advising precautions commented on certain circumstances where they would advocate their use. Patients identified as "at risk" for dislocation would be given individualised advice, such as those with abductor deficiency and with a history of previous dislocations [22], loose soft tissues, loose joint capsule, suboptimal trochanter placement, malposition of components and poor head to neck ratio [23]. Patients with neuromuscular and cognitive disorders [23], a raised American Society for Anaesthesiologists (ASA) score [24], undergoing a revision procedure or experiencing confusion [22] are seen as high risk for dislocation. Clinicians agreed that extreme ranges of movement may lead to dislocation and patients with poor compliance are at considerable risk if they "push" the limits [23]. Hip precautions are, therefore, often applied to restrict the movement of these patients in an attempt to "slow" them down. Even if a patient has not been identified as being "at risk" preoperatively, an intraoperative assessment of stability [25] may assist in identifying those most at risk for dislocation and precautions can then be advised as appropriate. The use of precautions could, therefore, potentially be advised on a case-by-case basis.

Clinicians in this study often referred to the devastating outcome of dislocation and this has proven to be a barrier to changing practice. Clinicians in our study that had discontinued precautions cited an observed quicker return to function. Precautions have been seen as a hindrance to a timely return to activities of daily living (ADLs) [26]. The discontinuation of precautions has led to a quicker return to function [26,27], reduced costs and increased patient satisfaction [27]. Since these are important aims of elective surgery, the question arises as to whether precautions are impeding the achievement of these aims [28].

In this study, the expertise of surgeons was emphasised as crucial for correct alignment of the components. Optimal orientation of the prosthesis is essential for stability [10] with the proposed "safe zone" for placement of the components [29]. The "acceptable" stem and cup positioning is at significantly higher risk for dislocation than the "ideal" positioning [12]. A higher annual surgical experience of those surgeons undertaking PTHA has been shown to link with preferred outcomes [30], yet 23.7% of surgeons performing PTHA are operating on less than ten cases per annum in the UK [31]. There is a shift towards creating specialist centres within orthopaedics [32] and a growing recognition of the importance of "Getting It Right First Time" [31]. Hip surgery performed by an adequately experienced surgeon is essential to

optimise hip stability [6] with any error in component positioning leading to an increase in hip dislocation with the rate 6.9 times higher if anteversion is not correct [24]. Several authors have explored and confirmed inadequate anteversion as a significant dislocation risk after PTHA [29,33]. In our study, surgeons not using precautions were confident that the dislocation risk is mitigated during functional tasks if the implant is positioned correctly. The perceived increased risk of dislocation appeared to be a barrier to changing practice. A recent article demonstrated favourable outcomes when hip precautions were not used [28], which has the potential to challenge clinicians' clinical reasoning.

Interestingly, our study findings appear to overlap with previous work exploring clinician views on precautions [34]. We focussed specifically on the application of clinical reasoning behind the continuation and discontinuation of routine hip precautions following PTHA. There are several areas where our study agrees with the results of Coole et al. [34], who reported the views and experiences of clinicians on the use of hip precautions. We identified variation in practice and found similar reasons for the continuation and discontinuation of precautions. We attempted to address the limitations identified in Coole et al.'s study [34] by recruiting more participating centres and ensuring at least one therapist and surgeon were interviewed at each site.

Precautions in Coole et al.'s study [34] were used to avoid certain movements leading to dislocation, to protect soft tissue healing, to avoid changing practice where there is a lack of evidence and to minimise the potential for litigation. We are in agreement that precautions were stopped to reduce costs, to improve patient experience and to negate the perceived negative implications of precautions. Coole et al.'s [34] paper was published in 2013. We know that even when this evidence is available, translating research into practice can take several years [35] and the environment and culture needs to be receptive to these changes [26,36].

Translation of evidence into practice

Medical practice is strongly influenced by the idea that clinical decision making should be based on the results of clinical trials [37]. To our knowledge, there is a lack of randomised controlled trials (RCT) that assess the impact of precautions for the posterior approach to PTHA. A recent trial [38] found that sleeping position did not alter the rate of dislocation. A systematic review [16] of trials found that removal of precautions did not affect dislocation rates in anterior approach PTHA. A randomised controlled trial is considered to provide the most reliable evidence [39] and it may take RCTs to facilitate a change in practice. At least 4,000 patients would be required to adequately power a RCT exploring the efficacy of precautions [17], which may prove too challenging and costly and poses ethical issues.

Although clinicians at centres that had discontinued precautions cited the lack of robust evidence supporting their use, it was recognised that there is little evidence supporting their abolishment. In a system where surgeons carry the burden of responsibility for patient safety, inconclusive evidence in favour of discontinuing the use of precautions may not be sufficient to justify changing practice. Studies such as ours may inform and justify trials. It does appear, however, that a change of practice is beginning to happen prior to randomised trials becoming readily available.

All participants in this study recalled the historical nature of the use of hip precautions. One of the original pioneers of hip replacement surgery, Sir John Charnley, observed subluxation of the replaced hip occurring at approximately 110° [40] and advised not "pushing" this range to avoid instability. Orthopaedic teaching advocates advising hip precautions after the posterior surgical approach [41]. These observations might not necessarily be applicable to the modern techniques which will have undergone repair of the posterior soft tissues [9].

Organisational culture may also impede a change in practice. Surgeons were found to determine post-operative instructions [34]. Cultures developed in organisations function as stabilisers to resist change [42] and subgroups of various medical subspecialties dominate cultural values [43]. A steep organisational hierarchy [44] may inhibit such a change in post-operative instructions, particularly when it is the orthopaedic surgeons who may suffer from the consequences of litigation claims. Ultimately, it appears from our study that patient safety is a strong driver to the setting of precautions; all members of the team need to be satisfied that abolishing precautions is a safe thing to do. It appears from our study that the use of precautions is dependent upon surgeon viewpoints and that variations within hospitals exist. Organisational culture must be taken into account when considering implementing change in healthcare.

Implementation science is "the scientific inquiry into questions concerning implementation – the act of carrying an intention into effect, which in health research can be policies, programmes, or individual practices (collectively called interventions)" [45]. In the context of this paper, turning to implementation science may provide useful assistance on how to translate the findings of this study, and the work of others, so that change does not take as long as seventeen years [35]. Implementation research looks to understand how to integrate and maintain changes in healthcare [46]. Implementation research has developed frameworks to aid understanding in implementing innovations and evidence. Normalisation Process Theory (NPT) [47] has been widely used to support studies in implementation research in healthcare [48]. May et al.'s [49] explanatory review into hospital-based guideline intervention offers a dynamic conceptual model of clinical practice guideline implementation and a generic framework for understanding and investigating the implementation of interventions, such as a new guideline on the abolishment of hip precautions. Using a theoretical framework such as NPT may expedite practice change through theoretical sensitisation towards factors that facilitate, or inhibit, uptake of interventions in practice.

Strengths and limitations

This paper explores clinicians' views and clinical reasoning. The motivation for conducting this study was a hospital-based question posed by a group of clinicians as to whether to change practice. We attempted to overcome any potential biases from this motivation by exploring views from both perspectives, i.e., the continuation and discontinuation of hip precautions. Interviewing at least one therapist and surgeon at each site ensured the interviews yielded a wide range of views across orthopaedic disciplines. Additionally, ensuring there were equivalent ratios of secondary versus tertiary sites between groups helped balance representation. The results of this unfunded study must, however, be considered in light of its limitations. The interview guide was developed based on the opinion of clinical specialists in one hospital. Seeking the viewpoints of other clinicians might have altered the interview guide and gleaned different results. Limited resources meant that only a small number of participants were recruited. Although we used purposive sampling, the 'precaution' group recruitment process was influenced by geographical location. A sampling strategy that selected centres by matching size,

case-load or university affiliation might have provided different information. We cannot guarantee that other perspectives would not have been captured had we recruited more participants and participating centres. Since there was no limit placed on number of clinicians interviewed per site, more clinicians were interviewed at the centres continuing to use precautions than at those centres that had discontinued precautions (eighteen versus fourteen). This could have influenced the findings, but since there were some clinicians at sites using precautions who were personally against the use of precautions, the potential influence from the difference in numbers may have been minimised.

The results of this study are based on a small subsection of trauma and orthopaedic surgeons and therapists. Nevertheless, this is a timely and important investigation into a topic which has relevance to orthopaedic and musculoskeletal health professionals in the UK. Further work in this area is required to optimise future rehabilitation protocols following PTHA. Implementing change requires work and resources and will likely require a strategy, underpinned by methods of implementation science, to facilitate a change in practice.

Conclusion

The majority of hospitals in the UK continue to advise hip precautions for patients following PTHA despite growing evidence that questions their effectiveness in reducing dislocations. Clinicians' concern for patient behaviours and apprehension around dislocation and litigation are barriers to changing clinical practice. This study adds to the evidence base and debate surrounding the continuation and discontinuation of hip precautions following PTHA for OA.

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