



## REVIEW ARTICLE

# Instability of total hip arthroplasty: An approach using the scientific evidence<sup>☆</sup>

M. Fernández-Fairen<sup>a</sup>, D. Hernández-Vaquero<sup>b,\*</sup>, A. Murcia-Mazón<sup>c</sup>, V. Querales-Leal<sup>a</sup>, A.I. Torres-Pérez<sup>d</sup>, A. Murcia-Asensio<sup>d</sup>

<sup>a</sup> Servicio de Cirugía Ortopédica y Traumatología, Instituto de Cirugía Ortopédica y Traumatología, Barcelona, Spain

<sup>b</sup> Servicio de Cirugía Ortopédica y Traumatología, Hospital San Agustín, Avilés, Facultad de Medicina de Oviedo, Oviedo, Asturias, Spain

<sup>c</sup> Servicio de Cirugía Ortopédica y Traumatología, Hospital de Cabueñes, Gijón, Facultad de Medicina de Oviedo, Oviedo, Asturias, Spain

<sup>d</sup> Servicio de Cirugía Ortopédica y Traumatología, Hospital Universitario Santa Lucía, Cartagena, Murcia, Spain

### KEYWORDS

Total hip arthroplasty;  
Joint dislocation;  
Instability;  
Level of scientific evidence

### PALABRAS CLAVE

Artroplastia total de cadera;  
Luxación;  
Inestabilidad;  
Nivel de evidencia científica

**Abstract** The instability in hip arthroplasty, or joint dislocation in its most dramatic form, is a complication that changes the outcome of this procedure, causing a decrease in the quality of life of the patients, and a loss of confidence in their relationship with the surgeon. If we discount failures due to infection, dislocation is the most frequent cause of a short to medium term revision, and the number of cases that require several operations to provide stability to the joint is not insignificant. Despite the frequency and severity of this complication there are few studies with a high level of scientific evidence on this subject. We have attempted to review the published literature and its level of evidence on the pathogenic origin, prophylaxis and treatment of this eventuality. As well as recording and summarizing the findings of each study in this review, we have added the evidence level of the corresponding literature reference.

© 2011 SECOT. Published by Elsevier España, S.L. All rights reserved.

### Inestabilidad de la artroplastia total de cadera. Una aproximación desde los criterios de la evidencia científica

**Resumen** La inestabilidad en las artroplastias de cadera o la luxación en su forma más dramática, es una complicación que altera la evolución de este procedimiento introduciendo una pérdida de bienestar en el paciente y una pérdida de confianza en su relación con el cirujano. Si no consideramos los fracasos por infección, la luxación supone la causa más frecuente de cirugía de revisión a corto y medio plazo y no es desdeñable el número de casos que precisan varias intervenciones para aportar estabilidad a la articulación. A pesar de la frecuencia y gravedad de esta complicación no son frecuentes estudios con alta evidencia

<sup>☆</sup> Please cite this article as: Fernández-Fairen M, et al. Inestabilidad de la artroplastia total de cadera. Una aproximación desde los criterios de la evidencia científica. Rev esp cir ortop traumatol. 2011;55(6):460-475.

\* Corresponding author.

E-mail address: [dhernandezv@meditex.es](mailto:dhernandezv@meditex.es) (D. Hernández-Vaquero).

científica en este tema. Hemos pretendido recoger la literatura publicada con su grado de evidencia acerca de la etiopatogenia, profilaxis y tratamiento de esta eventualidad. Para ello además de anotar y resumir los hallazgos de cada trabajo, hemos añadido el nivel de evidencia tras la cita bibliográfica correspondiente.

© 2011 SECOT. Publicado por Elsevier España, S.L. Todos los derechos reservados.

One of the most common complications of total hip replacement (THR)—and among those generating the greatest dissatisfaction for both surgeon and patient—is dislocation or instability of the THR. A good number of articles have been published on this subject. The purpose of this review article, however—not to disregard those articles<sup>1–4</sup>—is to analyse certain controversial aspects of this complication through the lens of scientific evidence. Because the problem areas and possible solutions have changed over time, obviously, we have reviewed articles published since the year 2000, primarily, although some key references prior to that date were included in the study.

We have examined and judged different authors' statements as to whether, based on current criteria, they present scientific, clinical evidence for their assertions, attempting to discern which of them may offer sound support for resolution of the points under discussion.

To award the different studies a level of scientific evidence (SE), we used the basic concepts of Guyatt, formulated at McMaster University; criteria from the *Journal of Bone and Joint Surgery*, in its American version; and criteria from *Clinical Orthopaedics and Related Research*. These evidence levels have also been recommended recently by the *Revista Española de Cirugía Ortopédica y Traumatología* [Spain's Journal of Orthopaedic Surgery and Traumatology]. The type and level of SE for each article was awarded in relation to its main hypothesis or hypotheses and is shown at the end of its citation in the references.

As shown below, very few studies on this subject were awarded an SE level I or II, these being the ones that may be considered necessary and sufficient to validate an argument. Perhaps this is not all there is to it, however; perhaps SE means more than just randomised, prospective studies with a control group; meta-analyses; and a *P* of <.05. Well-designed, prospective studies with large cohorts painstakingly followed; data from arthroplasty registries or large-volume sources; and systematic literature reviews are valid tools when they are properly analysed.

In any case, the problem is not a simple one. It is a multifactorial complication, which means there is no simple approach to studying it. There is also a very wide variety of materials used. To complicate matters further, it is important to bear in mind that it takes more than 3720 primary THRs to detect a 2% effect on the factors involved in its dislocation.<sup>5</sup> Another example of this conflict is a randomised comparative study in which 130 cases per group were required to detect a difference of 3 times in the incidence of dislocation, preventing a type II error ( $\alpha$  0.05 and  $\beta$  0.8 using a historical rate of 1%).<sup>6</sup> Thus, very high figures are required, which means there are not very many high-calibre studies.

In our review, along with studies that had large series, we also included articles in which an attempt was made to

reach conclusions—even though, in terms of SE, the quality of the studies was not high enough to validate the conclusions. Comparing these 2 categories will enable us to outline a solution for the classical controversies—highly desirable information when what we are addressing is the best approach to and treatment for this complication.

## Incidence

Historically, the incidence of THR dislocation has ranged from 0.5% to 9.2% in patient series, as shown in a certain review (Table 1).<sup>7</sup> The problem is the heterogeneity of population samples and study designs; for example, a study may consider only primary arthroplasty or it may count dislocations subsequent to both primary THR and revisions.<sup>8,9</sup> In our country, an incidence of 2.97% was reported in a low-friction, cemented THR series.<sup>10</sup> Of these, 33% were attributed to component malpositioning; 34% to soft tissue insufficiency; 26% to a combination of these 2 factors; and the remaining 7% to ill-defined causes—what Dorr et al.<sup>11</sup> refer to as “postural” or “positional” causes in proposing this aetiological classification.

Fluctuations are also seen in recent series, with a certain reduction in the incidence of dislocations<sup>12,13</sup> ranging from 2.5% to 3.9% in 2 studies with SE level II.<sup>13,14</sup> In a series of cementless THRs in Spain, the incidence of dislocation observed was 2.8%.<sup>15</sup> It seems clear that the percentage of dislocations is significantly greater following revision surgery than after a primary THR.<sup>16,17</sup> In a SE level II study similar to the one cited above, the incidence of dislocation was 3.1% for primary surgery and 8.4% for revisions.<sup>18</sup> If this revision surgery was done for an infection in the prosthesis, the incidence is multiplied by 4.<sup>19</sup>

## Conclusion

In 2 SE level II studies, an incidence of 2.5–3.9% is reported for dislocation following primary THR<sup>13,14</sup>—figures that more than double following revision surgery.<sup>18</sup>

## Significance of this complication

It is the complication most frequently reported in the first 90 days post-THR.<sup>20</sup> Between 1975 and 2005, it was the second most frequent reason for reintervention in THR, ranging from 11% to 15% of all reinterventions,<sup>21,22</sup> but during 2005–2006, it achieved the dubious honour of being the main reason for reintervention in 22.5% of these cases.<sup>23</sup> At a referral centre that takes THRs requiring revision surgery, reinterventions secondary to dislocation represented 9% of the total between the years 1986 and 1991, increasing to

Download English Version:

<https://daneshyari.com/en/article/4087218>

Download Persian Version:

<https://daneshyari.com/article/4087218>

[Daneshyari.com](https://daneshyari.com)