Letter to the editor


We read with interest the preliminary report by A. Billaud on computer-assisted total hip replacement based on EOS imaging data. As the authors state, hip navigation techniques have improved the reproducibility of implant positioning in hip replacement [1–3]. However, navigation is at present founded on landmarking in the anterior pelvic plane, for which access in lateral decubitus is difficult. The authors therefore developed a new and more accessible iliac plane (IP), defined by the center of the acetabulum and the anterior superior and posterior superior iliac spines. They use a mathematical transformation to pass from the anterior pelvic plane (APP) to the IP, considering the APP to be reliable. However, in an article published in the same journal [4], we showed the APP to be unreliable for acetabular component positioning, especially as regards anteverision. Although long confused with the coronal plane, the APP is in fact subject to considerable individual variation and varies during change of position. It is moreover difficult to determine intraoperatively and, taken together, these factors explain its poor reliability. These findings were confirmed by Blondel et al. and Pinoit et al. [5,6]. The challenge is therefore to anticipate this dynamic variation by calculating the variation in IP orientation with respect to the APP between pre- and intraoperative EOS imaging. Could the authors specify whether they found a correlation between pre- and intraoperative IP orientation with respect to the APP on EOS? This variation could then be applied for implant positioning, making the IP the intraoperative reference plane by two-fold integration: intraoperative IP = f (preoperative IP) = f′ (APP). Wolf et al. already suggested using the APP as reference, weighting it by the pelvic tilt value measured in standing position [7]. All this, however, is still based on the assumption that pelvic parameters are stable before and after THR, whereas we recently reported that pelvic incidence was altered after THR in 13% of cases [8]. EOS thus provides a new functional and dynamic approach to the pelvis and hip, essential to improving implant survival and reducing dislocation risk.

Disclosure of interest

The authors declare that they have no competing interest.

References


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