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TITLE: GREATER EMBOLIC ECHOCOGENESIS IN CEMENTED VS. NONCEMENTED TOTAL HIP ARTHROPLASTY

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INTRODUCTION: Transesophageal echocardiography (TEE) can be used to detect embolism at the time of prosthesis implantation in total hip arthroplasty (THA), a period prone to hypotension and hypoxemia. The purpose of this study was to determine the effect of bone cement on embolism occurring during THA.

METHODS: After institutional approval, 33 patients undergoing THA (17 cemented, 16 noncemented) consented to TEE monitoring. Representative video recordings of the four chamber view were made at nine specific times, which correlated with specific steps in the surgical procedure, including before and after insertion of the femoral prosthesis. Representative one minute recordings were dubbed to a separate video tape in a random fashion. They were viewed by two observers blinded to surgical interval and prosthesis type. Embolism on each segment was graded on a predetermined semiquantitative scale of 0-1-2-3 for amount, duration, and size. Statistical difference was evaluated using the Mann-Whitney U Test.

RESULTS: Reproducibility of embolism scoring was confirmed by complete agreement between observers in over 55% of gradings. There was complete agreement or difference in one grading rank in over 92% of the observations. There was no difference between the two groups in degree of embolism prior to implantation of the femoral component. Significant increases in embolism occurred in the cemented group in the first two minutes following implantation of the femoral prosthesis (p<0.01).

DISCUSSION: Cemented THA resulted in significantly greater embolism compared with noncemented THA. The greater increase in intramedullary pressures with a cemented interface is likely responsible for the greater degree of embolism. The clinical significance of this increased embolization remains to be determined.

References