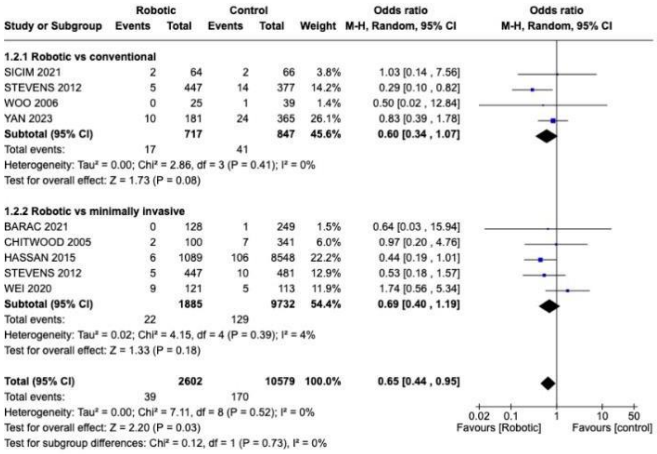
79. EVALUATING THE EFFECTIVENESS AND COMPLICATIONS OF ROBOTIC VS OTHER SURGERY TECHNIQUES FOR MITRAL VALVE REPAIR OR REPLACEMENT: A COMPREHENSIVE SYSTEMATIC REVIEW AND META-ANALYSIS

Carlos Esteban Vidal Valderrama[1], Ramon Isaac Zavala Garcia, Yeisson Rivero Moreno[2], Raul Antunez Perez[1], Jessica Edith Acevedo Rodriguez[3], Vanessa Pamela Salolin-Vargas[4], Leopoldo David Trujillo-García[5], Mauricio Alejandro Saldaña- Ruiz[6], Noe Alejandro Zúñiga González[7], Vanessa Jarelly Rodríguez-Huerta[8], Carolina Cantú Navarro[9]

[1] Universidad Autónoma de Baja California, Ensenada, México.
[2] Universidad de Oriente, Puerto de la Cruz, Bolivariana República de Venezuela.
[3] Tecnológico de Monterrey, Zapopan, México.
[4] Universidad Westhill, Ciudad de México, México.
[5] Universidad Nacional Autónoma de México, Ciudad de México, México.
[6] Facultad de Medicina y Hospital Universitario Dr. José Eleuterio González, Monterrey, México.
[7] Universidad Juárez del Estado de Durango, Durango, México.
[8] Universidad Autónoma de Nuevo León, Monterrey, México.
[9] Universidad Autónoma de Nuevo León, Monterrey, México.

BACKGROUND: Mitral valve repair and replacement are common critical surgical procedures. Traditional open-heart surgery has long been the standard approach, offering reliable outcomes through direct visualization and access to the heart. However, advancements in minimally invasive techniques, particularly robotic-assisted surgery, have introduced new possibilities in the field of cardiac surgery and benefits to the patients regarding the outcomes and complications. Despite these advantages, the technique requires specialized training and has a steep learning curve, leading to variability in outcomes depending on the surgeon's experience. This abstract aims to compare robotic mitral valve repair versus other surgical techniques, providing insights into the evolving approaches to performing this procedure. **METHODS:** We conducted a search in PubMed, Scopus, Web of Science, and Cochrane, including systematic reviews, meta-analyses of randomized controlled trials, cohort studies, and case-control studies comparing robotic surgery with conventional techniques and MIS in patients located in Turkey, Italy, Japan, USA, Australia, Germany, Netherlands, England and China. **RESULTS:** Eighteen studies with 16,220 adult patients were included in this project. Hospital stay and complications were significantly shorter than conventional procedures in length of stay and Intensive Care Unit (ICU) stay. The mean difference of ICU stay of the conventional group was -0.85 days [95% CI -1.22, -0.47] compared to the robotic group. The mean difference of length of stay in the conventional group was -1.34 days [95% CI -2.12, -0.57] compared to the robotic group. The odds ratio of the mortality overall of the two groups was significantly lower with 0.65 [95% CI 0.44, 0.95] compared to the robotic group. However, the robotic group was associated with longer cardiopulmonary bypass and cross-clamp. Total transfusion rate and overall complications did not show a significant difference. **CONCLUSION**: Compared with conventional and MIS procedures, robotic surgery has the advantage of reduced hospital stays, ICU stays and mortality. Therefore, we suggest that surgical decisions should be tailored to each case, considering previous experience. This highlights the importance of personalized evaluations for achieving the best treatment results.

Figure: Differences in the Articles Analyzed Between Robotic Surgery Compared to Conventional and Minimally Invasive Surgery.



Key Words: Robotic Surgical Procedures, Mitral Valve, Minimally Invasive Surgical Procedures.