[Clinical effectiveness and safety of robotic surgery]

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Authors' conclusions
1. Prostate Cancer Although there was a high degree of heterogeneity, robot surgery is superior in terms of safety, peri-operative outcome, functional outcome, and oncological outcome compared with laparoscopic or open surgery. However, it is not sufficient to support long-term outcomes. Well designed long term follow-up prospective studies and cost effectiveness study are needed. 2. Kidney Cancer Evaluation of the treatment effect of robotic surgery in partial nephrectomy was hampered by the insufficient number of studies and the level of evidence was not robust for evaluating treatment effects. Well designed randomized clinical studies are needed. 3. Rectal Cancer The conversion rate to open surgery was significantly low in robotic surgery. Recently, urinary function and sexual function after robotic surgery has been improved. Thus, it is expected that robotic surgery in rectal cancer patients will become more common. This needs to be verified by large prospective randomized clinical trials. 4. Gastric Cancer Comparing the surgical performance of the RAG group and the LAG group in gastric cancer revealed no differences in mortality rate and complication rate. The postoperative hospital stay in the RAG group was slightly shorter than in the LAG group. Considering that robotic surgery is the early stages of use in gastric cancer, precise evaluation of surgical outcomes in clinical practice is necessary through prospective randomized controlled studies after overcoming the learning curve. 5. Thyroid Cancer Robot-assisted surgery for thyroid cancer is not a minimally invasive technique, but rather is a remote access technique. This runs contrary to the view of robot-assisted surgery for other oncological diseases, such as prostate cancer, for which less pain and faster recovery are the main strong points. In addition, new complications, such as brachial plexus injury, have been reported, albeit rarely. Considering the exorbitant cost of robotic thyroid surgery and the lack of evidence concerning its surgical effectiveness, social consensus is essential to determine if robot-assisted surgery is appropriate for patients with thyroid cancer. Well designed, long-term, follow-up prospective studies are also needed to evaluate the clinical safety and effectiveness based on a sufficient quantity of evidence.

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