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**Critical issues in current comparative and cost analyses between retropubic and robotic radical prostatectomy**

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Although current research favouring the use of chewing gum in preventing postoperative ileus is encouraging, the present evidence for justifying its widespread use is insufficient. Therefore, further large scale randomized controlled trials are required to further evaluate its potential use in preventing ileus after major abdominal and pelvic surgery.

**CONFLICT OF INTEREST**

None declared.

**REFERENCES**

1 **Luckey A, Livingston E, Tache Y.** Mechanisms and treatment of postoperative ileus. *Arch Surg* 2003; **138**: 206–14

2 **Kehlet H, Wilmore DW.** Multimodal strategies to improve surgical outcome. *Am J Surg* 2002; **183**: 630–41

3 **Reissman P, Teoh TA, Cohen SM, Weiss EG, Norgueras JJ, Wexner SD.** Is early feeding safe after elective colorectal surgery? A prospective randomised trial. *Ann Surg* 1995; **222**: 73–77

4 **Lightfoot AJ, Eno M, Kreder KJ, O'Donnell MA, Rao SSC, Williams RD.** Treatment of post-operative ileus after

bowel surgery with low dose intravenous erythromycin. *Urology* 2007; **69**: 611–5

5 **Asao T, Kuwano H, Nakamura J-I, Hirayama I, Ide M.** Chewing gum enhances early recovery from post-operative ileus after laparoscopic colectomy. *J Am Coll Surg* 2002; **195**: 30–2

6 **Matros E, Rocha F, Zinner M et al.** Does gum chewing ameliorate post-operative ileus? Results of a prospective, randomised, placebo-controlled trial. *J Am Coll Surg* 2006; **202**: 773–8

7 **Schuster R, Grewal N, Greaney GC, Waxman K.** Gum chewing reduces ileus after elective open sigmoid colectomy. *Arch Surg* 2006; **141**: 174–6

8 **McCormick JT, Garvin R, Caushai P et al.** The effects of gum chewing on bowel function and hospital stay after laparoscopic vs open colectomy: a multi-institution prospective randomised trial. *Am J Coll Surg* 2005; **3** (Suppl.): 66–7

9 **Stewart BT, Woods RJ, Collopy BT, Fink RJ, Mackay JR, Keck JO.** Early feeding after elective open colorectal resections: a prospective randomised trial. *Aust N Z J Surg* 1998; **68**: 125–8

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**CRITICAL ISSUES IN CURRENT COMPARATIVE AND COST ANALYSES BETWEEN RETROPUBIC AND ROBOTIC RADICAL PROSTATECTOMY** Maria M. Gianino, Mario Galzerano, Alessandro Tizzani\* and Paolo Gontero\* – Departments of Public Health and Microbiology, and \*Urology, University of Torino, Torino, Italy

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**INTRODUCTION**

Most studies comparing robot-assisted prostatectomy (RAP) with radical retropubic prostatectomy (RRP) agree on the feasibility and safety of the former in treating patients with clinically localized prostate cancer. Surgeons who are more skilled at RRP can learn RAP within a reasonable time and with no undue complications [1]. Conclusions as to economic evaluations are less clear. The da

Vinci surgical system (Intuitive Surgical, Sunnyvale, CA, USA) costs US \$1.2 million with a maintenance fee of \$100 000/year after the first year. The average costs of disposables are ≈\$1500 per case. Mouraviev *et al.* [2], Scales *et al.* [3] and Lotan *et al.* [4] compared RAP with RRP (Table 1); they agreed on both a decrease in length of hospital stay and a lower transfusion rate for RAP, but nothing was reported on the economic advantages. Possible reasons for

**TABLE 1** Comparative gross costs for RRP and RAP across different series

Series	Total cost per case, US\$	
	RAP	RRP
Mouraviev <i>et al.</i> [2]	10 047	10 704
Scales <i>et al.</i> [3]	8 929	8 146
Lotan <i>et al.</i> [4]	7 280	5 554

differences are differently applied methods, theoretical vs empirical cost models and local backgrounds.

For the first, the cited studies do not clarify the methods used when reporting cost issues. This should usually include: (i) listing resources considered when evaluating the technique (accounting for part of the resources generates different results); (ii) clarifying how resources have been evaluated using quantities and unit cost data; (iii) specifying which resources change with varying volumes of activity.

This lack of this information causes two limitations; on one hand it does not allow a valid comparison of conclusions of the cited studies; the surgical costs analysed by Mouraviev *et al.* [2] (\$2471 for RRP and \$3441 for RAP) do not include equipment and robot costs, unlike Lotan *et al.* [4] (\$2503 for RRP and \$4766 for RAP) and Scales *et al.* [3] (\$3932 for RRP and \$5496 for RAP). In addition, Mouraviev *et al.* [2] did not consider surgeon unit costs. Nor does it allow an estimation of how conclusions would change if some quantities (e.g. those depending on the cost of the technique) were modified, i.e. a decrease in length of hospital stay, operative time and volume of activity.

The results of the economic evaluations of the two techniques depend on the model applied; theoretical models use estimated or published quantities and unit costs that do not match the real costs reported in different hospitals, e.g. Scales *et al.* [3] used data published by Lotan *et al.* [4] in determining operating room RRP costs (\$2316), whereas Anderson *et al.* [5] reported actual cost data (\$1141).

Determining the cost of the technique is strongly influenced by: (i) hospital characteristics (size, community or specialist setting, administration, etc.); (ii) the surgeon's ability and experience; and (iii) the type of

supplies used (disposable or multi-use, e.g. trocars). There is a significant geographic variability in daily hospitalization costs, e.g. \$474 in a public county hospital [4] vs \$840 in a private academic medical centre [3]. The professional surgeon's fee is also different, at \$1688 for RAP and \$1593 for RRP [4], or \$1594 for RAP and \$1212 for RRP [3].

Finally, lacking decisional statistical models, evaluations should comply with the methods and phases proposed by Drummond *et al.* [6], the foremost experts in methods for the economic evaluation of healthcare programmes, using a sensitivity analysis to verify the reliability of the results by varying the most significant variables. As far as currently available published data are concerned, there is no proof that RAP is more costly than RRP overall. Several issues remain to be factored for future cost analyses from a healthcare perspective.

#### CONFLICT OF INTEREST

None declared.

#### REFERENCES

- 1 **Tewari A, Srivasatava A, Menon M.** A prospective comparison of radical retropubic and robot-assisted prostatectomy: experience in one institution. *BJU Int* 2003; **92**: 205–10
- 2 **Mouraviev V, Nosnik I, Sun L *et al.*** Financial comparative analysis of minimally invasive surgery to open surgery for localized prostate cancer: a single-institution experience. *J Urol* 2007; **69**: 311–4
- 3 **Scales CD, Jones PJ, Eisenstein EL, Preminger GM, Albala DM.** Local cost structures and the economics of robot assisted radical prostatectomy. *J Urol* 2005; **174**: 2323–9
- 4 **Lotan Y, Cadeddu JA, Gettman T.** The new economics of radical prostatectomy: cost comparison of open laparoscopic and robot assisted techniques. *J Urol* 2004; **172**: 1431–5
- 5 **Anderson JK, Murdock A, Cadeddu JA, Lotan Y.** Cost comparison of laparoscopic versus radical retropubic prostatectomy. *Urology* 2005; **66**: 557–60
- 6 **Drummond MF, Stoddart GL, Torrance GW.** *Methods for the Economic Evaluation of Health Care Programmes.* Oxford: Oxford University Press, 1987

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Abbreviations: **RAP**, robot-assisted prostatectomy; **RRP**, radical retropubic prostatectomy.