My recent article, “Influence of physiological saline and other solutions used in the lavage of the peritoneal cavity on the morphology and function of mesothelial cells during in vitro investigations,” was published in „The Polish Journal of Surgery” (nr 8/2007, 972-986). I have become acquainted with both this edition of the article and the content of reviewers’ commentaries.

I would like to relate to the following commentaries from both reviewers. This seems necessary in my opinion, and it would be valuable if such opinions were presented in „The Polish Journal of Surgery”.

Evidence from experimental animals suggests that peritoneal lavage is harmful. Consecutive infusions of physiological saline produce an inflammatory peritoneal cellular response (1, 2) and can be responsible for peritoneal cavity fibrosis (3). These effects are due, in part, to the increased production of non-specific inflammatory cytokines (IL-1, TNF) by peritoneal cavity cells after physiological saline lavage. This finding has been demonstrated in patients both with and without peritonitis (1).

Due to the character of „The Polish Journal of Surgery”, the methodology section of the report is clearly simplified. Spectrophotometric methods (LDH, cellular protein) and common commercial ELISA immunoenzymatic kits (t-PA, PAI-1, IL-6), which were used to determine the activity of LDH or concentration of the remaining elements, are described in detail. Since the methods for assessing the substances investigated are not, however, the authors of the study will gladly answer any questions concerning them.

We agree that the present in vitro experimental results cannot be directly transferred into clinical practice. However, a common method for solving many complex modern problems employs the experimental sequence of cell culture, animal models, and final clinical investigations. When planning investigations using such a method, the experimental hypotheses must be defended in front of consenting bioethical committees.

For cell cultures, only one problem may be connected with the planning of the methodology section. In the presented investigations, the six-hour exposure to the solutions intentionally exceeds the several minutes of intraoperative lavage with different substances. This procedure was intended to emphasize the effect of these clinical substances (NaCl, antibiotic, and iodine-povidine solutions) on cells. In this paradigm, their activity is not limited to their physical presence inside the peritoneal cavity. This idea also raises the question of whether these substances are completely removed from the peritoneal cavity after lavage. One must not forget that 5-20 ml of peritoneal fluid (as it occurs in nature) is sufficient to humidify the entire surface of the peritoneal membrane.

The presented investigation did not call for the replacement of physiological saline with more expensive solutions during routine surgical clinical practice. Solutions were selected based on their role in cell culture and their well-characterized, harmless effects on peritoneal cells in vitro. We evaluated the actual influence of physiological saline, as well as other solutions like Ringer’s lactate or PWE used during lavage, on mesothelial cell cultures. Experimental rabbit models suggest that Ringer’s solution produces fewer adhesions during laparoscopic procedures than 0.9% physiological saline (4).

Further investigations determining what solutions should be used instead of physiological saline are currently underway.

While it is noble to cultivate surgical traditions, this practice does not exempt surgeons from the obligation to search for new solutions and alternatives. This idea holds true even for factors like 0.9% physiological saline, which has nearly 100 years of usage in every operative room in Poland.

Dr n. med. Marek Winckiewicz
Klinika Chirurgii Ogólnej i Naczyń UM
im. K. Marcinkowskiego w Poznaniu
REFERENCES


