1L POLYETHYLENE GLYCOL + ASCORBIC ACID VERSUS SODIUM PICSULPHATE + MAGNESIUM CITRATE BOWEL PREPARATIONS FOR COLONOSCOPY: EFFECTIVENESS & SAFETY

Study population

Groups & Demographic characteristics

<table>
<thead>
<tr>
<th>1L-PEG + ASC (n=420)</th>
<th>SPMC (n=452)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, (%)</td>
<td></td>
</tr>
<tr>
<td>Men / Women</td>
<td>48.6 / 51.4</td>
</tr>
<tr>
<td>Age, median (IQR)</td>
<td>61 (53–69)</td>
</tr>
<tr>
<td>Age groups, (%)</td>
<td></td>
</tr>
<tr>
<td>&lt; 65 years old</td>
<td>63.4</td>
</tr>
<tr>
<td>≥ 65 years old</td>
<td>36.6</td>
</tr>
</tbody>
</table>

* p-value < 0.001

Methods

Prospective & Unicentric Real-Life Study

1L-PEG+ASC vs SPMC: Afternoon-morning split dose

- Morning colonoscopy for any reason
- Endpoints: BBPS & HQ-cleansing of overall and right colon, PDR, tolerability and safety
- 1L-PEG+ASC vs SPMC, men vs women, <65 vs ≥ 65

Effectiveness

<table>
<thead>
<tr>
<th></th>
<th>1L-PEG + ASC</th>
<th>SPMC</th>
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<tbody>
<tr>
<td>Overall colon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBPS ≥ 8 (%)</td>
<td>90.8</td>
<td>77.7</td>
</tr>
<tr>
<td>HQ-cleansing (BBPS ≥ 8) (%)</td>
<td>55.2</td>
<td>25.4</td>
</tr>
<tr>
<td>(men vs women)</td>
<td>(55.8 vs 54.6)</td>
<td>(19.2 vs 30.3)*</td>
</tr>
<tr>
<td>Right colon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBPS ≥ 2 (%)</td>
<td>92.0</td>
<td>82.7</td>
</tr>
<tr>
<td>HQ-cleansing (BBPS ≥ 3) (%)</td>
<td>58.7</td>
<td>27.2</td>
</tr>
<tr>
<td>(men vs women)</td>
<td>(63.1 vs 54.6)</td>
<td>(19.2 vs 31.0)*</td>
</tr>
</tbody>
</table>

* p-value < 0.001

- 1L-PEG+ASC was superior in bowel cleansing & HQ-cleansing, achieving equality effective between genders
- Women showed worse tolerance than men for both preparations, but these did not affect the quality of bowel cleansing

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1L polyethylene glycol + ascorbic acid versus sodium picosulphate + magnesium citrate bowel preparations for colonoscopy: effectiveness and safety

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Keywords: Colonoscopy. Polyethylene glycol-ascorbic acid. Sodium picosulphate-magnesium citrate. Bowel preparation.

ABBREVIATIONS
CRC: colorectal cancer
PEG: polyethylene glycol
SPMC: sodium picosulfate with magnesium citrate
CONFLICT OF INTEREST AND COMPLIANCE WITH ETHICAL STANDARDS
The authors declare that no one of them have conflict of interest.

The study was conducted following the standards specified in the Declaration of Helsinki, the Good Clinical Practice Standards, and the International Conference on Harmonization (ICH) guidelines and complied with current legislation. The patients who agreed to participate signed an informed consent.

ABSTRACT

Background: Adequate bowel preparation is crucial for the protective effect of colonoscopy. Commonly used preparation regimens like PEG or SPMC have shown similar results in clinical trials, but low-volume PEG+ Ascorbic Acid (1L-PEG+ASC) versus SPMC have never been compared in a real-life setting.

Aim: We evaluated the effectiveness and safety of 1L PEG+ASC versus SPMC in a real-life setting for the overall population, for patients aged ≥65 years, and men versus women.

Methods: Out-patients aged ≥18 years who underwent colonoscopy for any indication were randomly assigned to the 1L-PEG+ASC or SPMC group. Using the Boston Bowel Preparation Scale (BBPS), the primary endpoints were the bowel cleansing success of the overall colon and right colon, as well as high-quality (HQ) cleansing. Also, we
compared effectiveness and safety outcomes for age groups and men versus women.

**Results:** 1L-PEG+ASC showed significantly better bowel cleansing success than SPMC. Especially remarkable is the HQ cleansing reached with 1L-PEG+ASC compared with SPMC (55.5% versus 25.4% in the overall colon, and 58.7% versus 27.2% in the right colon). 1L-PEG+ASC was equally effective for men and women while SPMC showed significant differences between genders (men showed worse bowel cleansing). Age did not affect the cleansing effectiveness. 1L-PEG+ASC versus SPMC showed significant differences in tolerance and safety, women also showed significantly worse tolerance than men for both solutions, but these did not affect the quality of bowel cleansing.

**Conclusions:** In our real-life setting, 1L-PEG+ASC offered better adequate and HQ bowel cleansing than SPMC, achieving excellent cleansing quality regardless of gender or tolerance.

**Keywords:**

**INTRODUCTION:**

Colonoscopy, considered the gold standard for colorectal cancer (CRC) screening, is one of the most common medical procedures(1,2) and the most effective method in reducing CRC(3). The highest degree of colonoscopy protection requires adequate visualization of the complete colon(4). In fact, inadequate bowel preparation has a detrimental effect on all aspects of the colonoscopy procedure, causing significantly lower rates of detection of adenomas(5); it is also one of the most unfavorable predictors of cecal intubation failure and unsatisfactory patient experience. In addition, it results in shorter colonoscopy surveillance intervals, longer hospital stays, and increased healthcare costs which may render screening colonoscopy cost-ineffective(6).

Ideal bowel preparation should clean the colon without mucosal injury, electrolyte shifts, or patient distress(4). The most recommended and commonly used preparation
regimens are based on polyethylene glycol (PEG), as well as that of non-PEG-based agents that have been clinically validated for routine bowel preparation as sodium picosulfate with magnesium citrate (SPMC)(6). 1L-PEG+ASC versus SPMC have shown similar results in a phase III clinical trial(7); despite this positive data in a clinical trial, both preparations have never been compared in a real-life setting.

Growing evidence indicates that regular measurement of colonoscopy quality indicators, optimization of information available to professionals, and implementation of protocols to reduce unwarranted clinical variability might represent a good starting point for any initiatives aimed at improving clinical outcomes(8). Therefore, the objectives of this study are to compare the effectiveness and safety of 1L-PEG+ASC versus SPMC in a real-life setting for the overall population, for patients aged ≥65 years, and for men versus women.

MATERIALS AND METHODS:

Patients and study design

A systematic, unicentric, and prospective real-life study was conducted in the Gastroenterology Department. Out-patients aged ≥18 years who underwent a screening or surveillance for CRC, diagnostic colonoscopy, and follow-up of polypectomies were consecutively enrolled from July 2019 to October 2021. Patients with creatinine clearance <30 mL/min, decompensated congestive heart failure, or decompensated cirrhosis, and patients unable to give informed consent were excluded. The study was conducted following the standards specified in the Declaration of Helsinki, the Good Clinical Practice Standards, and the International Conference on Harmonization guidelines and complied with current legislation. The patients who agreed to participate signed an informed consent.

The included patients were randomly assigned one of the two bowel preparations: 1L-PEG+ASC (PLENVU®, Norgine BV, Amsterdam, Netherlands) or SPMC (Citrafleet®, Casen Recordati, S.L. Zaragoza, Spain). Both groups received an afternoon-morning split dose regimen and a low-fiber diet was recommended in the 2-3 days preceding the colonoscopy. All colonoscopies underwent morning by a unique senior endoscopist.
The 1L-PEG+ASC patients were instructed to take the first dose (one sachet diluted in 500 ml of cold water) at 21:00 hours on the day before the colonoscopy. The second dose of 1L-PEG+ASC (two sachets mixed and diluted in 500 ml of cold water) was instructed to take 4-6 hours before the colonoscopy followed by 500 ml of clear liquids. For both doses, we advised to divide the intake into four glasses (125ml) and take one glass every 15 minutes alternating with 125 ml of clear liquids.

The SPCM patients were instructed to take the first dose (one sachet diluted in one glass of water) at 20:00 hour on the day before the colonoscopy, and the second dose of SPMC (one sachet diluted in one glass of water) 5 hours before the colonoscopy, followed by a minimum of 2 liters of clear liquids for each dose.

Additional clear fluids *ad libitum* were permitted up to three hours before the procedure.

All patients had a normal blood test in the previous week since all patients who presented hydroelectrolyte alterations or creatinine <30 mL/min were excluded from the study. Finally, blood samples were collected on the day of the colonoscopy, before sedation with propofol.

**Outcomes and measurements**

The primary endpoints were the assessment of bowel cleansing success, as well as high-quality cleansing (HQ-cleansing), of the overall colon and right colon. Bowel cleansing was evaluated through the Boston Bowel Preparation Scale (BBPS). Adequate bowel cleansing in the overall colon is defined as a BBPS $\geq 6$ (BBPS $\geq 2$ in each segment)(6). The whole colon preparation quality was also divided into 3 grades: excellent (total score 8–9), good (total score 6–7), and poor (total score 1-5); and a HQ-cleansing of the right colon as a partial BBPS =3.

Secondary endpoints included: Polyp Detection Rate (PDR) in the overall colon, defined as the proportion of colonoscopies where at least one polyp is found and removed(6); tolerability (measured as a subjective perception of the patient: good, regular, or poor tolerability and difficulty in taking the preparation); and safety of the preparations.
considering the adverse events (AEs) vomiting, nausea, and “others”, as well as sodium (Na+) and creatinine values after bowel preparation intake.

The primary and secondary endpoints were also evaluated in patients ≥65 years as well as in men versus women.

Statistical analysis

A descriptive statistic, univariate and bivariate analysis was conducted using the statistical package IBM SPSS Statistics software. Qualitative variables were described with frequency and percentages. The distributions of quantitative variables data were non-normal, so these were described with median and interquartile range (IQR; [Q1 - Q3]). Kruskal-Wallis, Mann-Whitney U, and Chi-square non-parametric tests were used for statistical analysis. For all comparisons, a P-value of 0.05 was considered statistically significant.

RESULTS

Study population and characteristics

A total of 876 patients were included, 424 (48.4%) in 1L-PEG+ASC and 452 (51.6%) in SPMC. Table 1 summarizes the baseline characteristics of the patients per group. The 1L-PEG+ASC group had a median age significantly higher than the SPMC group reaching a percentage of patients ≥65 years of 36.6% compared to 25.6% respectively.

Bowel cleansing effectiveness.

In the 1L-PEG+ASC group, overall cleansing success was achieved in 90.8% and 55.2% showed excellent bowel cleansing. In comparison, the SPMC group reached 77.7% of adequate bowel cleansing and most of them were good (52.2%) instead of excellent (25.4%) (Table 2, Figure 1.A).
Adequate and HQ-cleansing of the right colon (BBPS≥2 and BBPS=3 respectively) were significantly higher in the 1L-PEG+ASC group compared to the SPMC group, accomplishing 58.7% of excellent right colon cleansing in 1L-PEG+ASC versus 27.2% in SPMC group (Table 2, Figure 1.B). Besides, the SPMC group had a higher risk of inadequate right colon cleansing (OR= 2.392).

Despite the significant differences in quality preparation, no significant differences were found in PDR (Table 2).

Age did not affect the cleansing effectiveness, neither bowel cleansing success nor HQ-cleansing of the overall and right colon. However, the PDR was significantly higher in the elderly for both preparations (PDR in <65 years old versus ≥65 years old respectively: 1L-PEG+ASC, 40.5% versus 58.7%, p-value<0.001; and SPMC, 39.3% versus 50.4%, p-value= 0.036, Chi-square tests).

Regarding gender effect, 1L-PEG+ASC was equally effective for men and women in the overall and right colon (Figure 2.A). In contrast, SPMC showed significant differences between genders; women reached a higher median of overall colon BBPS (7 [6-8] versus 6 [5-7] respectively, p<0.01, Man Whitney U test) and higher frequency of excellent bowel cleansing than men. Also, HQ-cleansing of the right colon was more frequent in SPMC females than in SPMC males (Figure 2.B).

The PDR was higher in men than women with both preparations, but the differences were only significant in the 1L-PEG+ASC group (p-value=0.056, Chi-square test) in which any polyp was detected in more than half of men’s colonoscopies (Figure 2.A&B).

**Tolerability**

Regardless of tolerance of the preparations (good tolerated: 85.3% with 1L-PEG+ASC versus 89.2% with SPMC, p-value=0.010, Chi-square test), only 33% of the patients of both groups informed the completion of preparation solutions and the rest of the patients (66%) informed any difficulties to take the complete preparation. No significant differences in the percentages of patients able to complete bowel cleansing
solutions were observed between preparation groups, age groups, or gender. However, with both preparations, women showed significant worse tolerance than men.

**Safety**

AEs, considered to be associated with bowel preparation, were reported in 12.9% of total patients.

Both groups showed significant differences in safety measures. Vomiting incidence was 10.8% for 1L-PEG+ASC compared to 3.1% for SPMC (Table 3). But it is important to highlight that in general the AE vomiting does not affect the quality of preparation (p-value= 0.257, Man-Whitney U test). About other AEs reported by the patients, the most common was dizziness and abdominal pain in the SPMC group and an allergic reaction in the 1L-PEG+ASC group occurred.

Regarding electrolyte disturbances after bowel preparation intake, 9.1% of patients (n=41, from 40 to 80 years old, 61% women) in the SPMC had lower sodium levels (Na\(^+\) levels <135 mg/dl [hyponatremia]); even 5 women > 65 years had serum sodium levels <130 mg/dl and one of them required emergency admission. On the other hand, in the 1L-PEG+ASC group, 9.2% of patients (n=39, 66.7% women) had (Na\(^+\) >147mg/dl but <160 mg/dl hypernatremia]), all of them asymptomatic.

In general, gender affected safety parameters. Women suffered more nausea and vomiting. Also, sodium imbalances that occurred in each group were slightly more frequent in women than in men, but significant differences between genders were only found in hypernatremia (p-value= 0.046) (Table 3).

Finally, no age differences were found for safety parameters. We can only note that the sodium disturbances observed were more frequent in older patients than <65 years old (hyponatremia occurred in 7.8 vs 12.8% for SPMC and hypernatremia 7.4 vs 12.3 for PEG + ASC, respectively), but these differences were not significative.
DISCUSSION

This study throws real-life clinical practice outcomes about two commonly used bowel preparation solutions and follows updated colonoscopy guideline recommendations(6). Moreover, this work describes for the first time the differences obtained in a real clinical setting between 1L-PEG+ASC and SPMC preparations.

Our results showed the superiority of 1L-PEG+ASC to achieve better adequate bowel cleansing in the overall colon, attaining the recommendable values for the quality indicators (BBPS ≥ 6 in ≥ 90% and PDR ≥30%)(6). We consider especially remarkable the high frequency of excellent bowel cleansing reached with 1L-PEG+ASC compared with SPMC (55.5% vs. 25.4% in the overall colon, and 58.7% vs. 27.2% in the right colon), and that has already been described with 1L-PEG+ASC in an observational study(9). Also, several studies previously assessed the efficacy of very low-volume preparations with positive efficacy and safety outcomes(10-15). Even 1L-PEG+ASC preparation was equally effective between genders and/or age groups, while SPMC was less effective in men. Our data corroborate that 1L-PEG+ASC is effective in the male gender, which is described as a risk factor for inadequate preparation.

There were no differences in PDR with both bowel preparations. One possible explanation for this is that, in addition to screening CRC colonoscopies, we also included diagnostic colonoscopy and follow-up of polypectomies. However, according to published evidence, we find a higher PDR in elderly patients(5), and in men for the 1L-PEG+ASC group(6).

Another key point is about electrolyte imbalance. In our patients, the SPMC group reached a significant decrease in sodium blood values causing the emergency admission of a patient. The hyponatremia caused by SPMC has been previously remarked(16,17) and the choice for patients at risk for electrolyte disturbances must be carefully selected. The electrolyte shifts caused by 1L-PEG+ASC were asymptomatic according to a prior study(18).

In our real clinical setting, adverse events, or the difficulty to take the regimen solutions did not affect the quality of the bowel preparation in any of the preparations. Even, women that had worse adherence, tolerance, and more secondary effects
achieved so good or better BBPS results than men.

The limitation of this study is the heterogeneity of the selected patients, specifically the colonoscopy criteria of performance. However, despite these differences that can apport variability to the outcomes, the conclusions are more representative of real clinical practice.

CONCLUSION

In conclusion, in our real-life setting, 1L-PEG+ASC offered better adequate and HQ bowel cleansing, achieving excellent cleansing quality regardless of gender or tolerance.

Additionally, in patients at risk for electrolyte disturbances, the choice of laxative should be individualized, and patient characteristics must be considered.

Given the unquestionable value of colonoscopy as an effective tool for declining the incidence and mortality of CRC, it is mandatory to continue the efforts to implement CRC screening and to spread outcomes in real-life settings.

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REFERENCES


17. Mathus-Vliegen EMH, van der Vliet K, Wignand-van der Storm IJ, et al. Split-dose bowel cleansing with picosulphate is safe and better tolerated than 2-L


Table 1. Demographic characteristics of the patients per group

<table>
<thead>
<tr>
<th></th>
<th>1L-PEG + ASC (n= 424)</th>
<th>SPMC (n=452)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>206 (48.6)</td>
<td>198 (43.8)</td>
<td>0.08a</td>
</tr>
<tr>
<td>Female</td>
<td>218 (51.4)</td>
<td>254 (56.2)</td>
<td></td>
</tr>
<tr>
<td>Age, median [IQR]</td>
<td>61 [53 – 69]</td>
<td>56 [49 - 65]</td>
<td>&lt; 0.001b</td>
</tr>
<tr>
<td>Age groups, n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 65 years old</td>
<td>269 (63.4)</td>
<td>335 (74.1)</td>
<td></td>
</tr>
<tr>
<td>≥ 65 years old</td>
<td>155 (36.6)</td>
<td>117 (25.9)</td>
<td></td>
</tr>
</tbody>
</table>

a Chi-Square test; b Man-Whitney U test; P-value ≤ 0.05 was considered statistically significant.

IQR, interquartile range; 1L-PEG+ASC, 1 liter of polyethylene glycol plus Ascorbic Acid; SPMC, sodium picosulphate with magnesium citrate;

Table 2. Bowel cleansing success and PDR per group

<table>
<thead>
<tr>
<th>Preparation quality measures</th>
<th>1L-PEG + ASC (n= 424)</th>
<th>SPMC (n=452)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall colon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBPS, median [IQR]</td>
<td>8 [7 – 9]</td>
<td>6.5 [6 - 8]</td>
<td>&lt; 0.001a</td>
</tr>
<tr>
<td>Adequate cleansing, n (%)</td>
<td>385 (90.8)</td>
<td>351 (77.7)</td>
<td>&lt; 0.001b</td>
</tr>
<tr>
<td>Right colon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBPS, median [IQR]</td>
<td>3 [2 – 3]</td>
<td>2 [2 – 3]</td>
<td>&lt; 0.001a</td>
</tr>
<tr>
<td>Adequate cleansing, n (%)</td>
<td>390 (92.0)</td>
<td>374 (82.7)</td>
<td>&lt; 0.001b</td>
</tr>
</tbody>
</table>
BBPS, Boston Bowel Preparation Scale; IQR, interquartile range; PDR, Polyp Detection Rate; 1L-PEG+ASC, 1 liter of polyethylene glycol plus Ascorbic Acid; SPMC, sodium picosulphate with magnesium citrate.

**Table 3.** Safety outcomes per group and effect of gender over preparation safety.

<table>
<thead>
<tr>
<th>Safety measures</th>
<th>1L-PEG + ASC (n= 424)</th>
<th>SPMC (n=452)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEs, Nausea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n (%) Total</td>
<td>18 (4.2)</td>
<td>28 (6.2)</td>
<td>&lt; 0.001&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Male/Female 6 (2.9) / 12</td>
<td>7 (3.5) / 21</td>
<td>(5.5) / (8.3)</td>
<td>p-value &lt; 0.001&lt;sup&gt;b&lt;/sup&gt; / p-value &lt; 0.01&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Vomiting Total</td>
<td>46 (10.8)</td>
<td>14 (3.1)</td>
<td>&lt; 0.001&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Male/Female 9 (4.4) / 37</td>
<td>2 (1.0) / 12</td>
<td>(4.7) / (17.0)</td>
<td>p-value &lt; 0.001&lt;sup&gt;b&lt;/sup&gt; / p-value = 0.024&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Others 5 (1.2)</td>
<td>23 (5.1)</td>
<td>&lt;0.001&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
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<tr>
<td>Blood values after taking the bowel preparation, median (IQR)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Na+ (mg/dl)</td>
<td>143 (141 – 145)</td>
<td>139 (137)</td>
<td>&lt; 0.001&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hyponatremia n</td>
<td>0 / 0</td>
<td>16 (8.1) / 25</td>
<td>(9.8)</td>
</tr>
<tr>
<td>Male/Female 13 (6.3) / 26</td>
<td>0 / 0</td>
<td>(11.9)</td>
<td>p-value = 0.518&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Hypernatremia (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male/Female 0.8 (0.6 – 0.9)</td>
<td>0.7 (0.6 – 0.8)</td>
<td>&lt; 0.001&lt;sup&gt;a&lt;/sup&gt;</td>
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</tbody>
</table>
Man-Whitney U test; \(^{b}\) Chi-Square test; P-value ≤ 0.05 was considered statistically significant.

AEs: adverse events; BBPS, Boston Bowel Preparation Scale; IQR, interquartile range; Na\(^+\), sodium; PDR, Polyp Detection Rate; 1L-PEG+ASC, 1 liter of polyethylene glycol plus Ascorbic Acid; SPMC, sodium picosulphate with magnesium citrate.
*P-value* \( \leq 0.001\), Chi-Square test; *P-value* \( \leq 0.05\) was considered statistically significant.

**Figure 1. Results of bowel cleansing quality assessment based on the Boston Bowel Preparations Scale.**

A) Preparation quality of the entire colon was divided into 3 grades: Excellent (BBPS=8-9), Good (BBPS=6-7), and Poor (BBPS=1-5).

B) BBPS of right colon: 3 = high-quality cleansing of the right colon.

BBPS, Boston Bowel Preparation Scale; 1L PEG+ASC, 1 liter of polyethylene glycol plus Ascorbic Acid; SPMC, sodium picosulphate with magnesium citrate.
Figure 2. Gender effect over colonoscopy quality parameters: cleansing success of overall colon, cleansing success of right colon, and PDR. Adequate overall colon cleansing is a BBPS ≥ 6 with a partial BBPS ≥ 2 in each segment, and excellent overall colon cleansing is defined as BBPS=8-9. A) Results of bowel cleansing quality and PDR by gender in the 1L PEG+ASC group. Differences were only observed in PDR. B) Results of bowel cleansing quality and PDR by gender in the SPMC group. Women reached excellent cleansing results more often than men, both in the entire colon and in the right colon.

BBPS, Boston Bowel Preparation Scale; PDR, Polyp Detection Rate; 1L PEG+ASC, 1 liter of polyethylene glycol plus Ascorbic Acid; SPMC, sodium picosulphate with magnesium citrate.