STROBE Statement—checklist of items that should be included in reports of observational studies

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|  | Item No. | Recommendation | Page  No. | Relevant text from manuscript |
| **Title and abstract** | 1 | (*a*) Indicate the study’s design with a commonly used term in the title or the abstract | 2 | Patients (n = 111) with locally advanced rectal cancer who underwent nCRT followed by TME at MIS unit, Siriraj Hospital between June 2012 and January 2018 were retrospectively analyzed. |
| (*b*) Provide in the abstract an informative and balanced summary of what was done and what was found | 2 | In patients with locally advanced rectal cancer, NLRs, MLRs and PLRs were higher for advanced pathological stages but the differences were not significantly different. |
| Introduction | | | |  |
| Background/rationale | 2 | Explain the scientific background and rationale for the investigation being reported | 3 | The neutrophil-to-lymphocyte ratio (NLR) serves as the primary prognostic marker for white blood cells. A previous meta-analysis demonstrates the benefit of the NLR as a prognostic factor for many cancers such as endometrial cancer, non-small cell lung cancer, hepatocellular carcinoma, gastric cancer, and colorectal cancer.2 Subsequently, that the predictive roles of the monocyte-to-lymphocyte ratio (MLR) and the platelet-to-Lymphocyte ratio (PLR) were established. |
| Objectives | 3 | State specific objectives, including any prespecified hypotheses | 3 | Here we evaluated the predictive roles of NLR, MLR, and PLR in patients with locally advanced rectal cancer receiving neoadjuvant chemoradiation. |
| Methods | | | |  |
| Study design | 4 | Present key elements of study design early in the paper | 3 | The records of 111 patients with locally advanced rectal cancer who underwent neoadjuvant chemoradiation followed by oncological surgical resection at MIS unit, Siriraj Hospital between June 2012 and January 2018 were retrospectively analyzed. |
| Setting | 5 | Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection | 3-4 | The records of 111 patients with locally advanced rectal cancer who underwent neoadjuvant chemoradiation followed by oncological surgical resection at MIS unit, Siriraj Hospital between June 2012 and January 2018 were retrospectively analyzed.  Demographic data collected included age, sex, clinical tumor and nodal stages, and location of tumors. |
| Participants | 6 | (*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up  *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls  *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants | 3 | 111 patients with locally advanced rectal cancer who underwent neoadjuvant chemoradiation followed by oncological surgical resection. |
| (*b*)*Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed  *Case-control study*—For matched studies, give matching criteria and the number of controls per case |  |  |
| Variables | 7 | Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable | 4 | Pathological tumor (ypT0-4) and nodal staging (ypN0-2) data were acquired. A pathological complete response (pCR) was defined as not detectable viable tumor cells in the resected specimen (ypT0) and the resected node (ypN0). The neoadjuvant rectal (NAR) score was calculated according to the data generated using a Valentini nomogram for overall survival, using the clinical tumor stage (cT), pathological tumor stage (pT), and pathological nodal stage (pN) 2, 3. The equation for calculating the NAR score is as follows: NAR = [5ypN – 3(cT – ypT) + 12]2 / 9.61. |
| Data sources/ measurement | 8\* | For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group | 4-5 | Numerical variables are expressed using frequency. Continuous variables were compared using independent samples Kruskal-Wallis (one-way ANOVA) test. A P value of < 0.05 was considered statistically significant. |
| Bias | 9 | Describe any efforts to address potential sources of bias | 6 | small number of patients, that the main limitation of this study. |
| Study size | 10 | Explain how the study size was arrived at | 3 | 111 patients with locally advanced rectal cancer who underwent neoadjuvant chemoradiation followed by oncological surgical resection at MIS unit, Siriraj Hospital between June 2012 and January 2018 were retrospectively analyzed. |

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| Quantitative variables | 11 | Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why | 4 | NAR scores were categorized into the levels as follows: High (score >16), Intermediate (score 8-16) and Low (score <8) 3, 4. High NAR scores correlated with poor oncological outcomes. |
| Statistical methods | 12 | (*a*) Describe all statistical methods, including those used to control for confounding | 4-5 | All demographic data was analyzed using descriptive statistics. Numerical variables are expressed using frequency. Continuous variables were compared using independent samples Kruskal-Wallis (one-way ANOVA) test. |
| (*b*) Describe any methods used to examine subgroups and interactions |  |  |
| (*c*) Explain how missing data were addressed |  |  |
| (*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed  *Case-control study*—If applicable, explain how matching of cases and controls was addressed  *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy |  |  |
| (*e*) Describe any sensitivity analyses |  |  |
| Results | | | | |
| Participants | 13\* | (a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed | 5 | Patients’ demographic data are shown in Table 1. The patient population comprised 66 men and 45 women, median 61 years (range, 22–93 years). |
| (b) Give reasons for non-participation at each stage |  |  |
| (c) Consider use of a flow diagram |  |  |
| Descriptive data | 14\* | (a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders | 5 | The clinical stages determined using CT, MRI, or both were as follows: T4 (n = 16), T3 (n = 94), and T2 (n = 1). The frequency of clinically positive lymph nodes was 14.4 %. The NAR scores were categorized as High (>8) 23.4 %, Intermediate (8–16) 41.4 %, and Low (<8) 35.2 %. |
| (b) Indicate number of participants with missing data for each variable of interest |  |  |
| (c) *Cohort study*—Summarise follow-up time (eg, average and total amount) |  |  |
| Outcome data | 15\* | *Cohort study*—Report numbers of outcome events or summary measures over time |  |  |
| *Case-control study—*Report numbers in each exposure category, or summary measures of exposure |  |  |
| *Cross-sectional study—*Report numbers of outcome events or summary measures | 5 | The clinical stages determined using CT, MRI, or both were as follows: T4 (n = 16), T3 (n = 94), and T2 (n = 1). The frequency of clinically positive lymph nodes was 14.4 %. The NAR scores were categorized as High (>8) 23.4 %, Intermediate (8–16) 41.4 %, and Low (<8) 35.2 %. |
| Main results | 16 | (*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included | 5 | The mean values of the NLR, PLR, and MLR correlated with pathologic tumor staging (ypT) and the NAR score. The values of the NLR of pathological stages 0, 1, 2, and 3 were 2.36, 2.42, 2.83 and 3.07, respectively (p = 0.40) (Figure 1). The mean values of the MLR of pathological stages 0, 1, 2 and 3 were 0.24, 0.27, 0.28, and 0.36, respectively (p = 0.18). The mean values of the PLR of pathological stages 0, 1, 2, and 3 were 10.15, 13.27, 14.20 and 15.56, respectively (p = 0.54). The mean values of the NLR were 2.52, 2.61, and 3.08 for low, intermediate, and high NAR scores, respectively (p = 0.58). The mean values of the MLR were 0.25, 0.27, and 0.37, respectively (p = 0.32). The mean values of the PLR were 11.40, 13.20, and 16.00, respectively (p = 0.61). |
| (*b*) Report category boundaries when continuous variables were categorized |  |  |
| (*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period |  |  |

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| Other analyses | 17 | Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses |  |  |
| Discussion | | | | |
| Key results | 18 | Summarise key results with reference to study objectives | 5-6 | Our study demonstrated the mean values of the NLR, PLR, and MLR correlated with pathological tumor staging (ypT) and the NAR score, the ratios were higher in advanced stages and high NAR scores. |
| Limitations | 19 | Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias | 6 | However, the differences were not statistically significant among the groups which is resulted by the small number of patients, that the main limitation of this study. |
| Interpretation | 20 | Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence | 7 | The limitations of this study include its retrospective analysis of a small number of patients at a single center. |
| Generalisability | 21 | Discuss the generalisability (external validity) of the study results | 7 | The NAR score predicts the prognosis of patients with rectal cancer patient who receive neoadjuvant chemoradiotherapy. Subsequent to the NSABP R-04 trial, NAR scores were categorized as low, intermediate, and high, which are significantly associated with overall survival |
| Other information | |  | | |
| Funding | 22 | Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based | 7 | No grant support for this study. |

\*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.