



Impact of the COVID-19 pandemic on patients with unplanned 14-day readmissions in Taiwan.

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INTRODUCTION

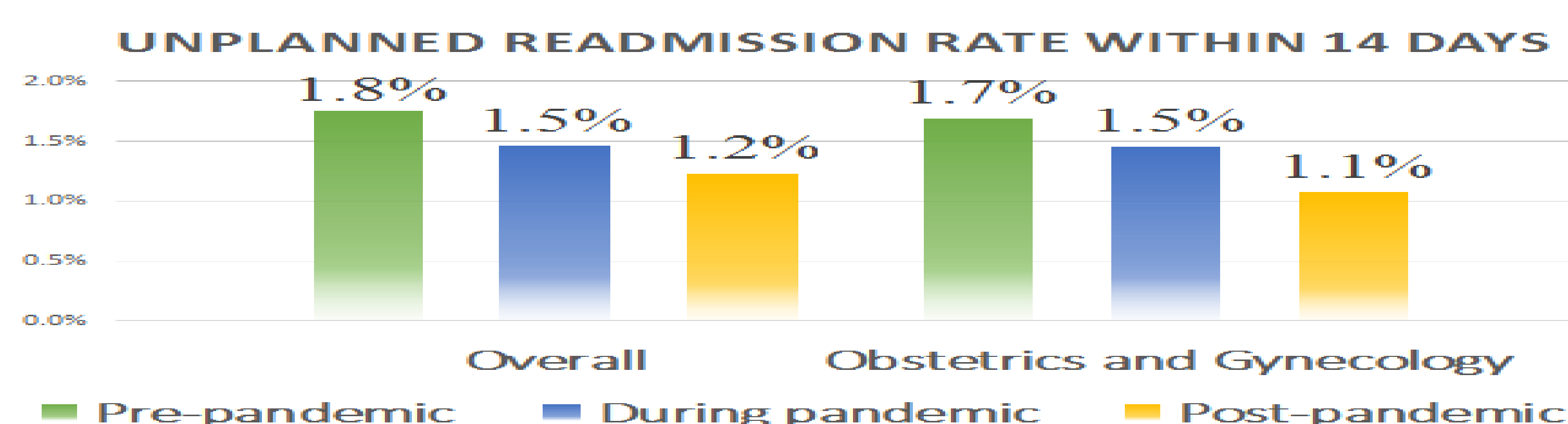
The unplanned readmission rate within 14 days is an important indicator of healthcare quality. By analyzing the changes in the unplanned 14-day readmission rate of patients, we aim to understand and explore the differences in readmission cases at Mackay Memorial Hospital before and after the COVID-19 pandemic, providing references for the hospital management department to formulate quality management measures.

METHODS

This study is a retrospective medical records review. Patients scheduled for readmission and those whose reasons for admission were unrelated to their previous conditions were excluded during data analysis. There were a total of 2,219 unplanned readmissions within 14 days. The study population was divided into three groups: during the COVID-19 pandemic period (defined as May 2021 to February 2022, based on the issuance of pandemic alerts by the Central Epidemic Command Center in Taiwan), pre-pandemic (May 2020 to February 2021), and post-pandemic (May 2022 to February 2023). These time intervals were defined to avoid seasonal distribution differences, thus statistical comparisons were conducted based on the same months. Statistical analyses on medical records were conducted using IBM SPSS Statistics 19.0 software. Analyzed variables included patient age, department, specialty, reasons for readmission, and readmission rate. The significance of the data was assessed using chi-square tests, analysis of variance, post hoc comparisons (Bonferroni), and time series analysis.

RESULTS

- A total of 2,219 cases of unplanned readmissions within 14 days were recorded, with 1,022 cases before the pandemic, 610 cases during the pandemic, and 587 cases after the pandemic.
- The statistical results indicate that the average age of patients readmitted within 14 days unplanned was 56.2 years before the pandemic, 57.9 years during the pandemic, and 58.1 years after the pandemic. The most common reasons for readmission were the recurrence/worsening of previously controlled diseases (before: 36.4%, during: 32.78%, after: 35.86%), followed by exacerbations of chronic illnesses (before: 26.21%, during: 27.65%, after: 28.28%), and the differences were not statistically significant.
- Post hoc analysis results showed that the unplanned readmission rate within 14 days in our hospital was before the pandemic 1.75% compared to during the pandemic 1.46% ($p=0.02$) and before the pandemic 1.75% compared to after the pandemic 1.23% ($p<0.001$). Time series analysis demonstrated a significant decreasing trend in the unplanned readmission rate from before the pandemic to 14 days after the pandemic ($\beta=-0.13$, $p<0.001$).
- Further analysis of the 14-day unplanned readmission rate by department revealed the significant decrease in the Obstetrics and Gynecology department ($\beta=-0.159$, $p<0.013$). When comparing by specialties, the Thoracic Medicine exhibited the largest decrease ($\beta=-0.384$, $p=0.025$), followed by Gynecology ($\beta=-0.254$, $p=0.028$).



CONCLUSION

- The results indicate that following the COVID-19 pandemic, the unplanned readmission rate within 14 days at Mackay Memorial Hospital has significantly decreased, while the age of readmitted patients and reasons for return have not changed significantly.
- When comparing by department, the Obstetrics and Gynecology department experienced a significant decrease in unplanned readmission rate within 14 days after the pandemic. There were a large number of patients with confirmed COVID-19 admitted to the medical center. It is inferred that obstetrics and gynecology patients may have been more inclined to avoid entering the hospital after the pandemic due to concerns about the risk of infection. In case of emergency medical conditions, they would also prefer to choose local hospitals or obstetrics and gynecology clinics to reduce the risk of infection.
- When comparing by specialties, the Thoracic Medicine department experienced the most significant decrease in unplanned readmission rate within 14 days. It is inferred that following the COVID-19 pandemic, with the regulations of the mask policy in Taiwan, respiratory-related diseases among the public have decreased, leading to a reduction in disease exacerbations and chronic infections after discharge.
- These results are expected to provide hospital management departments with quality monitoring as a reference to understand the decrease in unplanned readmission rate within 14 days.

