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Letter to Editor

Have lunar cycles and zodiac signs an impact on the mortality and morbidity of the lung cancer surgery?

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Dear Editor,

Patients occasionally choose the surgery date by following predictions based on the popular superstition that moon phases and zodiac signs may impact the outcome of surgery. One-fifth of the population believes in the impact of the moon phases on various phenomena and, among other things, the outcome of medical treatment.[1] Nevertheless, several scientific studies have discussed the impact of lunar cycles or zodiac signs on treatment-related complications, postoperative morbidity, and mortality.[1,2]

In a retrospective study, we aimed to explore the potential impact of moon phases and zodiac signs on postoperative complications, morbidity, and mortality in 3506 patients who underwent lobectomy for lung cancer between 1998 and 2019 (Appendix Supplementary data).

No significant differences were observed in demographics or outcomes based on moon phases or zodiac signs (Table 1). Concerning the lunar cycle or the zodiac signs, there were no significant differences in age, gender, type of lobectomy, and overall major and minor postoperative complications. The moon phases did not affect the rate of intraoperative complications or overall morbidity and survival (Fig. 1). The operation timing concerning moon phases had no discernible effect on long-term survival. In addition, the allocation of patients to zodiac signs revealed no significant impact on surgical outcomes and overall survival (Fig. 2).

The potentially unfavourable consequences of patients who underwent elective surgery on Friday compared to individuals who got surgery earlier in the week have been explored previously. The weekday of surgery was not statistically significantly associated with an increased risk of postoperative morbidity in lung cancer patients undergoing elective lobectomies.[3] Even in modern societies, superstition still plays a significant role. Very few individuals approach life in an entirely reasonable manner. People may rely on astrology to foretell the future because superstition is frequently associated with uncontrollable events. Moon and lunar cycles played an essential role in ancient human civilisations, with the earliest reports dating to Sumerian and Egyptian high cultures. The idea that stars and planets may influence human health and behaviour can be traced to Greek and Roman times. Even in modern times, the notion that lunar phases influence various areas of daily life remains extremely popular. In ancient and contemporary cultures, the moon is considered a force that affects human destiny and health.[4] In the second half of the 20th century, the moon phase hypothesis, which the medical community had almost primarily abandoned since the 18th century, saw a rebirth. In recent years, numerous studies have been published analysing the effect of lunar phases on suicide, mental health, and various injury events. Other aspects of superstition, such as zodiac signs, may influence human behaviour differently.[5]

This retrospective analysis suggested that scheduling lung cancer surgeries based on lunar cycles or zodiac signs may be unnecessary. The absence of significant associations with postoperative complications, morbidity, or mortality indicates that such superstitions need not influence surgical planning. While acknowledging patient concerns rooted in beliefs, further prospective data, preferably from lung cancer registries, are essential for comprehensive insights into the potential influence of lunar cycles on surgical

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Table 1
Patients grouped according to their zodiac sign. Data were shown as number (percentage) if no otherwise defined.

	Aries (No. = 300)	Taurus (No. = 270)	Gemini (No. = 35)	Cancer (No. = 303)	Leo (No. = 315)	Virgo (No. = 316)	Libra (No. = 273)	Scorpio (No. = 286)	Sagittarius (No. = 227)	Capricorn (No. = 278)	Acquarius (No. = 297)	Pisces (No. = 306)	p-value
Age, mean ± SD	64.2 ± 9.7	63.5 ± 11.3	64.2 ± 10.7	64.7 ± 9.6	65.1 ± 9.8	64.5 ± 10.3	63.9 ± 10.0	65.1 ± 9.7	63.8 ± 11.2	64.0 ± 10.4	64.5 ± 10.2	64.6 ± 9.5	0.89
Male/Female ratio	2.0	1.8	1.8	1.7	1.6	2.0	1.6	2.2	1.6	1.1	2.1	1.5	0.67
Lobectomy	44 (14.7)	37 (13.9)	46 (13.8)	44 (14.6)	44 (14.0)	55 (17.5)	44 (16.2)	33 (11.6)	27 (11.9)	35 (12.7)	42 (14.2)	42 (13.7)	0.75
• Left lower lobectomy	80 (26.8)	64 (30.0)	85 (25.5)	56 (18.6)	73 (23.2)	81 (26.0)	83 (30.4)	71 (25.0)	57 (25.1)	87 (31.5)	68 (23.0)	79 (25.8)	
• Left upper lobectomy	55 (18.4)	49 (18.3)	55 (16.5)	56 (18.6)	60 (19.2)	44 (14.0)	37 (13.6)	51 (18.0)	48 (21.1)	51 (18.5)	55 (18.6)	53 (17.3)	
• Right lower lobectomy	17 (5.7)	14 (5.2)	14 (4.2)	26 (8.6)	20 (6.4)	16 (5.1)	16 (5.9)	17 (6.0)	6 (2.7)	19 (6.9)	20 (6.8)	30 (9.8)	
• Right middle lobectomy	103 (34.5)	103 (38.6)	133 (39.9)	119 (39.6)	117 (37.3)	118 (37.6)	93 (34.1)	112 (39.5)	89 (39.2)	84 (30.5)	111 (37.5)	102 (33.3)	
• Right upper lobectomy													
Stage	54 (18.0)	54 (20.0)	62 (18.5)	67 (22.1)	60 (19.0)	65 (20.6)	51 (18.7)	53 (18.5)	46 (20.3)	52 (18.7)	63 (21.2)	59 (19.3)	0.45
• IA	68 (22.7)	59 (21.9)	70 (21.9)	61 (20.2)	65 (20.7)	69 (21.8)	48 (17.6)	58 (20.3)	42 (18.5)	58 (20.9)	69 (23.2)	77 (25.2)	
• IB	77 (25.7)	81 (30.0)	103 (30.7)	86 (28.4)	102 (32.4)	89 (28.2)	76 (27.9)	82 (28.7)	58 (25.6)	74 (26.7)	97 (32.7)	79 (25.8)	
• IIA	39 (13.0)	35 (13.0)	42 (12.6)	46 (15.2)	39 (12.4)	36 (11.4)	41 (15.0)	37 (13.0)	42 (18.5)	37 (13.3)	32 (10.8)	42 (13.7)	
• IIB	41 (13.7)	26 (9.6)	34 (10.1)	26 (8.5)	26 (8.3)	30 (9.5)	34 (12.5)	31 (10.9)	26 (11.5)	30 (10.8)	22 (7.4)	31 (10.1)	
• IIIA	12 (4.0)	11 (4.1)	10 (3.0)	5 (1.7)	7 (2.2)	14 (4.4)	7 (2.6)	9 (3.1)	5 (2.2)	6 (2.2)	7 (2.4)	8 (2.6)	
• IIIB	9 (3.0)	4 (1.5)	14 (4.2)	12 (4.0)	16 (5.1)	13 (4.1)	16 (5.9)	16 (5.6)	8 (3.5)	21 (7.6)	7 (2.4)	10 (3.3)	
• IV													
Overall complications	93 (31.0)	88 (32.6)	100 (29.9)	88 (29.0)	94 (29.8)	104 (32.91)	82 (30.0)	69 (24.1)	72 (31.7)	76 (27.3)	96 (32.3)	79 (25.8)	0.56
Haemothorax	3 (1.0)	1 (0.4)	1 (0.3)	5 (1.7)	3 (1.0)	3 (1.0)	6 (2.2)	3 (1.0)	2 (0.9)	0	5 (1.7)	4 (1.3)	0.09
Postoperative air leaks	26 (8.7)	22 (8.2)	32 (9.6)	26 (8.6)	25 (8.0)	27 (8.5)	23 (8.4)	17 (6.0)	27 (11.9)	25 (9.0)	22 (7.5)	17 (5.6)	0.34
Bronchopleural fistula	1 (0.3)	2 (0.7)	1 (0.3)	0	1 (0.3)	1 (0.3)	0	1 (0.3)	0	1 (0.3)	2 (0.6)	0	0.059
Length of hospital stay, mean ± SD	7.9 ± 8.3	7.7 ± 5.0	7.4 ± 4.2	7.9 ± 5.6	7.0 ± 3.6	8.6 ± 6.6	7.6 ± 5.9	7.9 ± 6.8	7.8 ± 6.6	7.7 ± 6.3	7.6 ± 5.2	8.1 ± 6.4	0.77

Fig. 1. Overall survival stratified for the surgery date allocated to the days of the lunar cycle and the dates of the four principal lunar phases.

Fig. 2. Overall survival stratified for the zodiac sign of patients.

complications and outcomes.

Conflict of interest

The authors have no conflict of interest to declare.

Disclosure statement

The authors have no conflict of interest to declare.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.asjsur.2024.05.011.

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Luca Bertolaccini*, Antonio Mazzella, Cristina Diotti
Department of Thoracic Surgery, IEO, European Institute of Oncology IRCCS, Milan, Italy

Lorenzo Spaggiari
Department of Thoracic Surgery, IEO, European Institute of Oncology IRCCS, Milan, Italy

Department of Oncology and Hemato-Oncology, University of Milan, Milan, Italy

* Corresponding author. Division of Thoracic Surgery, IEO, European Institute of Oncology IRCCS, Via Ripamonti 435, 20141, Milan, Italy.
E-mail address: luca.bertolaccini@gmail.com (L. Bertolaccini).

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