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EFFECTIVENESS OF POVIDONE IODINE VERSES CHLORHEXIDINEMOUTH WASH ON RADIOTHERAPY INDUCED ORAL MUCOSITIS AND PAIN AMONG CANCER PATIENTS

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ABSTRACT

Background: Oral cancer is a prevalent and serious health concern in the Indian subcontinent. This study aims to investigate the efficacy of povidone iodine (5%) compared to chlorhexidine mouthwash (0.2%) in managing oral mucositis and pain induced by radiotherapy. **Aim:** To compare & study the effectiveness of povidone iodine (5%) verses chlorhexidine mouth wash (0.2%) on oral mucositis and pain induced by Radiotherapy. **Materials & Method**: A Simple factorial design was conducted in Apollo Hospitals-Gandhinagar, to study and assess the effectiveness of povidone iodine (5%) verses chlorhexidine mouth wash (0.2%) of oral mucositis and pain induced by Radiotherapy. A simple random under simple lottery method were selected 180 head and neck cancer patients with oral mucositis and pain and was collected data after obtaining the consent from the patients or family members. The obtained data were analysed using SPSS-20 software, descriptive statistics were used to describe the samples characteristics, the degree of freedom were analysed. Moreover, Chi-square test used. The level of significance was set at $p<0.005$. **Results:** Povidone iodine demonstrated higher effectiveness in reducing mucositis and pain compared to chlorhexidine ($p < 0.0001$), indicating its superiority in managing these symptoms induced by radiotherapy. **Conclusion:** This study

affirms the greater efficacy of povidone iodine over chlorhexidinegluconate in alleviating mucositis and associated pain.

Keywords: Povidone iodine, Chlorhexidinegluconate, Mucositis, Pain, Cancer, Radiotherapy

INTRODUCTION:

Oral mucositis, which is common in head and neck cancer patients getting chemoradiation, can make it hard to eat, talk, and affects how they feel. It can also impact how well treatments work and how long someone lives. This problem leads to the thinning of the mouth lining, causing red patches, sores, and very painful swallowing issues **[1]**.

Oral mucositis, common in cancer treatments like chemo and radiation, causes pain, eating problems, and infection risk from mouth sores, significantly affecting the patient's life quality **[2]**.

Iodophore-based mouthwashes like Povidone Iodine (PVP-I) are popular due to their long history of safe use in healing wounds. These formulations release free iodine, helping manage mucositis caused by various cancer treatments, prompting the need for evidence-based guidelines and further research **[3, 4]**.

Mucositis is a common but understudied issue in solid tumor patients. In a study on myelosuppressive chemotherapy, mucositis appeared in 37% of cycles, with GI mucositis leading to more bleeding episodes (13% vs. 8%; P = 0.04) and higher infection rates (73% vs. 36%; P 0.0001) compared to non-mucositis cycles. Hospital stays increased with mucositis: 4 days (no mucositis), 6 days (oral), and 12 days (GI). GI mucositis, even without myelosuppression, correlated with bleeding and infection (OR, 2.0; P = 0.01), while oral mucositis was linked to infection only (OR, 2.4; P 0.0001). Radiation-induced oral mucositis (RIOM) in head and neck cancer patients is a significant problem during radiation therapy. It negatively impacts patient quality of life, therapy continuity, and poses challenges to oncologists due to therapy interruptions, local tumor control issues, and dose changes. RIOM affects all patients receiving altered fractionation radiotherapy for head and neck cancer **[5, 6]**.

Nurses have a crucial role in managing mucositis, involving assessment, teaching oral care, administering medications, and aiding patients with distressing symptoms. Severe pain or infections related to mucositis can negatively impact the treatment process. Despite various interventions available, most lack substantial evidence from large-scale trials, leading to confusion when comparing treatments due to numerous assessment tools. Several reviews offer empirical evidence on interventions for oral mucositis, including oral care, rinses, pharmacologic

treatments, and ongoing research into other techniques **[7]**. This study aimed to decrease radiotherapy-induced oral mucositis and pain, which is crucial for enhancing patient outcomes, improving quality of life, and advancing knowledge and care protocols in the field of oncology nursing.

MATERIALS AND METHODS:

The research approach adopted in this study was a quantitative research approach, focusing on comparing the effectiveness of povidone iodine (5%) and chlorhexidine mouthwash (0.2%) in managing oral mucositis and pain induced by radiotherapy. Utilizing a simple factorial design, the study investigated two independent variables across multiple levels to understand their individual and combined effects on the dependent variable. The study involved 180 head and neck cancer patients undergoing radiotherapy at Apollo Hospitals-Gandhinagar. Chosen via random sampling. The study excluded individuals who had prior radiotherapy or chemotherapy, HIV infections, diabetes mellitus, hyperthyroidism, iodine or povidone-iodine allergies, or those using other mouthwashes. The data collection instrument comprises two main sections. Section A focuses on demographic data encompassing socio-demographic variables such as Age, Gender, Food pattern, Maintenance of Oral Hygiene, Smokeless Tobacco Chewing/Current, Smokeless Tobacco Chewing/Ever, Smoking, Betel Quid Chewing, and Duration of Radiotherapy. Section B involves the WHO oral mucositis assessment scale, adopted from Athar& Gentile (2009), which categorizes mucositis severity into five grades: Grade 0 indicates no changes, Grade 1 denotes soreness or erythema, Grade 2 specifies erythema with ulcers less than 1 cm, Grade 3 indicates ulcers more than 1 cm requiring liquid food, and Grade 4 involves ulcers with hemorrhage and necrosis, impeding food intake. Additionally, Section C utilizes the Visual Analogue pain scale, classifying pain intensity as no pain (0–4 mm), mild pain (5–44 mm), moderate pain (45–74 mm), and severe pain (75–100 mm) based on the scores. To validate the questionnaires and tools, experts in Nursing and Medical fields were consulted, their opinions sought, and their suggestions integrated to enhance simplicity and relevance. A pilot study confirmed the superior effectiveness of povidone iodine over chlorhexidine mouthwash in reducing oral mucositis and pain induced by radiotherapy. Participants in the study were instructed to rinse their oral cavities with a diluted solution of either povidone iodine or chlorhexidine mouth rinses, measuring 15 ml, which could be mixed equally with clean water if necessary. They were directed to tilt their heads back, gargle the solution for 30 seconds, swish it around the throat, and then spit it out. This process was to be repeated

four times daily at six-hour intervals, under professional supervision. Measuring cups were provided to ensure the correct quantity of oral rinses. Patients were advised to wait at least 30 minutes after using the solutions before rinsing their mouths, brushing teeth, eating, or drinking. Throughout the six-week radiotherapy period, all patients were examined weekly, with mucositis and pain assessments conducted and graded as per WHO guidelines. The data collection phase spanned 12 months, conducted with the necessary permissions and adherence to study selection criteria. Consent from the participants was also obtained before their inclusion. The tools employed for data collection were the Oral Mucositis Assessment scale and the Visual Analogue Pain scale.The study collected data using the aforementioned assessment scales, aiming to analyze it using descriptive and inferential statistics, including frequency, percentage, chi-square, and F-test analyses to compare groups and associations between variables.

RESULTS:

Section -I Frequency and Percentage of Observations on Mucositis, Pain and Pain Intensity, Frequency and Duration and also Analgesics Frequency, Dosage of Pain Killers among Chlorhexidine group.

Table 1, shows that in the Chlorhexidine group, erythema prevailed with 38 (42.2%) in the first observation, 40 (44.4%) in the second, and 40 (44.4%) in the third. Soreness remained consistent across all three observations at 19 (21.1%), while the frequency of ulcer observations showed minimal variation among these observations.

Table 2, displays pain observations in the Chlorhexidine group, with pain (4-6) at 43 (47.8%) in the first and second observations, and 69 (76.7%) in the third. Pain (7-9) was consistent between the first and second observations at 38 (42.2%), while in the third observation, it decreased to 12 (13.3%). Pain intensity levels (0) and (1-3) showed equal frequencies across all three observations.

Table 3, shows pain intensity observations in the Chlorhexidine group, with the majority experiencing pain intensity (4-7) consistently across all three observations, recorded at 63 (70.0%). Pain intensity levels (8-10) and (0-3) remained constant at 17 (18.9%) and 0.3 (11.1%) respectively, across all three observations.

Table 4, displays that the maximum pain duration observed was less than 59 minutes, recorded at 36 (40%) between the first and second observations, and 35 (38.9%) in the third observation. Pain duration between 1 to 3 hours remained consistent across all three observations at 26 (28.9%). The least experienced pain duration was within the 5 to 7 hours interval.

Table 5, reveals that the pain frequency (1-2 times) was equally same among all three

observations 26 (28.9%). Pain frequency (3-4 times) are same between first and second observations and the third observation of pain frequency was resulted 41 (45.6%).

Table 6, says that the analgesics majority of frequency of pain killer was used two times in a day among first and second observations 56 (62.2%) and the third observation was 57 (63.3%).The frequency of three times of pain killers between first and second observations 34 (37.8%) and the third observation was 33 (36.7%).

Table 7, indicates consistent usage of 500mg dosage, with 55 (61.1%) in both the first and second observations, and 56 (62.2%) in the third observation. Similarly, the majority utilization of 1500mg and 2000mg remained consistent, with 28 (31.1%) between the first and second observations, and 25 (27.8%) in the third observation. The usage of 1000mg dosage showed uniformity, with 7 (7.8%) in both the first and second observations, and 9 (10.0%) in the third observation.

Section -II Frequency and Percentage of Observations on Mucositis, Pain and Pain Intensity, Frequency and Duration and also Analgesics Frequency, Dosage of Pain Killers among Povidone Iodine group.

Table 8, indicates no change in the second observation (32.2%) and the third observation (73.3%). Soreness and erythema were present in the first observation (11.1%), second observation (64.4%), and third observation (24.4%). Most erythema occurred in the first observation (51.1%), with similar rates in the second and third. Ulcers and necrosis were observed in the first observation (18.9%) but were absent in the second and third observations. The intervention's significance appears more effective.

In **Table 9**, a significant reduction in pain (0) was noted, predominantly in the first observation (5.6%), followed by increases in the second (26.7%) and third (60%) observations. Pain scores of (1-3) were evident in the first (5.6%), second (40.0%), and notably in the third observation (68.9%). For pain scores of (4-6), the majority was observed in the first observation (51.1%), a minimal amount in the second (4.4%), and none in the third, reflecting a highly effective outcome due to the intervention. Pain scores of (7-9) were present in the first observation (37.8%) and remained significantly high in both the second and third observations.

In **Table 10**, among the Povidone Iodine group, the majority experienced moderate to severe pain (4-7) in the first observation (85.6%), whereas in the second observation, most reported mild pain (0-3) (91.1%), and in the third observation, all reported mild pain (0-3) (100%). This indicates a substantial improvement and the effectiveness of the intervention. Pain intensity classified as severe (8-10) was

observed in only 3 patients (3.3%) during the first observation and was absent in both the second and third observations, demonstrating a significant reduction in severe pain due to the intervention.

Table 11, indicates the pain duration among patients in the Povidone Iodine group. The majority experienced pain lasting (0-59 minutes) in the first observation (38.9%), followed by increases in the second observation (52.2%), and a substantial rise to 83.3% in the third observation, signifying significant improvement in shorter pain durations. Remarkably, there was a drastic reduction in pain duration for periods lasting 4-5 hours, 5-7 hours, and above 7 hours, with zero observations in both the second and third observations, demonstrating a considerable decrease in longer pain durations following the intervention.

Table 12, indicates the pain frequency among the Povidone Iodine group. The majority experienced pain frequency in the range of (1-2) in the first observation (33.3%), increased in the second observation (52.2%), and notably rose to 78.9% in the third observation, showcasing a significant improvement in pain frequency at this level. For pain frequency levels (2-3), observations were 28.9% in the first, 47.8% in the second, and notably decreased to 20.0% in the third observation. Pain frequencies categorized as 3-4 were observed in 25.6% during the first observation and 12.2% as 4-5, while no occurrences were noted in both the second and third observations.

Table 13, displays the frequency and percentage of pain killer usage among the Povidone Iodine group. The majority of patients used pain killers at frequency (2) in the first observation (56.7%), which increased in the second observation (80%) but notably decreased to 14.4% in the third observation. Regarding pain killer frequency (3), 43.3% of patients used this frequency in the first observation, but it drastically reduced to 1.1% in the second observation and was absent in the third observation. Interestingly, no patients used pain killers at frequency (1) in the first observation, while 18.9% used them in the second observation, and a majority of 84.4% used this frequency in the third observation.

Table 14, illustrates the frequency and percentage of pain killer dosages among the Povidone Iodine group. In the first observation, the majority of patients used a dosage of 500mg (53.3%), which increased in the second observation (70%) but notably decreased to 16.7% in the third observation. Dosages of 1000mg were used by 3.3% in the first observation, 6.7% in the second, and reduced to 1% in the third observation. For dosages ranging from 1500mg to 2000mg, 43.3% were observed in the first, dropped significantly to 1.1% in the second, and were absent in the third observation. Overall, the

table indicates a significant reduction in the usage of higher dosage pain killers among the patients in the Povidone Iodine group.

Section-III Effectiveness of Povidone Iodine versus Chlorhexidine mouth wash on Mucositis.

Table 15, The table presents statistical measures related to the effectiveness of Povidone Iodine in reducing Mucositis. Sum of squares between groups: 237.4, degrees of freedom: 2, mean square: 118.7. Sum of squares within groups: 123.3, degrees of freedom: 267, mean square: 0.462. The 'F' value was calculated as 256.1, and the 'P' value was found to be less than 0.0001. Significance was observed at the 0.05 level, indicating a considerable effectiveness of Povidone Iodine in reducing Mucositis based on these statistical measures.

The **Table 16,** provides statistical measures related to the effectiveness of Chlorhexidine on Mucositis. Sum of squares between groups: 0.119, degrees of freedom: 2, mean square: 0.059. Sum of squares within groups: 266.1, degrees of freedom: 267, mean square: 0.997. The 'F' value computed is 0.059, with a 'P' value less than 0.0001. Significance was observed at the 0.05 level, indicating a notably lower effectiveness of Chlorhexidine in addressing Mucositis, based on these statistical measures.

Table 1: Frequency and Percentage of Observations on Mucositis among Chlorhexidine Group

Mucositis Scale		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Soreness / (+) erythema	19	21.1	19	21.1	19	21.1
	Erythema (++), Ulcer, can eat food. (Erythema with ulcers less than 1 cm)	38	42.2	40	44.4	40	44.4
	Ulcer (+++), (erythema with ulcers more than 1cms) require liquid food	16	17.8	16	17.8	16	17.8
	Ulcer with haemorrhage and necrosis, alimentation not possible	17	18.9	15	16.7	15	16.7
	Total	90	100.0	90	100.0	90	100.0

Table 2: Frequency and Percentage of Observations on Pain among Chlorhexidine Group

PAIN		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
2	0	4	4.4	4	4.4	4	4.4
	1-3	5	5.6	5	5.6	5	5.6
	4-6	43	47.8	43	47.8	69	76.7
	7-9	38	42.2	38	42.2	12	13.3
	Total	90	100.0	90	100.0	90	100.0

Table 3: Frequency and Percentage of Observations on Pain intensity among Chlorhexidine Group

Pain-Intensity		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
3	0-3	10	11.1	10	11.1	10	11.1
	4-7	63	70.0	63	70.0	63	70.0
	8-10	17	18.9	17	18.9	17	18.9
	Total	90	100.0	90	100.0	90	100.0

Table 4: Frequency and Percentage of Observations on Pain Duration among Chlorhexidine Group

Pain-Duration		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
4	0-59 min	36	40.0	36	40.0	35	38.9
	1-3 hrs	26	28.9	26	28.9	26	28.9
	4-5 hrs	24	26.7	24	26.7	25	27.8
	5-7 hrs	2	2.2	2	2.2	4	4.4
	Above 7 hrs	2	2.2	2	2.2	0	0
	Total	90	100.0	90	100.0	90	100.0

Table 5: Frequency and Percentage of Observations on pain frequency among Chlorhexidine Group

Pain-Frequency		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
5	1-2	26	28.9	26	28.9	26	28.9
	2-3	19	21.1	19	21.1	19	21.1
	3-4	34	37.8	34	37.8	41	45.6
	4-5	11	12.2	11	12.2	4	4.4
	Total	90	100.0	90	100.0	90	100.0

Table 6: Frequency and Percentage of Observations on frequency of Pain killers among Chlorhexidine Group

Analgesics-Frequency of Pain Killer		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
6	2	56	62.2	56	62.2	57	63.3
	3	34	37.8	34	37.8	33	36.7
	Total	90	100.0	90	100.0	90	100.0

Table 7: Frequency and Percentage of Observations on Dosage of Pain killers among Chlorhexidine Group

Analgesics-Dosage of Pain Killer		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
7	500mg	55	61.1	55	61.1	56	62.2
	1000mg	7	7.8	7	7.8	9	10.0
	1500mg and 2000mg	28	31.1	28	31.1	25	27.8
	Total	90	100.0	90	100.0	90	100.0

Table 8: Frequency and Percentage of Observations on Mucositis among Povidone Iodine Group

Mucositis Scale		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	No changes	0	0	29	32.2	66	73.3
	Soreness / (+) erythema	10	11.1	58	64.4	22	24.4
	Erythema (++), Ulcer, can eat food. (Erythema with ulcers less than 1 cm)	46	51.1	3	3.3	2	2.2
	Ulcer (+++), (erythema with ulcers more than 1cms) require liquid food	17	18.9	0	0	0	0
	Ulcer with haemorrhage and necrosis, alimentation not possible	17	18.9	0	0	0	0
	Total	90	100.0	90	100.0	90	100.0

Table 9: Frequency and Percentage of Observations on Pain among Povidone Iodine Group

PAIN		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
2	0	5	5.6	24	26.7	54	60.0
	1-3	5	5.6	62	68.9	36	40.0
	4-6	46	51.1	4	4.4	0	0
	7-9	34	37.8	0	0	0	0
	Total	90	100.0	90	100.0	90	100.0

Table 10: Frequency and Percentage of Observations on Pain intensity among Povidone Iodine Group

Pain-Intensity		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
3	0-3	10	11.1	82	91.1	90	100.0
	4-7	77	85.6	8	8.9	0	0
	8-10	3	3.3	0	0	0	0
	Total	90	100.0	90	100.0	90	100.0

Table 11: Frequency and Percentage of Observations on Pain Duration among Povidone Iodine Group

Pain-Duration		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
4	0-59 min	35	38.9	47	52.2	75	83.3
	1-3 hrs	29	32.2	37	41.1	14	15.6
	4-5 hrs	16	17.8	6	6.7	1	1.1
	5-7 hrs	4	4.4	0	0	0	0
	Above 7 hrs	6	6.7	0	0	0	0
	Total	90	100.0	90	100.0	90	100.0

Table 12: Frequency and Percentage of Observations on pain frequency among Povidone Iodine Group

Pain-Frequency		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
5	0	0	0	0	0	1	1.1
	1-2	30	33.3	47	52.2	71	78.9
	2-3	26	28.9	43	47.8	18	20.0
	3-4	23	25.6	0	0	0	0
	4-5	11	12.2	0	0	0	0
	Total	90	100.0	90	100.0	90	100.0

Table 13: Frequency and Percentage of Observations on frequency of Pain killers among Povidone Iodine Group

Analgesics-Frequency of Pain Killer		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
6	0	0	0	0	0	1	1.1
	1	0	0	17	18.9	76	84.4
	2	51	56.7	72	80.0	13	14.4
	3	39	43.3	1	1.1	0	0
	Total	90	100.0	90	100.0	90	100.0

Table 14: (G) Frequency and Percentage of Observations on Dosage of Pain killers among Povidone Iodine Group

Analgesics-Dosage of Pain Killer		1 Observation		2 Observation		3 Observation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
7	0	0	0	20	22.2	74	82.2
	500mg	48	53.3	63	70.0	15	16.7
	1000mg	3	3.3	6	6.7	1	1.1
	1500mg and 2000mg	39	43.3	1	1.1	0	0
	Total	90	100.0	90	100.0	90	100.0

Table 15: Effectiveness of Povidone Iodine mouth wash on Mucositis

MUCOSITIS	Sum of Squares	df	Mean Square	F
Between Groups	237.474	179	118.737	257.119
Within Groups	123.300	179	.462	P=< .00001
Total	360.774	269		

Significance at 0.05 level

Table 16: Effectiveness of Chlorhexidine mouth wash on Mucositis

MUCOSITIS	Sum of Squares	df	Mean Square	F
Between Groups	.119	179	.059	.059
Within Groups	266.122	179	.997	P=< .00001
Total	266.241	269		

Significance at 0.05 level

DISCUSSION:

The findings of the present study pertaining to mucositis observations among the Chlorhexidine group reflect varying degrees of symptoms across different observations. Erythema, a common indicator of mucositis, persisted consistently throughout the three observations, with a majority observed in each instance (first: 42.2%, second: 44.4%, third: 44.4%). Conversely, soreness exhibited uniformity across observations, presenting at an equal frequency of 21.1%. Notably, ulceration did not show significant changes across the three observations. The study evidenced a considerable reduction in pain scores, particularly in the higher categories. A substantial decrease in the absence of pain (score 0) was observed from the first (5.6%) to the third observation (60%), indicating a noteworthy improvement. Similarly, the prevalence of lower pain scores (1-3) increased progressively from the first (5.6%) to the third observation (68.9%). Additionally, the higher pain categories (4-6 and 7-9) demonstrated a considerable decline, especially with a complete absence of the highest pain category in the third observation, showcasing the efficacy of the intervention. These findings align with previous research by Parulekar *et al* **[8]**., highlighting the prevalence and impact of chemotherapy-induced mucositis, estimating occurrence rates ranging from 40% to 76% among patients undergoing standard and high-dose chemotherapy. Moreover, nearly all individuals (90% to 97%) undergoing head and neck radiotherapy are expected to develop some degree of mucositis, with a substantial portion (34% to 43%) facing severe manifestations. The implications are far-reaching, influencing patients' quality of life, increasing hospitalization rates, elevating the need for total parenteral nutrition, and often leading to treatment interruptions, which can compromise tumor control. Mucositis-induced interruptions contribute significantly, accounting for 9% to 19% of chemotherapy and radiotherapy interruptions. The study's findings emphasize the significance of interventions, as evidenced by the effective reduction in mucositis-related symptoms, notably pain, aligning with the aim of mitigating the detrimental impact of mucositis on patients undergoing cancer treatments. However, further investigations and clinical trials are warranted to ascertain the optimal treatment strategies to effectively manage and alleviate mucositis-associated symptoms and enhance patient outcomes during cancer therapy.

In the comparison between the Povidone Iodine and Chlorhexidine groups, the analysis revealed compelling results. The sum of squares between groups, degrees of freedom, mean square, 'F' value, and 'P'

value indicated a substantial difference. Specifically, the Povidone Iodine group showed a significantly higher sum of squares between groups (237.4) compared to the Chlorhexidine group (0.119). The 'F' value was considerably higher for Povidone Iodine (256.1) than Chlorhexidine (0.059), and the 'P' value was less than 0.0001 in both cases, suggesting strong statistical significance.

These statistical findings strongly suggest that Povidone Iodine was notably more effective in reducing mucositis compared to Chlorhexidine. This aligns with existing literature, indicating the effectiveness of Povidone Iodine and other mouthwashes, including NaCl 0.9%, water salt soda solution, and chamomile mouthwash, in managing mucositis among cancer patients. The study's conclusion concurs with previous research, particularly a systemic review conducted by Potting (2006) **[9]**, which highlighted the ineffectiveness of Chlorhexidine mouthwash in preventing and treating oral mucositis. Instead, the review emphasized the positive effects of Povidone Iodine mouthwash in reducing the severity of oral mucositis. In summary, the statistical analysis conducted in this study strongly supports the notion that Povidone Iodine is significantly more effective in reducing mucositis compared to Chlorhexidine, aligning with previous literature highlighting the ineffectiveness of Chlorhexidine in managing oral mucositis among cancer patients. Further research and clinical trials are warranted to explore and validate the efficacy of various mouthwashes in managing mucositis among this population.

CONCLUSION:

In conclusion, this study evaluated the efficacy of povidone iodine versus chlorhexidine mouthwash in managing Radiotherapy-induced oral mucositis and associated pain in cancer patients. Both mouthwashes demonstrated effectiveness in reducing oral mucositis and alleviating pain among the cancer patients, evident through significant reductions in the levels of oral mucositis and pain post-intervention. The subjects participating in the study reported increased comfort and expressed satisfaction, indicating their familiarity and positive reception towards the interventions used. These findings emphasize the potential benefits of both povidone iodine and chlorhexidine mouthwashes in managing the challenging symptoms of oral mucositis and associated pain in individuals undergoing cancer treatment.

Conflict of Interest: The authors declare that there is no any conflict of interest.

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