Research Article

www.ijrap.net (ISSN:2229-3566)

A COMPARATIVE STUDY TO EVALUATE THE EFFECT OF VIRECHANA KARMA WITH TRIVRITADI KWATH AND SHAMAN CHIKITSA WITH AVIPATIKARA CHURNA IN THE MANAGEMENT OF URODAHA (RETROSTERNAL BURNING) IN AMLAPITTA (ACID PEPTIC DISORDER)

Ritesh Poonia ^{1*} and Arun Gupta ²

¹ PG Scholar, Panchakarma Department, CBPACS, Khera Dabar, New Delhi, India

² Professor, HOD, Panchakarma Department, CBPACS, Khera Dabar, New Delhi, India

Received on: 15/10/20 Accepted on: 30/11/20

*Corresponding author

E-mail: drpoonia1992@gmail.com

DOI: 10.7897/2277-4343.1106203

ABSTRACT

In the recent years there has been an unprecedented increase in the incidence of Gastrointestinal System disorders due to change in lifestyle, diet pattern, behavioral pattern, mental stress and also hazardous use of painkillers. Ayurveda comes with varieties of treatment options to cure the GI disorders without causing any harmful effect. The aim of this study is to compare between Shodhan and Shaman therapy in Amlapitta, to evaluate the efficacy of Virechana Karma and Shaman Chikitsa. The criterions of diagnosis of patients was based on sign and symptoms of Amlapitta and Ayurvedic and modern text. Two groups were taken, and duration of study was of one month. In group A, virechana therapy was given with Trivritadi Kwath, and in group B, shaman therapy was given with Avipatikara churna. Follow up of patients was done after given therapy. Result shows that shodhana therapy is more effective than shaman therapy in patients of Amlapitta.

Keywords: Amlapitta, Virechan Karma, Shaman Chikitsa, Shodhana Chikitsa, Trivritadi Kwath, Avipatikara Churna.

INTRODUCTION

The present modern era is famous for being on a fast pace speed in every aspect of life whether it is connecting to the outer world through electronic media or having meals at one's home. Stress and anxiety are being complementary to this. Thus creates a condition of hurry, worry and curry, conclusively produced an unhealthy lifestyle and surely is not suitable for our physiology of digestion. Improper consumption of food items, food timings, unhealthy regimes, spicy food habits, excess intake of salty and sour items; tea or coffee; anger, jealousy, hatred, kind of negative feelings etc. becomes the reason for the aggravation of Dosha which creates Agnimandya which further gets converted to Sukta¹ (vitiated liquid acid) and this gets situated in Amashaya and thus the condition is termed as Amlapitta. Charaka and Kashyapa have clearly indicated that the Grahani Dosha and Amlapitta occur in the persons who could not check the temptation of food. A population based study, using a validated questionnaire found that 58.7% of the population has heartburn or regurgitation at least once during the course of a year and 19.8% experience symptoms at least once a week. It is estimated that approximately, 50% of patients with typical reflux symptoms have erosive esophagitis².

The treatment in modern medicine are acid suppressive agents like H₂ receptors antagonists, proton-pump inhibitors etc. These are working temporarily without any permanent solution as well as having adverse effects with long term usage.

Hence, we considered the kapha pittahara Chikitsa³, described in Kashyapa Samhita to overcome the disease and Virechana karma in Urodaha symptoms of Amlapitta. Acharyas have mentioned the use of the drugs which are having Tikta, Madhura rasa, Madhura vipaka, Sheeta virya and Laghu, Ruksha property⁴ with Kapha pittahara action.

MATERIAL AND METHODS

Method of study (protocol of study)

Pre-trial screening

This was done before the commencement of the clinical trial.

Complete medical history

Total 74 patients were screened on the basis of inclusion and exclusion criteria from OPD of Ch. Brahm Prakash Ayurved Charaka Sansthan, Khera Dabar, Najafgarh and New Delhi.

Statistical Analysis

- All the results were calculated by using Graphpad Instat software.
- For inter-group comparison parametric data: "Unpaired t-test" was used, and the results calculated in each group.
- For Intra group Repeated measure ANOVA and paired t-test were applied.
- ANOVA was applied in Group A and Group B to analyze follow-up wise effect.

Criteria of diagnosis**Inclusion criteria**

- The main criteria of diagnosis of patients was based on the associated sign and symptoms of disease based on the Ayurvedic and modern text.
- Patients of either gender diagnosed as a case of Amlapitta and undergoing Virechana or Shaman chikitsa as per SOP.
- Patients between age group of 20-50 years.

Exclusion criteria

- Patients reporting with complications like Cardiac problems, Emphysema, Carcinoma, etc. were excluded.
- Pregnant woman and lactating mothers were excluded.

- Patient on anti-inflammatory medications.
- Patients of severe vomiting and dehydration
- Patients with gastric malignancy
- Patients who had undergone gastrointestinal surgery

Grouping

Patients were randomly divided and studied under two Groups viz. Group A and Group B irrespective of religion, gender, occupation, cast etc.

Group A - In this group Virechana Karma was given.

Group B - In this group Avipatikara churna was given.

Table 1: Group A-Details of treatment in group A

Procedure	Drug, Dose	Duration
Deepan and Pachana	Deepan and pachan with Shankha vati ⁵	3 days
Snehapana	Snehapana with Mahatriphala Ghrita ⁶ as per koshta and Agni (in morning with empty stomach 06.00 AM)	3-7 days
Abhyanga and Swedana	Abhyanga with Mahanarayan oil ⁷ (45 min) Sarvanga sweda (10-15 min)	3 days
Virechana		Trivritadi Kashaya ⁸ 100 ml

Avipatikara churna

Name of drug – Avipatikara churna⁹

Drug formulation - Powder

Dose – 6 gm/ day in two divided doses with water

Time of administration

Virechana was administered on an empty stomach in pitta kala. Avipatikara churna was administered on an empty stomach before taking food.

Duration of study: 1 month for each patient including follow-up

Follow-up

Group A - End of Virechana karma and 30th day after completion of treatment.

Group B - 15th day and 30th day after completion of treatment.

Instructions regarding Pathya–Apathya (do's and don'ts) were also advised.

Study Design: Single Centre, open label, Randomized, Interventional and Comparative study

Duration of study: 1 month for each patient including follow-up.

Assessment of the patient

Group A - End of Virechana Karma and 30th day after completion of treatment.

Group B - 15th day and 30th day after completion of treatment.

Criteria of Assessment

All the patients were assessed for relief in sign and symptoms after the completion of trial. For subjective parameters grading/scoring pattern was adopted which was as -

Subjective parameters

- Avipaka (Indigestion)
- Klama (Tiredness)
- Utklesh (Nausea)
- Hritkanthdaha (Heart & Throat burn)
- Tiktamladgara (Sour eructation's)
- Guruta (Heaviness)
- Aruchi (Anorexia)

Assessment criteria

The disease was assessed on the basis of subjective parameters. The scoring pattern of the symptoms were as following¹⁰

Table 2: Avipaka (Indigestion)		
1.	No indigestion	G0
2.	Digest normal usual diet in 9 hours	G1
3.	Digest normal usual diet in 12 hours	G2
4.	Digest normal usual diet in 24 hours or more	G3
Table 3: Klama (Tiredness)		
1.	No tiredness	G0
2.	Feel tired after exertion work	G1
3.	Feel tired after normal work	G2
4.	Feel tired even after taking rest	G3
Table 4: Utklesha (Nausea)		
1	No nausea	G0
2	Feel nausea after eating some peculiar food	G1
3	Feel nausea after eating all kind of food	G2
4	Full day nausea, no related to eating	G3
Table 5: Tiktamladgara (Sour and bitter belching)		
1	No sour and bitter belching	G0
2	Sour and bitter belching after taking spicy food	G1
3	Sour and bitter belching after taking any type of food	G2
4	Sour and bitter belching having no relation with food intake	G3
Table 6: Guruta (Heaviness)		
1	No feeling of heaviness in the body	G0
2	Heaviness after taking more quantity of heavy food	G1
3	Heaviness even after taking light food	G2
4	Heaviness even on empty stomach	G3
Table 7: Hritkanthdaha (Heartburn)		
1	No burning sensation	G0
2	Burning sensation after intake of spicy food	G1
3	Feeling of burning sensation even after taking normal food	G3
4	Burning sensation even on empty stomach	G3

Table 8: Aruchi (Anorexia)

1	No anorexia	G0
2	Eat food only two times without any snacks in between	G1
3	Eat only once	G2
4	Have no feeling of appetite	G3

Routine examination and assessment

- Complete details of history and physical examination of the patients was recorded as per the Proforma.
- Clinical assessment done and recorded on '0' day, after Virechana and Avipatikara churna

Duration of study

1 month for each patient including follow-up.

Assessment of the patient

Group A- End of Virechana Karma and 30th day after completion of treatment.

Group B - 15th day and 30 after completion of treatment.

Summary of clinical observation are as follows

Maximum (44.4%) number of patients were from the age group of 31-40 years. 54.2% were females, 55.6% were from Urban habitat, 76.4% were from middle class, 55.6% had tea addiction, 95.8% were of vegetarian history, 55.6% were having of irregular bowel, (26.4%) were lavana rasa satmya, (63.9%) were having Mandagni, (27.8%) had vata-pittaja Prakriti, maximum of patient 53 (73.6%) had raja Prakriti.

Declaration

The study is carried out as per International conference of Harmonization-Good Clinical Practices Guidelines (ICH-GCP) or as per Declaration of Helsinki guidelines.

IEC CODE: 2018/3/MD/29

CTRI NUMBER: CTRI/2019/09/021295

Methods

Changes in Avipaka in Group A and Group B

Table 9: Changes in Avipakain Group A and Group B

No. of Patients of Grade						
Grade	Group A			Group B		
	D1	D15	D30	D1	D15	D30
Grade 3	7	1	1	4	2	0
Grade 2	10	5	0	10	5	4
Grade 1	9	14	14	10	14	15
Grade 0	10	16	21	12	15	17
Total	36	36	36	36	36	36

Changes in Klama in Group A and Group B

Table 10: Changes in Klama in Group A and Group B

No. of Patients of Grade						
Grade	Group A			Group B		
	D1	D15	D30	D1	D15	D30
Grade 3	2	0	0	2	0	0
Grade 2	7	3	1	4	4	3
Grade 1	4	4	4	8	5	5
Grade 0	23	29	31	22	27	28
Total	36	36	36	36	36	36

Changes in Utklesha in Group A and Group B

Table 11: Changes in Utklesha in Group A and Group B

No. of Patients of Grade						
Grade	Group A			Group B		
	D1	D15	D30	D1	D15	D30
Grade 3	4	0	0	2	1	0
Grade 2	12	2	0	12	7	4
Grade 1	7	16	9	10	11	11
Grade 0	13	18	27	12	17	21
Total	36	36	36	36	36	36

Changes in Hritkanthdaha in Group A and Group B

Table 12: Changes in Hritkanthdaha in Group A and Group B

No. of Patients of Grade						
Grade	Group A			Group B		
	D1	D15	D30	D1	D15	D30
Grade 3	18	0	0	15	0	0
Grade 2	13	11	1	13	18	11
Grade 1	1	19	20	3	10	11
Grade 0	4	6	15	5	8	14
Total	36	36	36	36	36	36

Changes in Tikta-amlodgara in Group A and Group B

Table 13: Changes in Tikta-amlodgara in Group A and Group B

No. of Patients of Grade						
Grade	Group A			Group B		
	D1	D15	D30	D1	D15	D30
Grade 3	22	0	0	9	0	0
Grade 2	5	14	2	9	9	6
Grade 1	1	9	15	7	10	12
Grade 0	8	13	19	11	17	18
Total	36	36	36	36	36	36

Changes in Guruta in Group A and Group B**Table 14: Changes in Guruta in Group A and Group B**

No. of Patients of Grade						
Grade	Group A			Group B		
	D1	D15	D30	D1	D15	D30
Grade 3	6	0	0	2	0	0
Grade 2	9	3	0	13	9	4
Grade 1	8	15	10	11	13	14
Grade 0	13	18	26	10	14	18
Total	36	36	36	36	36	36

Changes in Aruchi in Group A and Group B**Table 15: Changes in Aruchi in Group A and Group B**

No. of Patients of Grade						
Grade	Group A			Group B		
	D1	D15	D30	D1	D15	D30
Grade 3	6	0	0	5	0	0
Grade 2	11	3	0	8	6	4
Grade 1	6	13	10	9	12	9
Grade 0	13	20	26	14	18	23
Total	36	36	36	36	36	36

Statistical Analysis: Intra-group analysis (By Paired t Test)**Avipaka****Table 16: Repeated measure ANOVA Test: in Group A and in Group B**

Group	N	F	P	Dunnett Post Test
Group A	36	29.67	< 0.0001	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)
Group B	36	23.82	< 0.0001	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)

Klama**Table 17: Repeated measure ANOVA Test: in Group A and in Group B**

Group	N	F	P	Dunnett Post Test
Group A	36	12.67	< 0.0001	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)
Group B	36	9.87	0.0002	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)

Utklesha**Table 18: Repeated measure ANOVA Test: in Group A and in Group B**

Group	N	F	P	Dunnett Post Test
Group A	36	38.30	< 0.0001	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)
Group B	36	25.39	< 0.0001	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)

Hritkanthdaha**Table 19: Repeated measure ANOVA Test: in Group A and in Group B**

Group	N	F	P	Dunnett Post Test
Group A	36	112.97	< 0.0001	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)
Group B	36	65.94	< 0.0001	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)

Tikta Amla Udgara**Table 20: Repeated measure ANOVA Test: in Group A and in Group B**

Group	N	F	P	Dunnett Post Test
Group A	36	59.01	< 0.0001	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)
Group B	36	33.63	< 0.0001	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)

Guruta**Table 21: Repeated measure ANOVA Test: in Group A and in Group B**

Group	N	F	P	Dunnett Post Test
Group A	36	31.44	< 0.0001	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)
Group B	36	21.94	< 0.0001	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)

Aruchi**Table 22: Repeated measure ANOVA Test: in Group A and in Group B**

Group	N	F	P	Dunnett Post Test
Group A	36	41.36	< 0.0001	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)
Group B	36	32.65	< 0.0001	D1 > D15 (p < 0.01) D1 > D30 (p < 0.01)

Statistical Analysis: Comparison Group A and Group B (By Unpaired t Test)**Avipaka****Table 23: Unaired t Test: Comparison Group A and Group B**

Days	Group	N	Mean	SD	T	P
D1 - D15	Group A	36	0.638	0.723	2.115	0.0380
	Group B	36	0.333	0.478		
D1 - D30	Group A	36	0.916	0.937	2.190	0.0318
	Group B	36	0.527	0.506		

Klama**Table 24: Unaired t Test: Comparison Group A and Group B**

Days	Group	N	Mean	SD	T	P
D1 - D15	Group A	36	0.388	0.644	2.041	0.0450
	Group B	36	0.250	0.439		
D1 - D30	Group A	36	0.500	0.774	2.090	0.0402
	Group B	36	0.305	0.467		

Utklesha**Table 25: Unaired t Test: Comparison Group A and Group B**

Days	Group	N	Mean	SD	T	P
D1 - D15	Group A	36	0.638	0.639	2.297	0.0246
	Group B	36	0.333	0.478		
D1 - D30	Group A	36	0.944	0.826	2.178	0.0328
	Group B	36	0.583	0.554		

Hritkanthdaha**Table 26: Unaired t Test: Comparison Group A and Group B**

Days	Group	N	Mean	SD	T	P
D1 - D15	Group A	36	1.111	0.622	2.535	0.0135
	Group B	36	0.777	0.484		
D1 - D30	Group A	36	1.639	0.833	2.719	0.0083
	Group B	36	1.139	0.723		

Tikta-Amla udgara**Table 27: Unaired t Test: Comparison Group A and Group B**

Days	Group	N	Mean	SD	T	P
D1 - D15	Group A	36	1.111	0.887	2.390	0.0195
	Group B	36	0.666	0.676		
D1 - D30	Group A	36	1.611	1.076	3.794	0.0003
	Group B	36	0.777	0.760		

Guruta**Table 28: Unaired t Test: Comparison Group A and Group B**

Days	Group	N	Mean	SD	T	P
D1 - D15	Group A	36	0.638	0.761	2.039	0.0453
	Group B	36	0.333	0.478		
D1 - D30	Group A	36	0.944	0.892	2.011	0.0482
	Group B	36	0.583	0.603		

Aruchi**Table 29: Unaired t Test: Comparison Group A and Group B**

Days	Group	N	Mean	SD	T	P
D1 - D15	Group A	36	0.750	0.649	2.231	0.0289
	Group B	36	0.444	0.504		
D1 - D30	Group A	36	1.000	0.894	2.071	0.0420
	Group B	36	0.638	0.542		

RESULT**Effect of therapy (% Relief in parameters)****Table 30: Effect of therapy (% Relief in parameters)**

S. No.	Symptoms	% Relief			
		Group A		Group B	
		D15	D30	D15	D30
1	Avipaka	46	66	28.6	45.2
2	Klama	58.3	75	40.9	50
3	Utklesha	53.5	79.1	30	52.5
4	Hritkanthdaha	49.4	72.8	37.8	55.4
5	Tikta-amla udgara	51.9	75.3	46.2	53.8
6	Guruta	52.3	77.3	27.9	48.8
7	Aruchi	58.7	78.3	40	57.5

DISCUSSION

Amlapitta is a disease in which vitiation of Vidagdha Pitta Dosha and accumulation of Ama takes place in amashaya. Virechana is a supreme therapeutic modality to regulate the pitta dosh vitiation.

Probable Mode of action of Virechana Karma

Virechana is described as the treatment procedure with special reference to Koshtha Shuddhi in Pittaja vikara, Amajanya roga, Udara roga and Adhmana¹¹. As Agnimandya is the reason for Amlottpatti, the treatment of Agnimandya as per Ayurveda includes Langhana, langhana-Pachana and Doshvashechan.

Similarly, Trivrit is having Glycoside and Terpanthine which causes purgation. It is also having Vata-Kapha shamaka and pitta sansaran properties thus act on the Dosha which are pathogenesis factors for the Amlapitta.

Acharya Charaka has described briefly on how Virechana dravyas acts in the body. The drug (Trivrit churna) having Ushna guna reach to the Heart by its virtue and Jala and Prithvi causes Adhobhagahara prabhava. Then they liquefy the morbid elements and disintegrate them by its tikshna guna. Then this liquefied morbid mass floating like honey on united vessel through the drug and ultimately reaches Amashaya. From here it forces the morbid factors through the anal root due to the Bhautika predominance of the Jala, Prithvi and Adhobhagahara prabhava leading to

Virechana Karma. Virechana is important among Shodhana; because it not only act over Pitta but also on Kapha, Vata and Meda. Removes Avarana of Vayu in Koshtha and corrects Agni vaigunyata. By Virechana drugs there will be increased bile secretion and increased peristaltic movements. During relaxation phase of peristalsis; sphincter of oddi are being relaxed, as bile come to the G.I.T. Thus this bile can be compared to Pitta, which will be eliminated during Virechana with other toxins. Hence Virechana reduces Pitta Dushti and normalizes Agni. Shodhan (purification) therapy has been given an importance as it is based on expulsion of vitiated doshas produced by the non-homological factors from the body and avoids the relapses of disease. Virechana is best measure for Paittika disorders as a Shodhana remedy. As per Ayurveda the Virechana drug act in pachyamana avastha i.e. during the digestion phase, so, Virechana drugs starts their action in Amashaya (stomach) and Grahani (duodenum) Sthanjanya Vyadhi; as per modern science also i.e. H. pylori bacteria resides in antrum part of Stomach, 90% of acid peptic disorders are mainly due to this bacteria but reason behind this is not yet clear. Acid peptic disorder is main pathology of antrum or oxyntic part of stomach which is nothing but Pachymanashaya as per Ayurveda. Action of Virechana occurs more specifically up to Grahani which is the seat of Agni and it also Draws the Doshas which is resides in Amashaya as mentioned by Acharyas it is necessary to do the Vamana (emesis) prior to Virechana otherwise it draws the kapha from Amashaya and cause Pravahika (dysentery) and Mandagni; though Virechana is a specific therapy for Pitta Dosha. It may also be used for eliminating Kapha Dosha.

Mode of action of Virechan on Amlapitta

Probable Mode of action of Avipatikara churna

Dosha

Amlapitta is caused either by Ushna guna vriddhi of Pitta or by Drava guna vriddhi of pitta. In case when there is Drava gunadhikya Amlapitta then Katu Rasa (Vayu + Agni Mahabhuta pradhana), Ushna Virya and Laghu Guna pradhana Aushadha will lead to Sandrata, Shushkta of Pitta. In Avipatikara Churna majority of the drugs have Katu Rasa, Madhura Vipaka, Ushna Virya, Kapha Vata Shamaka and Tridosha Shamaka Property.

Trivrit is main content of Avipatikara Churna it is Agraya in Sukhavirechaka dravya and will eliminate excessive Pitta Dosha by Adhomarga.

Dushya

In Amlapitta, mainly Rasa dhatu is affected. The property of Deepan - Pachan Karma, Katu and Tikta Rasa of the drugs will directly act on the vitiated Rasa Dhatu.

Agni and Ama

Most of the drugs have Katu Rasa; Ushna Virya property hence will increase Agni and will help to digest the Ama. Triphala and Trikatu act on Dhatwagni level.

Avipatikara Churna

Virechana karma

CONCLUSION

The group which was treated with virechana karma was found to be very effective than the group treated with Avipatikara churna. There is still a need for further studies on larger scale for a definite treatment option.

REFERENCES

1. Tripathi B. editor. Sharangadhara Samhita dipika First edition. Varanasi. Chaukhambha Surbharati Prakashan; 2011. p. 234.
2. Risk of Intestinal Cancer in Inflammatory Bowel Disease: A. [Internet]. [Cited 2018 May 25]. Available
3. Sharma H. editor Kashyapa Samhita. Vruddhajivaka, Khila sthana 16/18 first edition Varanasi Chaukhambha Sanskrit Sansthan; 2017. p. 336.
4. Kumari A. Premvati T. editor. Yoga Ratnakara Vol-1 First edition Varanasi Chaukhambha Vishwa Bharati; 2010. p. 239.
5. Shashtri A.D. Kushtha roga chikitsa Prakarana. In: Shashtri, R. J (ed.) Bhaishajya Ratnavali. Varanasi, India: Chaukhambha Prakashan; reprinted; 2018. p. 350.

6. Ayurved Sara Sangraha. Shree Baidyanath Ayurved Bhavan limited. Allahabad, reprint edition; 2018. p. 768.
7. Das G. Shastri AD. Editor. Bhaishajya Ratnavali, Vidyotini First edition Varanasi Chaukhambha Prakashan; 2017. p. 560.
8. Sharma H. editor Kashyapa Samhita, Vriddhajivaka, Khilasthana 16/18 first edition Varanasi Chaukhambha Sanskrit Sansthan; 2017. p. 336.
9. Das G. Shastri AD. Editor. Bhaishajya Ratnavali, Vidyotini First edition Varanasi Chaukhambha Prakashan; 2017. p. 922.
10. [Internet]. Journal of Pharmaceutical and Scientific Innovation (JPSI). [Cited 2018May25]. Available from: <http://www.jpsionline.com>.
11. Murty KRS. Sharangadhara Samhita by Sharangadhara. Varanasi: Chaukhambha Orientalia; 2102. p. 225.

Cite this article as:

Ritesh Poonia and Arun Gupta. A comparative study to evaluate the effect of Virechana karma with Trivritadi Kwath and Shaman Chikitsa with Avipatikara churna in the management of Urodaha (Retrosternal burning) in Amlapitta (acid peptic disorder). Int. J. Res. Ayurveda Pharm. 2020;11(6):157-167 <http://dx.doi.org/10.7897/2277-4343.1106203>

Source of support: Nil, Conflict of interest: None Declared

Disclaimer: IJRAP is solely owned by Moksha Publishing House - A non-profit publishing house, dedicated to publishing quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJRAP cannot accept any responsibility or liability for the site content and articles published. The views expressed in articles by our contributing authors are not necessarily those of IJRAP editor or editorial board members.