The Effect of Etoricoxib versus Diclofenac on Blood Pressure in Hypertensive Patients

Prof. Dr. Riyadh Mustafa Murtadha Al-Salih

College of Medicine, University of Kerbala

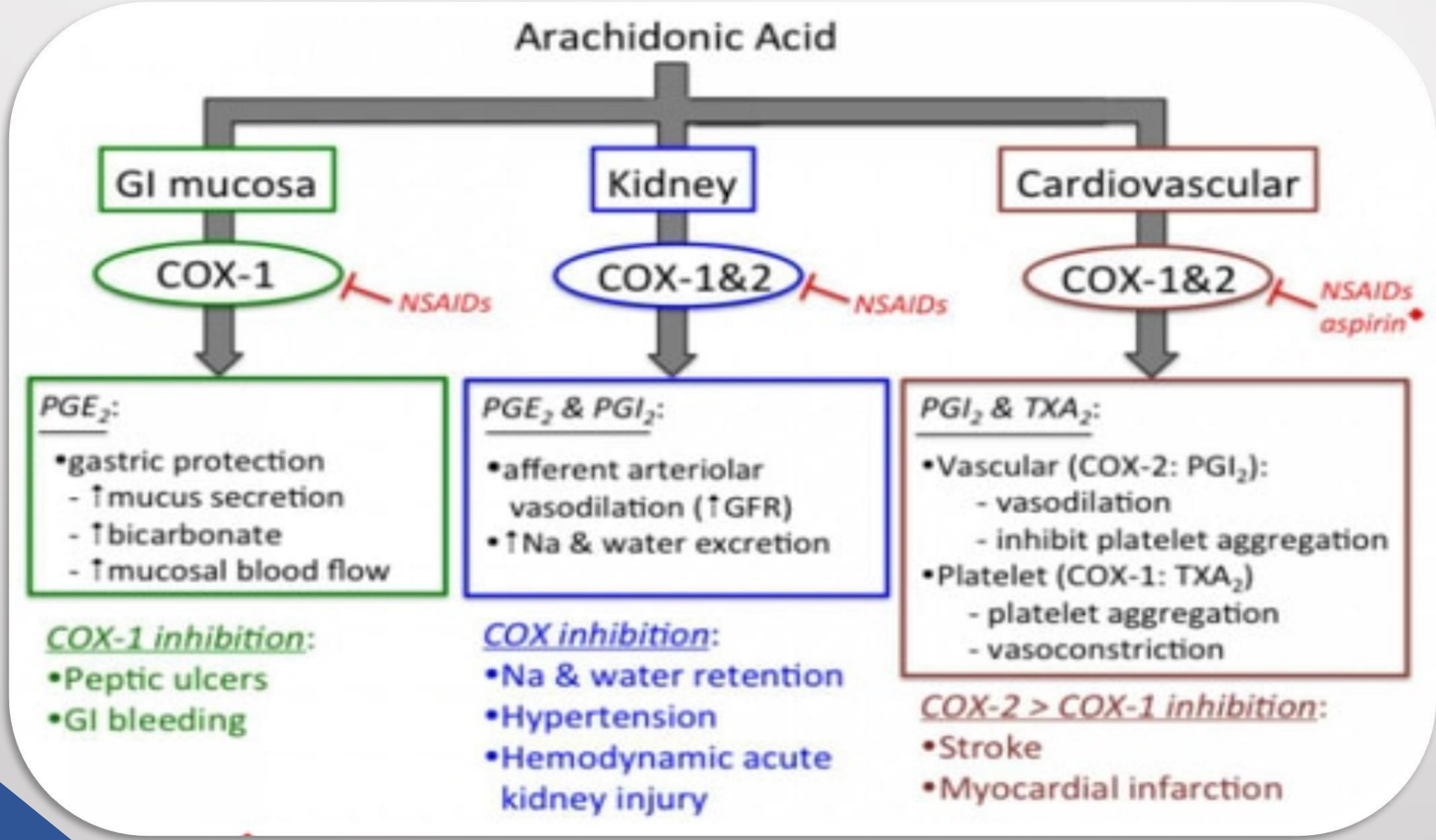
Introduction

- Non-steroidal anti-inflammatory drugs (NSAIDs), both selective cyclo-oxygenase (COX)-2 inhibitor and non-selective types, are among the most frequently used medications.
- Most doctors prefer selective types because they are well-known to have fewer side effects.
- However, the potential correlation between their use and elevation of blood pressure was not well determined.

- NSAIDs are classified according to the mechanism of action into non-selective COX inhibitors (e.g. Indomethacin, Diclofenac, Naproxen, Ketorolac, Ketoprofen, Ibuprofen) and Selective COX-2 inhibitors (e.g. Celecoxib, Rofecoxib, Valdecoxib, Etoricoxib)
- Non-selective NSAIDs are a chemically heterogeneous group of composites that offer considerable health advantages in the treatment of pain and inflammation.
- However, their use can be associated with an increased risk of gastrointestinal and cardiovascular side effects.

- Selective NSAIDs act by inhibiting only the COX-2 enzyme, thus permitting the production of the prostaglandins by COX-1 that protect the stomach, while still relieving pain, fever, and inflammation.
- Though, they do not exert the anti-platelet effects that is associated with non-selective NSAIDs.
- The effect of selective COX-2 inhibitors is more than non-selective NSAIDs on prostacyclin (PGI_2) which is synthesized in the kidney through the COX-2 enzyme, that lead to an imbalance between the effect of prostaglandin and prostacyclin that subsequently increase vasoconstriction effects on the CVS.

Mechanism of types of cyclo-oxygenase on prostaglandins



Aim of study

This study aims to compare the effect of selective COX-2 inhibitor (Etoricoxib) versus non-selective NSAID (Diclofenac) on BP in patients with hypertension who were already on antihypertensive treatment, requiring the use of either selective or non-selective NSAIDs.

Methods

- A prospective observational study was conducted on 100 patients with hypertension already on antihypertensive treatment who were divided into 2 groups: 50 patients each.
- Those who received etoricoxib in group 1 and diclofenac in group 2. They were followed up for 2 weeks to observe the changes in pulse rate, blood pressure and renal indices.

RESULTS

Data	Group 1 (Etoricoxib)	Group 2 (Diclofenac)	P-value
Age (Year)	48.7 ± 14.9	51.9 ± 13.4	0.262
Sex (Male%)	30%	28%	0.825
BMI	27.2 ± 5.3	28.4 ± 5.7	0.274
Syst. BP	126.8 ± 14.6	128.1 ± 12.2	0.630
Diast. BP	78.9 ± 9.8	81.6 ± 8.7	0.148
PR	82.1 ± 6.8	83.4 ± 9.8	0.443
BU	26.5 ± 7.2	24.4 ± 9.4	0.213
SCr	0.75 ± 0.15	0.75 ± 0.2	1.000

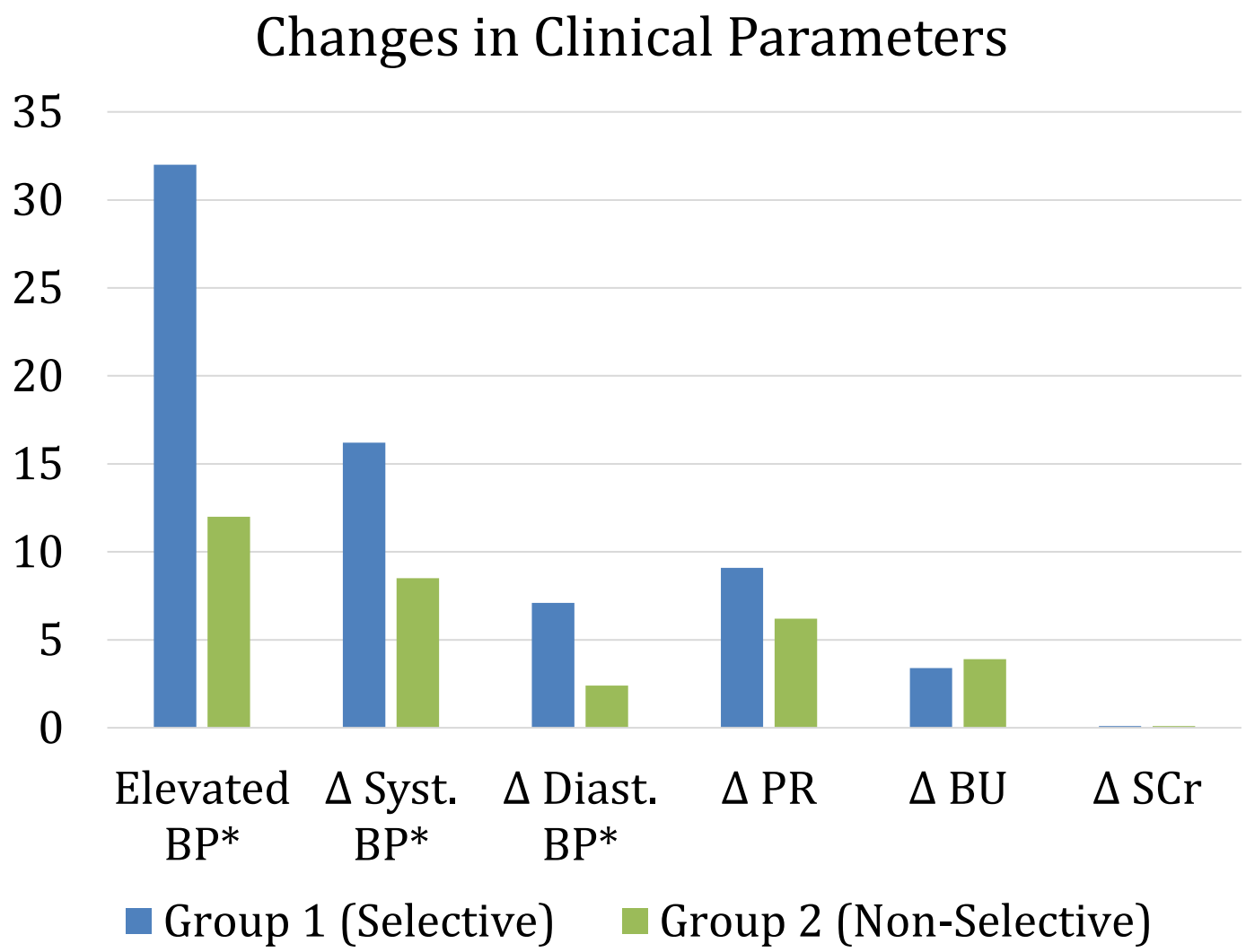
Demographic and clinical data of both groups at baseline

Data	Group 1 (Etoricoxib)	Group 2 (Diclofenac)	P-value
Syst. BP	143.0 ± 16.7	136.6 ± 13.4	0.037 *
Diast. BP	86 ± 10.3	84 ± 8.2	0.285
PR	90.2 ± 8.5	89.6 ± 9.7	0.382
BU	27.9 ± 7.3	27.3 ± 8.6	0.707
SCr	0.8 ± 0.2	0.8 ± 0.3	1.000

Clinical data of both groups after ℞ using NSAIDs

Parameters	Group 1 (Etoricoxib)	Group 2 (Diclofenac)	P-value
Elevated BP	32 %	12 %	0.015 *
Δ Syst. BP	16.2 ± 15	8.5 ± 11	0.004 *
Δ Diast. BP	7.1 ± 9	2.4 ± 7	0.004 *
Δ PR	8.1 ± 16	6.2 ± 14	0.529
Δ BU	1.4 ± 5.6	1.9 ± 6.7	0.686
Δ SCr	0.1 ± 0.2	0.1 ± 0.4	1.000

Changes in clinical parameters from baseline in both groups after using NSAIDs



Changes in clinical parameters after using NSAIDs

CONCLUSION

This study has concluded that the selective COX-2 inhibitor (Etoricoxib) has a significant effect on raising BP in hypertensive patients more than that of the non-selective NSAIDs (Diclofenac), with no significant difference in raising pulse rate and no significant effect on renal indices.

RECOMMENDATION

- Although many physicians frequently prescribe the NSAIDs for patients with hypertension, and especially prefer the selective ones due to their well-known fewer side effects,
- but their use are demonstrated to increase the BP more than the non-selective ones.
- So, it is recommended to choose the non-selective type NSAIDs whenever required for patients with hypertension.

Thanks for listening