

The glutathione stimulates the formation of  $\text{PGE}_2$  while  
 in presence of  $\text{Ca}^{+2}$  ion  $\text{PGE}_2$  is formed. 03/05/20  
 Physiological effect or functions of prostaglandins H-4016 by P.K. Sharma (3)

- ① Effect on cyclic AMP level The prostaglandins seem to stimulate the cyclic AMP level.  $\text{PGE}_1$  and  $\text{PGE}_2$  are most potent in stimulating cyclic AMP level.
- ② Effect on water and electrolyte balance The prostaglandins seem to regulate the electrolytic conc<sup>n</sup> across the epithelial membrane. They regulate  $\text{Na}$ ,  $\text{Mg}$ ,  $\text{K}$  and  $\text{Cl}$  ion conc<sup>n</sup> in the renal artery of dogs.
- ③ Prostaglandins seem to effect the clot retraction across the plasma level. They also affect the plasma coagulability condition.
- ④ Effect on reproductive system Their increased concentration leads to abortion.

<u>Site of action</u>	<u>effect</u>
1. Plasma	Increased permeability
2. uterus muscles	Therapeutic Abortion
3. muscles	Increased vasodilation
4. Blood vessels	clot retraction

- ⑤ Prostaglandins remarkably effect the metabolism and physiology of human beings. e.g.  $\text{PGE}_2$  lowers B.P. whereas  $\text{PGI}_2$  raises blood pressure. Some of the important functions are -
  - ① They stimulate smooth muscles and act as vasoconstrictor or vaso depressor.
  - ② They bring about uterine and cervical movements to facilitate fertilization.
  - ③ Low levels of prostaglandins in seminal fluids produces infertility in males, while high levels of prostaglandins in amniotic fluid of women leads to premature abortion.

④ They have significant effect on female reproductive system. A very low dose of  $PG_{E_2}$  or  $PG_{I_2}$  by intravenous injection stimulates contraction of uterus.

⑤ Their presence in brain affect activity of brain cells.

⑥ Renal prostaglandins are involved in the control of blood pressure.

In short, prostaglandins have been used for prevention of conception, termination of pregnancy, induction of menstruation, induction of labour at term, prevention of gastric ulcers, control of inflammation, blood pressure and relief in asthma and nasal congestion.