CONCLUSION

Going through the contents of whole text some consequential and significant conclusions are drawn associated to vice a versa relationship of acculturation towards pregnancy and alteration brought about in studied parameters by restorative mechanisms. Each parameter isolated or in conjunction with other parameter is important to find out lung functioning

Increase in RMV termed as hyperventilation reflected by increased f (+66%) primarily (progesterone sensitizing respiratory centers to lowered threshold to pCO_2) and decreased TV secondarily (altered thoracic configuration) is a chronic adaptive change to balance respiration and metabolic functions. Local changes as augmented dead space, unsatisfactory intrapulmonary distribution of gases and altered diffusion across alveolo-capillary membrane also contribute in hyperventilation.

Diminished TV (-17%) , IRV (-27.5%) , ERV (-28.3%) , IC (-24.6%) all share in lowering VC (-23.9%), as VC is an expression of sum of TV, ERV and IRV or ERV and IC.

All the parameters decrease because of adjusted thoracic and abdominal configuration as explained. Latter brings about compression of basal lung tissues and increased angulation of bronchi. Increased pulmonary blood volume might decrease these parameters.

Increased abdominal compression to forceful expiration after deep inspiration causes concern in pregnant subjects as they anticipate complications by dynamic procedure of carrying out the tests at term.

MVV decrease suggests presence of obstructive element and along with decrease in VC suggests restrictive element. This can be justified by not achieving normal MVV values despite the great effort input, as progesterone and relaxin causing smooth muscles relaxation hamper optimal efficiency of respiratory muscle thereby lowering MVV.

Maturing fetus and agitation due to labor input may impose limitations at term causing maximum fall in MVV in third trimester. VC also requires efforts and shows parallel decrease as of MVV – justifying presence of restrictive component.

RR is used by respiratory system in emergency. Bodily demands during pregnancy increase and hence it is this reserve that is used up to compensate dyspnea and combat other alterations. This is evident from decrease in RR and BRR. Decrease in RR with proportionate decrease in MVV results in decreased BRR, the ratio that is maintained within normal limits denoting absence of true dyspnea. Decrease in RR and BRR designate gestation as an adaptive change.

Mid pregnancy decrease in FEVC and FIVC owing to

restrictive effect and at term adaptability brings back the values to normal as in controls. Mid pregnancy fall could not be explained physiologically. But values of FIVC in all four groups being lower than FEVC are feasibly due to resistance to inhaling humid warm air through mouth from spirometer and resistance offered by writing device against gravity on recording inspirograms.

TEVC and TIVC show overall decrease and increase respectively in parturient state but their ratio is almost constant during pregnancy specifying it a progressive adaptability

MEFR > MIFR in controls as expiratory efforts are optimal with expiration being a passive process. MIFR > MEFR in initial six months as restrictive elements as intrathoracic decrease in volume from mild to moderate extent and bronchodilatory action facilitates inspiratory efforts rather than expiratory efforts. Extra and intra thoracic restriction for inspiration and abdominal stretching restricting expiratory efforts also lead to same values of MIFR and MEFR with their ratio being one. Changes in MMEFR, MMIFR and their ratios are similar to MEFR and MIFR. Hence explanation given above holds valid for these parameters as well.

Breath-holding time for BHT and 40-mm ET significantly declines during pregnancy, decline being more in ET. Increase

pCO_2, increase alveolar pCO_2, decrease pO_2 and decrease pH initiate reflexes stimulating respiratory centers sensitized by progesterone compel subject to breath. This shows the integrity of respiratory system. The level of mercury raised in MET is low in pregnant subjects, is attribution of progesterone and relaxin reducing muscular tone. Discomfort due to pressure developed in middle ear while raising mercury level, morning sickness in early stage of pregnancy, mechanical alterations and muscular weakness lead to decrease in respiratory efficiency. Inspite of the reduced efficiency of respiratory system, the compensatory mechanisms operate to help in adaptation to pregnancy.

Hb decreases reducing oxygen carrying capacity that is compensated by increased HR to increase the cardiac output during pregnancy. This also fulfills the feto-maternal demands. Progressive growth of fetus and bodily demands put load over the heart and lungs causing increased blood pressure. Though increase of blood pressure within the normal range is a corrective strategy.

Glancing at the values of static and dynamic large and small airways and the related ratios of all the parameters, it can be said that restorative mechanisms function for adaptation to pregnancy. There is appearance of obstructive component along with mild restriction during early pregnancy as well as presence

of restrictive component of moderate to severe degree from mid to late pregnancy. This proves the formulated hypothesis was legitimate. Thus though pregnant women has apparent handicaps causing restrictive changes in respiratory apparatus the anatomical, physiological, hormonal changes compensate for them causing no discomfort to the pregnant women.

Besides understanding the physiology of lung function during pregnancy the study also provides a control as the background of which any respiratory problem that may appear during pregnancy can be evaluated with great precision.