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TESTOSTERONE – ITS ROLE ON SKIN, PIGMENTATION OF THE HAIR AND VITILIGO

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ABSTRACT
Injection testosterone was given in 30 persons, 55-67 yrs old for the treatment of sexual dissatisfaction with excellent results in most (75%) patients. It was unexpected chance finding that the grey hairs of most patients got pigmented. Six months after stopping the treatment with testosterone, the black hairs started turning grey. Also it is postulated that topical testosterone could be used for resistant vitiligo. It was observed that testosterone increases the turn over of the skin.

INTRODUCTION
Testosterone is one of the most important androgens. It's production starts in males in testes and in females in ovaries, and in both to a little extent in the adrenal cortex too. Testosterone is responsible for male phenotype development of muscular tissue, bone density and also fat and sugar metabolism. It has a big influence on the skin, hair and skin appendages. Testosterone increases sebum production and causes hair growth and hair loss in some parts of the body.[1]

Due to testosterone, male skin is 20% thicker then the females, but the former is more sensitive than the latter. It causes more retention of moisture and more collagen at all ages, but about injection skin it is not yet properly known if there is any difference.[2] On one hand the skin regenerates more quickly than females due to testosterone controlled higher cellular turn over, on the other hand the healing occurs more slowly in females with higher testosterone level.

The side effect of testosterone on hair will not be discussed here as it is beyond the scope of this article which is on the effect of pigmentation due to testosterone on experimental animals and humans.

Effect of testosterone on pigmentation in animals
Various investigators have been trying to know the hormonal control of melanogenesis on animals and humans for last 60 years. But it is still far from clear if male sex hormones have any role in melanogenesis with varying results. PG Bistchitz& Snell[3]investigated on the effect of testosterone on melanocytes and melanin in male guinea pigs using both skin and vertical sections from the nipple, ear , anterior abdominal wall and sole of the foot. The guinea pigs were given 2mg of testosterone propionate I/M once daily x 5 weeks and then killed by a blow on the back and biopsies taken from near by areas of pervious biopsies. In nut shell there was no significant results obtained. But in the same study there was increased amount of melanin one month after the testosterone treatment. To show, testosterone induces pigmentation on the skin were Hamilton and Hubert[4] while those who showed no effect in frogs were Wheleer, Cawbey and Curtis[5,13] Bischitiz[6][18] showed melanocytes of immature guinea pigs have a greater melanogenic activity . It is known that in human subjects the growth of benign and melagnant malanomas is accelerated at the time of puberty.[7,8] In all the groups of animals testosterone was found to stimulate melanogenesis in the sole of the foot.

Testosterone induced melanogenious in humans
MATERIAL AND METHODS
30 male non diabetic patients between the ages of 50-67 years of age were taken up for study. The routine investigations were within normal range except serum testosterone which range between 7 -20 ml gram %. Also those on ACE inhibitors or other drugs causing loss of erection were not taken up, so these patients were given injection a testosterone propionate 250ml once every 3 week and psa (prostatic antigen) was also done off and on. The study continued for about 2 years and nearly 75% patients had a good performance in coitus and were satisfied.

OBSERVATIONS
It was a chance finding in the study that the hair on both legs and thighs became thicker and the hair colour changed to black. The grey hair turned black. Since it

was an unexpected chance finding, no photographs were taken prior to treatment since the purpose of the study was different.

The hair on arms and hands turned black partially, the chest hair which was fully white turned fully black. After stopping treatment within six months the chest hair started getting grey. The above findings were noted in 60% of the patients. Scalp hair pigmentation could not be judge properly as many subjects used hair dye off and on.

DISCUSSION

As has been observed above, that means after more such studies injection testosterone could be used to avoid/ delay canities especially in people having dense hair or male patterned alopecia. Also testosterone cream could be tried in some resistant patches of vitligo. Since male skin turnover is higher due to higher testosterone level, could anti testosterone hormone be used for male older people of porasis vulgaris and also especially in females. In the 3 chance observations literature was scanned thoroughly, I think after more trials one could exploit the use of testosterone for above mentioned problem.

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