DETAILS OF THE RESEARCH WORK FOR WHICH SUN PHARMA AWARD IS CLAIMED – STATEMENT OF ACCOMPLISHMENTS

Mohammad Javed Ali, MD, PhD, FRCS.

HEAD

Govindram Seksaria Institute of Dacryology, LVPEI, Hyderabad.

Hong-Leong Professor, University of Singapore, Singapore.

Professor, Friedrich Alexander University, Nuremberg, Germany

Adjunct Associate Professor, University of Rochester, New York

Senior Von Humboldt Scientist, FAU, Nurnberg, Germany

Shanti Swarup Bhatnagar Laureate, Govt of India

STATEMENT OF SCIENTIFIC ACCOMPLISHMENTS

Research Citations

Google Scholar Research Citations for Prof. Mohammad Javed Ali (Age 45 years)

Total Citations till 5th July, 2022 -- 5486

h-index of the Researcher - 39

i-10 index of the Researcher - 162

Professor Mohammad Javed Ali pioneered in establishing 'Dacryology', the science tear drainage pathways, as a separate branch of medicine, integrating basic and clinical sciences together. His pioneering translational work has helped lakhs of people directly within India and abroad. The major impact of his fundamental work and surgical innovations has been in

understanding and managing numerous congenital and acquired disorders of the lacrimal pathways predominantly in pediatric populations and the progress of this science at both clinical and basic science levels with multiple innovations on both the sides. The tremendous efforts of the past five years have resulted in widespread recognition of these disorders and that they are much more common, and many people suffer from them than was earlier believed.

Prof. Javed Ali is the only Clinician-Scientist in India to solely practice Dacryology, the study of biology of tear ducts and treatment of its disorders. He is a surgeon of repute globally and a well appreciated senior Humboldtian scientist.

Let us begin from this year itself (2023), where he has now described a new surgical technique called NCR (nasolacrimal duct coronary stent recanalization), where for the first time he has deployed coronary stents into the distal half of the tear ducts to treat its disorders. This technique is now undergoing large clinical trials to establish its potential place to replace the more invasive DCR surgery. This paper is now published as follows.

Ali MJ. Nasolacrimal duct coronary stent recanalization (NCR): First cadaver experience and its potential as an alternative to DCR. Ophthalmic Plast Reconstr Surg 2023 [Epub].

He has described three new diseases of the lacrimal drainage pathways, named, and classified them and proposed diagnostic criteria and treatment modalities. All the three are published as follows:

1. **Ali MJ.** Idiopathic canalicular inflammatory disease: new disease description of clinical patterns, investigations, managements and outcomes. Ophthalmic Plast Reconstr Surg 2018 (Epub)
2. **Ali MJ**, Mohapatra S, Mulay K, Naik MN, Honavar SG. Incomplete punctal canalization: The external and internal punctal membranes. Outcomes of membranotomy and adjunctive procedures. *Br J Ophthalmol 2013*;97(1):92-95.

3. **Ali MJ,** Naik MN. Canalicular wall dysgenesis: the clinical profile of canalicular hypoplasia and aplasia, associated systemic and lacrimal anomalies, and clinical implications. *Ophthalmic Plast Reconstr Surg* 2013;29(6):464-468.

Prof. Javed Ali has also made path-breaking findings in the etiopathogenesis of a common old age disorder called “Punctal Stenosis”, for which he was globally recognized by the American society of Ophthalmic Plastics surgery (ASOPRS), with **MERILL-REEH Award**, for the most path-breaking work of year 2015. The relevant publication is the following:

1. Ali MJ, Mishra DK, Baig F, Lakshman M, Naik MN. Punctal stenosis: Histopathology, Immunology and Electron microscopic features- A step toward unraveling the mysterious etiopathogenesis. *Ophthalmic Plast Reconstr Surg* 2015;31(2):98-102.

Prof. Javed Ali with his German collaborators had made path-breaking anatomical and physiological findings of the Horner’s-Duverney muscle. Interestingly, it was Prof. Ali who initially proposed the change in the nomenclature of this human skeletal muscle, which was accepted in the medical literature. The newer anatomical and functional findings of this skeletal muscle has helped crack an age-old mystery of how the lacrimal pump works to propel the tears from the eyes into the nasal cavity. The relevant publication is as follows

1. **Ali MJ**, Zetzsche M, Scholz M, Hahn D, Gaffling S, Heichel J, Hammer CM, Brauer L, Paulsen F. New insights into the lacrimal pump. Ocul Surf 2020;S1542-0123(20)30120-8 (Epub).

Prof. Javed Ali also conducted molecular biology studies to determine the right concentration and dosage of the drug Mitomycin C in endoscopic lacrimal surgeries, which are now being followed across the globe. He also described a new technique of using the drug Mitomycin-C during endoscopic surgeries, a technique which he named as “COS-MMC”, which is now being used across the globe. The publications describing these details of this is as follows:

1. Ali MJ, Mariappan I, Maddileti S, Ali MH, Naik MN. Mitomycin-C in dacryocystorhinostomy: the search for the right concentration and duration- a fundamental study on human nasal mucosa fibroblasts. Ophthalmic Plast Reconstr Surg 2013;29(6):469-474.

2. Kamal S, **Ali MJ**, Naik MN. Circumostial injection of mitomycin C (COS-MMC) in external and endoscopic dacryocystorhinostomy: efficacy, safety profile and outcomes. Ophthalmic Plast Reconstr Surg 2014;30(2):187-190.

Prof. Javed Ali had the first intra-operative experience of path-breaking technology in lacrimal surgeries and was hence the first to establish guidelines for their use for the rest of the world. Those two major works are published as follows.

Ali MJ, Naik MN. First Intra-operative experience with three dimensional (3D) high-definition (HD) nasal endoscopy for lacrimal surgeries. Eur Arch Otorhinolaryngol 2017;274(5):2161-2164.

Ali MJ, Singh S, Naik MN. The usefulness of continuously variable view rigid endoscope in lacrimal surgeries: First intra-operative experience. Ophthalmic Plast Reconstr Surg 2016;32(6):477-480.

The major work in the last 5-years has been the discovery of surfactant proteins in the human lacrimal canaliculus, first demonstration of an intrinsic cholinergic system in the lacrimal sac and the first ultrastructural insights into the etiopathogenesis of dacryolithiasis (stone formations in the tear ducts). The relevant publications are as follows.

Ali MJ, Glockner M, Schicht M, Brauer L, Paulsen F. Detection of intrinsic cholinergic system in the human lacrimal drainage system: evidence and potential implications. Graefes Arch Clin Exp Ophthalmol 2018;256:2097-2102.

Ali MJ, Kumar NS, Brauer L, Paulsen F, Schicht M. Expression of surfactants in the human canaliculus: Evidence and potential insights into tear flow dynamics. Ophthalmic Plast Reconstr Surg 2018;34:594-597.

Ali MJ, Schicht M, Heichel J, Nadimpalli SK, Paulsen F. Graefes Arch Clin Exp Ophthalmol 2018;256:1313-1318.

In addition to these, Dr Javed Ali has two major textbooks published by Springer, Germany in lacrimal disorders. His textbook “Principles and Practice of Lacrimal Surgery” and the second major treatise “Atlas of Lacrimal Drainage Disorders” are the first of its kind and the only atlas on lacrimal disorders. These two major treatises are as follows:

1.Ali MJ. Principles and Practice of Lacrimal Surgery. 2nd Edition 2018. Springer Nature, Germany.

2. Ali MJ. Atlas of Lacrimal Drainage Disorders. 1st Edition. 2017. Springer Nature, Germany.

Besides, Prof. Ali has recently signed a third contract with Springer Publishers for an elaborate treatise – Surgical Atlas of Lacrimal Diseases - a series of video publications, which is in production. All these are reflection of his numero uno position on Dacryology at a global platform. This was recognized in 2019 by the Government of India by its highest scientific award – The Shanti Swarup Bhatnagar Prize for his path-breaking work in establishing and popularizing Dacryology as a separate subspecialty of medicine before 40 years of age.

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